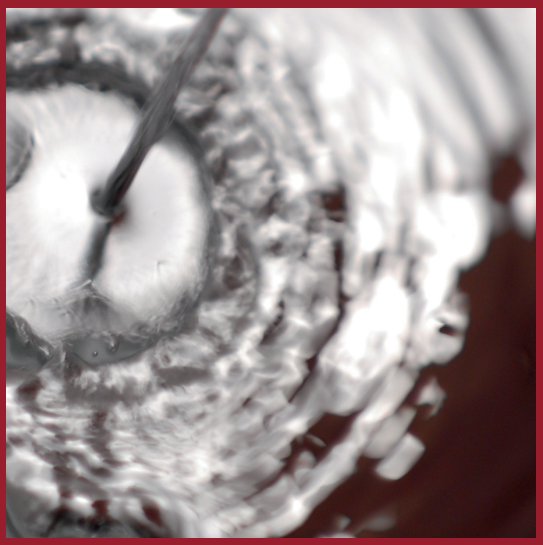
Heritage of Mercury

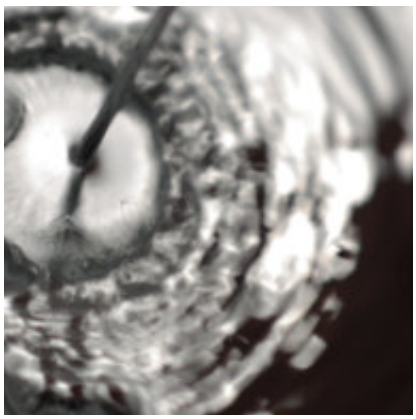




Almadén Idrija

Heritage of Mercury





Almadén Idrija

www.mcu.es
www.060.es



MINISTRY OF CULTURE

Published by:
© TECHNICAL GENERAL SECRETARIAT
Department General
of Publications, Information and Documentation

NIPO: 551-11-056-3

Contents

INTRODUCTION 11

EXECUTIVE SUMMARY 15

CHAPTER 1

1. Identification of the property 34
1. a. Country. 34
1. b. State, province or region: 34
1. c. Name of property 34
1. d. Geographical coordinates and areas of nominated properties and proposed buffer zones. 35
1. e. Maps 48

CHAPTER 2

2. Description 64
2. a. Description of property 64
(001) Almadén 64
(002) Idrija 115
2. b. History and development 176
2.b.1. Historic and geographic framework. 176
2.b.1.1. Science, Tecnology, Public Health, Knowledge 195
2.b.2. Specific historical background of Almadén 212
2.b.3 Specific historical background of Idrija 228
2.b.4. General Chronology 256

CHAPTER 3

3. Justification for Inscription 268
3. a. Criteria under which property is nominated 268
3. b. Statement of Outstanding Universal Value. 271
3. c. Comparative analysis 273
3. d. Integrity and /or Authenticity 290
(001) Almadén 292
(002) Idrija 298

CHAPTER 4

4. State of conservation and factors affecting the property 302
4. a. Present state of conservation 302
4. b. Factors affecting the property 326
(001) Almadén 326
(002) Idrija 338

CHAPTER 5

5. Protection and management of the property 349
(001) Almadén 350
5. a. Ownership 350
5. b. Protective designation 351
5.b.1. The legal protection of Almaden mining site. The mines, the historic urban area and the setting. 351
5.b.2. The national Legal Framework for the protection, conservation and management of cultural heritage in Spain. 355
5.b.3. The national system for the protection, management and control of cultural heritage in Spain. Distribution of competencies among the State and the Autonomous Communities. The role of Local Entities. Financial aspects. 355
5.b.4. The legal protection of cultural properties in Castile-La Mancha, the region in which Almadén is located. The main legal measures and an executive summary highlighting their key provisions 357

5. c. Means of implementing protective measures 365
5. d. Existing plans related to municipality and region in which the proposed property is located 368
(002) Idrija 379
5. a. Ownership 379
5. b. Protective designation 383
5. c. Means of implementing protective measures 387
5. d. Existing plans related to municipality and region in which the proposed property is located 388
5. e. Property management plan or other management system 393
(001) Almadén 395
– Pollution and its control in Almadén 399
– Environmental quality and management in Almadén 401
– Workers' environmental control plan in Almadén 402
– Research, information, public awarness, and international cooperation in Almadén 402
– The Mercury Technological National Centre of Almadén 403
(002) Idrija 423
– Pollution and its control in Idrija 424
– Environmental quality and management in Idrija 424
– Workers' environmental control plan in Idrija 429
– Research, information, public awarness, and international cooperation in Idrija 431
– Information and Research Centre for Mercury (IRC-Hg) 431
– Planned IRCHg activities 432
– International model for academic and scientific-technical collaboration 434
5. f. Sources and levels of finance 435
(001) Almadén 435
(002) Idrija 451
5. g. Sources of expertise and training in conservation and management techniques 453
(001) Almadén 453
(002) Idrija 467
5.h. Visitors facilities and statistics 468
(001) Almadén 468
(002) Idrija 482
5.i. Policies and programmes related to the presentation and promotion of the property 491
(001) Almadén 491
(002) Idrija 504
5. j. Staffing levels (professional, technical, maintenance) 506
(001) Almadén 506
(002) Idrija 508

CHAPTER 6

6. Monitoring 512
6. a. Key indicators for measuring state of conservation 516
6.b. Administrative arrangements for monitoring property 524
(001) Almadén 524
(002) Idrija 530
6.c. Results of previous reporting exercises 533
(001) Almadén 534
(002) Idrija 540

CHAPTER 7

7.a. Photographs, slides, image inventory and authorization table and other audiovisual materials 545
(001) Almadén 545
(002) Idrija 549
7. b. Texts relating to protective designation, copies of property management plans or documented management systems and extracts of other plans relevant to the property 552
Contents 552
(001) Almadén 557
7.b.1. Legal texts 557
7.b.2. Risk preparedness 638
7.b.3. Property management plans or documented management systems. 668
(002) Idrija 715
7.c. Form and date of most recent inventory records 804
(001) Almadén 804
(002) Idrija 804
7.d. Address where inventory, records and archives are held 806
(001) Almadén 806
(002) Idrija 808
7. e. Bibliography 810

CHAPTER 8

8. Contact information of responsible authorities 842
(001) Almadén 842
8.a. Preparer 842
8.b. Official Local Institution/Agency 846
8.c. Other Local Institutions 847
8.d. Official Web address 849
(002) Idrija 850
8.a. Preparer 850
8.b. Official Local Institution/Agency 852
8.c. Other Local Institutions 852
8.d. Official Web address 853

CHAPTER 9

9. Signatures on behalf of the States Parties 857

Heritage of Mercury. Almadén and Idrija

Introduction

This serial nomination is specifically related to mining and industrial activities that had an evident worldwide impact on the moulding of cultures, economy and social changes, mainly on both sides of the Atlantic and which are without a doubt insufficiently represented on the World Heritage List.

Now that mercury mining exploitation in the European Union belongs to past, the studies carried out by different specialists over the course of many years have revealed the need to disseminate the value and protect the heritage resulting from historic mercury mining in the world's largest natural deposits from where this liquid metal has been obtained as a substantial part of the memory of mankind.

The mining sites of Almadén (Spain) and Idrija (Slovenia) have produced a great part of the mercury existing at a world scale, representing in a comparative way the highest level of production obtained from mines of this nature. They are presented as components of a serial property of a transnational nature, since they are the most eminent representatives of the meaning and transcendence of mercury mining and related technology and industry in the world.

As it is explained in this presentation, from the standpoint of civil engineering, the mining sites constituting this serial nomination have been the paradigm of mercury mines throughout history, thanks to the technical and construction systems used and the historical meaning and transcendence of the phenomenon that arose from the introduction of the mercury-based metal refining system in America in 1555.

Both mines complemented each other in sending mercury around the world, and mainly to America which gave path to outstanding economic, social and cultural changes in this continent and in Europe, and in the development of science and technology, as witnessed by the exchange of know-how and equipment. The legacy of the historical heritage in these locations comprises a variety of common and inter complementary assets that demonstrate how closely interlinked have been as a result of their outstanding interactive historic function. Both sites made use and retain unique collections of material expressions of all the processes, methods, techniques and physical components for the production of mercury ever used in the history.





The mines at Almadén and Idrija also represent exceptional examples of human interaction with the environment that has now become vulnerable through the closure of the mines, following the restrictive policy in place with regard to mercury. At the same time, they demonstrate how mining activities gave rise to particular cultural expressions and determined specific intangible and unique characteristics whose main value is the conservation of the spirit of the site as manifested by the community's commitment to its history.

Both components of this serial nomination meet the necessary requirements since they belong to the same historic-cultural group with respect to their long historic, cultural and functional interactive links, and also because they have also been characteristic mining sites of the vast geographical zone where mercury was an essential driving force for economic development and the promotion of reciprocal cultural influences at an intercontinental level.

Therefore, this serial nomination is based on its relevance because of the historic-social, technological, building of specific mining engineering, artistic-architectural and territorial values calling for the upkeep of their essential qualities leading to a proper understanding of their past function as concerns mining technology, architecture and lifestyles associated with these peculiar manifestations of human genius applied to the extraction and processing of minerals.

Both mining sites should continue serving history, not by means of mercury production but doing instead research for mitigation of damages and fostering development of their inherent scientific culture so that new generations may know what has been given to mankind through mercury heritage and what can still be expected from it.

Executive Summary

State Party:				**Spain, Slovenia**			
State, Province or Region:				Spain: Comunidad Autónoma de Castilla La Mancha. Provincia de Ciudad Real.			
				Slovenia: Slovenia			
Name of Property:				Heritage of Mercury. Almadén and Idrija			
Geographical coordinates to the nearest second:							
Site element No.	Name	State, Province or Region	Location or Municipality	Coordinates of Centre point	Area of nominated property (ha)	Buffer zone (ha)	Map Annex
001	Almadén	Spain, Comunidad Autónoma de Castilla La Mancha. Provincia de Ciudad Real.	Almadén	38° 46' 20" N, 4° 49' 25" W	49,67	1117	001 002
002	Idrija	Slovenia	Idrija		54,44	563,60	002 pregled_kpl.pdf
	1 Idrija – Old Town			46° 00' 08" N, 14° 01' 39" E	47,33	563,60	002 core_1.pdf
	2 Idrija – Smelting Plant			46° 00' 26" N, 14° 02' 07" E	0,6		002 core_2.pdf
	3a Idrija – Kamšt water pump with the Rake water channel and Kobila dam			45° 59' 56" N, 14° 02' 14" E,	1,33		002 core_3.pdf
	3b Idrija – Joseph's Shaft			45° 59' 55" N, 14° 02' 12" E	0,28		
	4 Gorenja Kanomlja - Kanomlja or Ovčjak Water Barrier			46° 01' 04" N, 13° 56' 22" E	0,71	none	002 core_4.pdf
	5 Vojsko – Idrijca Water Barrier			46° 00' 10" N, 13° 55' 12" E	1,21	none	002 core_5.pdf
	6 Idrijska Bela – Putrih's Water Barrier on the Belca creek			45° 58' 34" N, 13° 56' 01" E	0,49	none	002 core_6.pdf
	7 Idrijska Bela – Belca Water Barrier on the Belca creek (or Brus's Water Barrier)			45° 58' 13" N, 13° 57' 08" E	2,49	none	002 core_7.pdf
				TOTAL	104,11	1680,60	

Textual description of the boundaries of the nominated property

(001) ALMADÉN	**Polygon** We shall start this description by taking as our reference the square "Plaza de la Constitución" in Almadén, tracing the route in a clockwise direction (from left to right). The polygon that circumscribes the area of the nominated component of the series in Almadén starts at the main façade of the church "Iglesia de San Juan", located on the square "Plaza de la Constitución". It then follows in the direction of the start of the street "Calle Cervantes" (located on the left side of the aforementioned square), where it turns left and runs along "Calle Jacinto Benavente" (known as "Las Gradillas"). At the intersection of this latter street and Calle Saúco, the polygon turns, continuing along the latter street as far as the junction with Calle de los Mineros and Calle de las Casas de Florido. It runs to the end of Calle de las Casas de Florido and continues as far as the crossing with the avenue Avenida de la Libertad in the north section (national road between Córdoba and Ávila), in a section that is just 100 metres long. When it gets that far, the polygon practically leaves behind the urban area of Almadén and continues to skirt the grounds of what is known in Almadén as the "Mina del Pozo" mine, until it again comes to the National Córdoba-Ávila road and the slag heaps of Minas de Almadén y Arrayanes, S.A. For 800 metres, the polygon skirts the southern face of the slag heaps and parallel to the aforementioned road, until it comes to the Arroyo Azogado (sulphur stream) where it leaves the road and turns right, running parallel to the aforementioned stream along its course northwards for 200 metres. From that point onwards, the polygon runs parallel to the slag heaps on the western side for approximately 1,500 metres on the northern face, until it arrives at Camino del Portijuelo, where it turns left to skirt the former Huerta del Rey slag heaps (16th century) for 400 metres, meeting the Arroyo Azogado again higher up until it meets the intersection with Avenida del Norte. From this point of intersection, the polygon continues along the commons on Calle de San Sebastián and Calle Mayor de San Juan, closing at the first house on Calle Mayor de San Juan on the left side, which is on a corner to the church "Iglesia de San Juan".

(001) ALMADÉN	**Buffer zone** The buffer zone proposal is based on the criterion of protecting the site and because it for the most part corresponds to a territory that is already legally protected, it is an additional mechanism for guaranteeing conservation. The buffer zone is a territory in the municipality of Almadén, delimited on the north by elevations and rural lanes and, east of the mines, by the limits of the town itself. The buffer zone on the west and south coincides at its limits with those of the Special Bird Protection Zone (ZEPA). *Polygon of the Buffer Zone:* We shall start this description by taking as our reference the northern face of the water supplies building in Almadén, tracing the route in an anti-clockwise direction (from right to left). The polygon that circumscribes the area of the buffer zone in Almadén starts at the northern façade of the water supplies building in Almadén, which corresponds to the line of the mountain range known by the name "Sierra de Cuarcita de Canteras". The route continues along the aforementioned line for 2.5 kilometres, as far as Cerro de Santa Brígida. From there, it goes along Camino del Atajo until it comes to the place known as "La Venta", from where the polygon skirts the foothills of the northern part of the Sierra de la Virgen del Castillo until it meets the county road CR-4143-P. From there and for 3 kilometres, the line of the polygon skirts the foothills of the southern part of the Sierra de la Virgen del Castillo, until it meets the N-502 Córdoba-Ávila road at kilometre 314.500, at the point known as "Fuente del Chorrito". From there, the route runs 3 kilometres along the foothills of the southern part of the Sierra de Cordoneros until it reaches the southern part of the road known as Camino de Puerto Palacio, from where it goes upwards as far as the pass itself, coming down Camino de Puerto Palacio on the northern section as far as the junction with Camino de Puerto Revuelo. On this road, the polygon runs for 150 metres and then drops down the wall of an enclosure for 1,500 metres as far as the line of the Sierra de Cuarcita de Canteras, where it again turns westwards and runs 1,000 metres as far as the intersection with the Regional Road CM-415 where it departs from Almadén. The polygon is closed from this point by the main façade of the house of the Board of Management of the Almadén Mines, passing the regional road CM-4200 and the northern part of the "Ermita de la Vigen de Fátima" chapel and ending at the façade of the Almadén water supplies building.

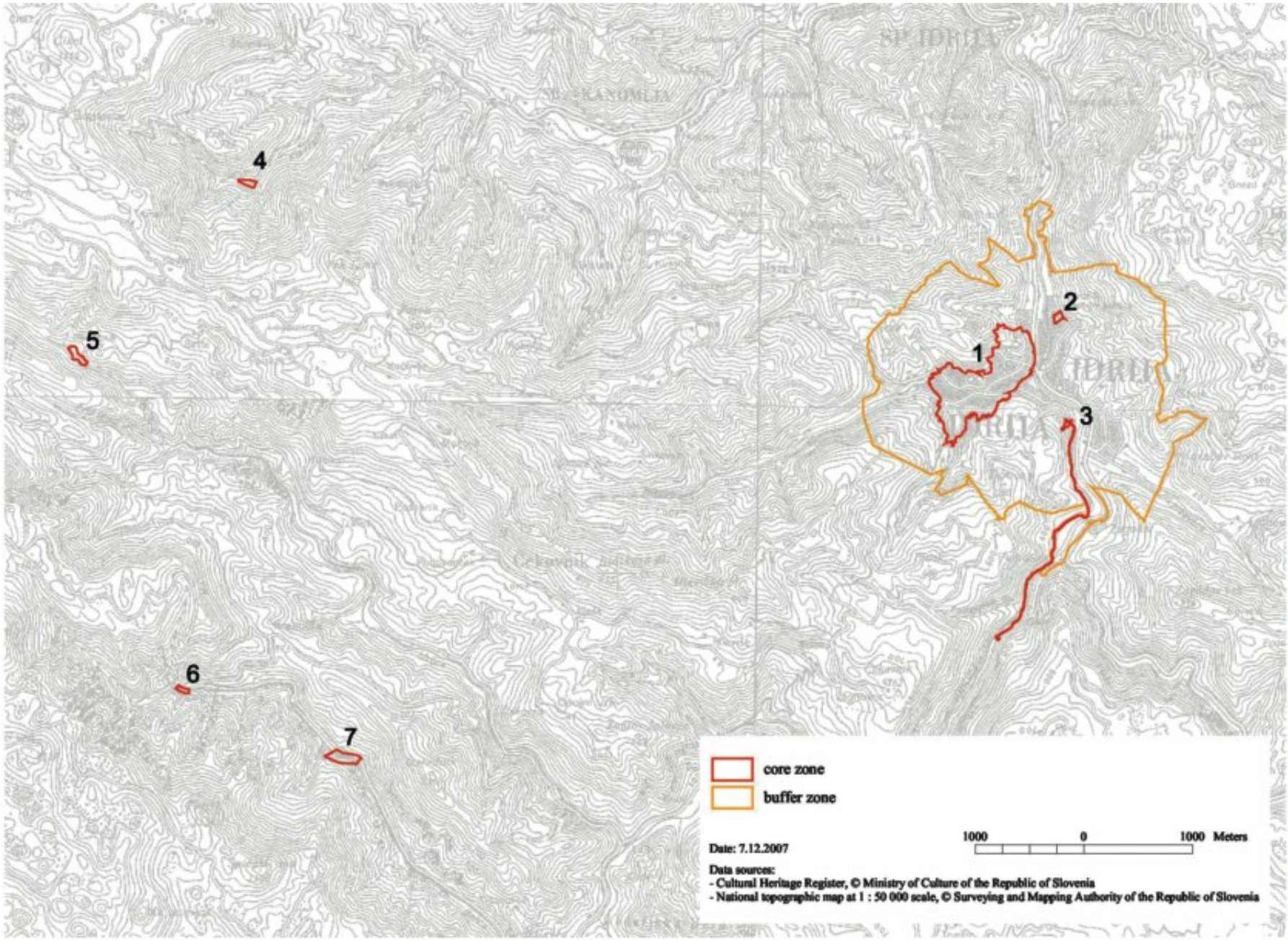
(001) ALMADÉN	**The nominated site includes:** The territory of the mines at Almadén that comprises elements of different types and scales including geological, geographical and geomorphologic aspects, landscapes, paths, the mines, other engineering works and the historic town centre of Almadén. The area proposed for inclusion comprises the following assets: • The Mine at Almadén with all the components corresponding to the mine itself, the tunnels and shafts, the ore and metal processing areas, workshops, tips and administrative and social buildings. • The original first stretch of the historic road used to transport the mercury to Seville, from the mine's King Charles IV Gate up to its current connection with a modern roadway. • Almadén's historic town centre, from the mine to the Plaza de la Constitución square together with Castillo de Retamar and those buildings in the surroundings that are linked with the mines. • High-value elements outside the historic town centre and the limits of the ensemble proposed, but within the buffer zone: Archaeological remains of the Royal Forced Labor Gaol, the Saint Raphael Royal Miners' Hospital, and the Bullring.

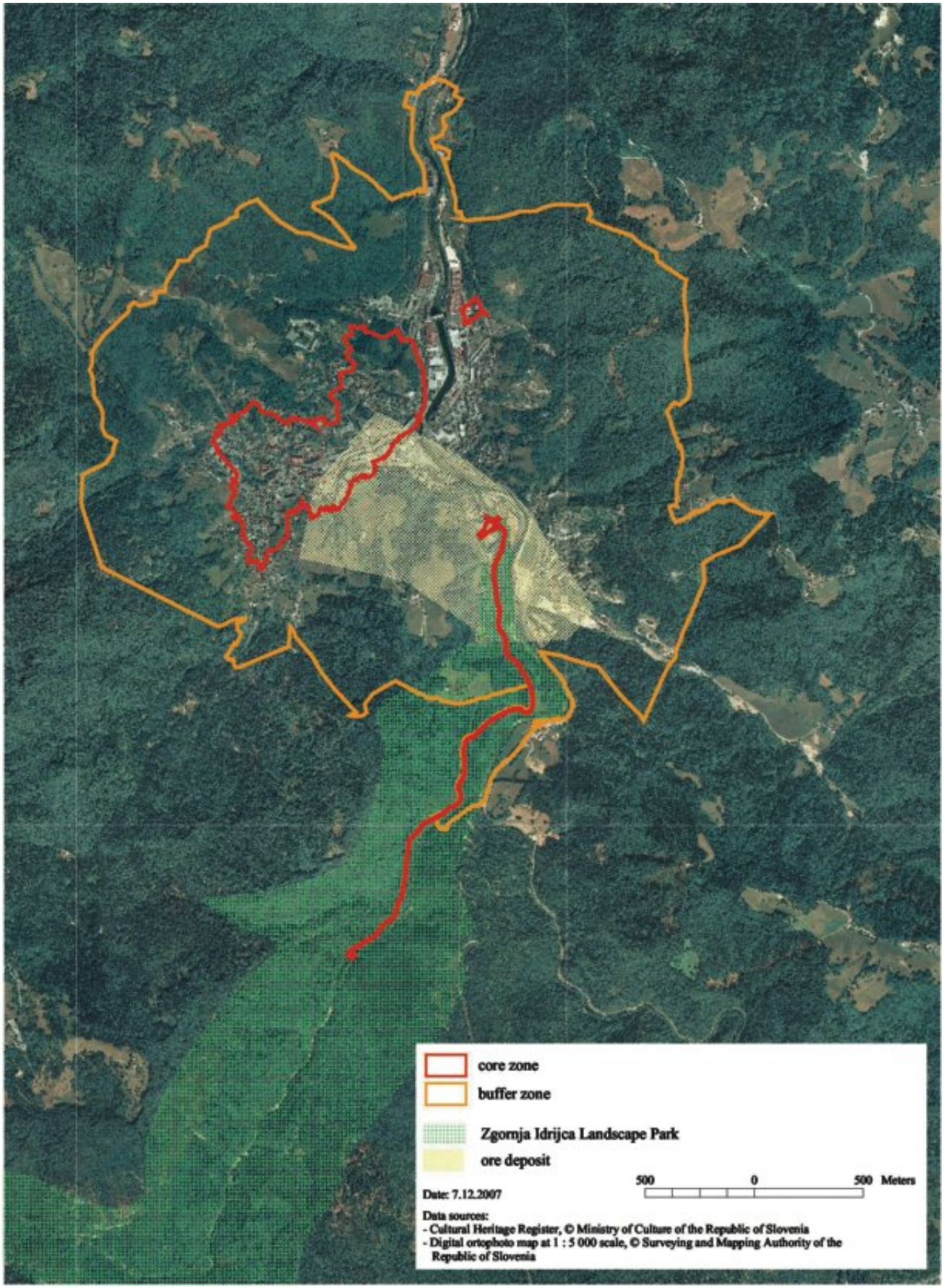
(002) IDRIJA	**The nominated site includes:** • The area of the mine: ore deposit, shafts, tunnels, entrances, administrative and other buildings, smelting plant, water pumps, machinery and equipment; • The roads in Idrija, which linked the mine and the facilities to process the ore with the warehouse and the starting point of the trade route; • Beginnings of various trade routes which were used in various periods to transport mercury from Idrija to the world; • The old town of Idrija which reflects the way of life of miners 'families and includes buildings such as: theatre, warehouse, city hall, old town square, secondary school for natural sciences, Gewerkenegg Castle, miners' houses etc.; • The water barriers (klavže), located on rivers in the surrounding woods and the nearby watercourses of Idrijca, Belca and Kanomljica. The main part/element of the protected site presents the central area of the immovable cultural monument and encompasses the historically-defined boundaries of the town centre (Core Zone 1). It saw the construction of individual buildings, streets and extensive city spaces throughout the mine's 500 years of history. In the Core Zone 2 the Smelting Plant is located. Core Zone 3 encopasses the Kamšt water pump with the Raka water channel and Kobila dam (Core Zone 3a), together with one of the historic entrances to the mine – the Joseph's Shaft (Core Zone 3b). The historical and spatial context of the area also includes four klavže water barriers (Core Zone 4, Core Zone 5, Core Zone 6 and Core Zone 7). They are located quite far from the central part of the core zone but present an integral and inseparable part of the mining activities throughout centuries. Their function of gathering and floating the wood meant they had to be constructed in the narrow gorges of the creeks that flow in the direction of the town of Idrija. The area of each klavže water barrier includes only the space filled by water trapped behind the barrier. The contour line of the water surface in a full reservoir behind the water barrier is the border of the protected zone. The additional buffer zone is not necessary as each klavže water barrier is surrounded by steep slopes and deep woods. **Buffer zone:** The Buffer Zone encompasses the observable surroundings of the Core Zone 1, Core Zone 2 and Core Zone 3. It includes all the backdrops of the mine, the mine facilities and the old town as seen by the people in viewing the cultural and technical heritage and monuments in Idrija. The boundaries bear in mind the structure of land plots and subsequently land registry delineation. It reaches to the top of the hills and points to the contrast between the urbanized space and its green surroundings. The Buffer Zone thus includes the majority of the monuments of national importance in the vicinity of the mine and the beginnings of all roads used to transport the mercury out of the town to places around Europe and the world.

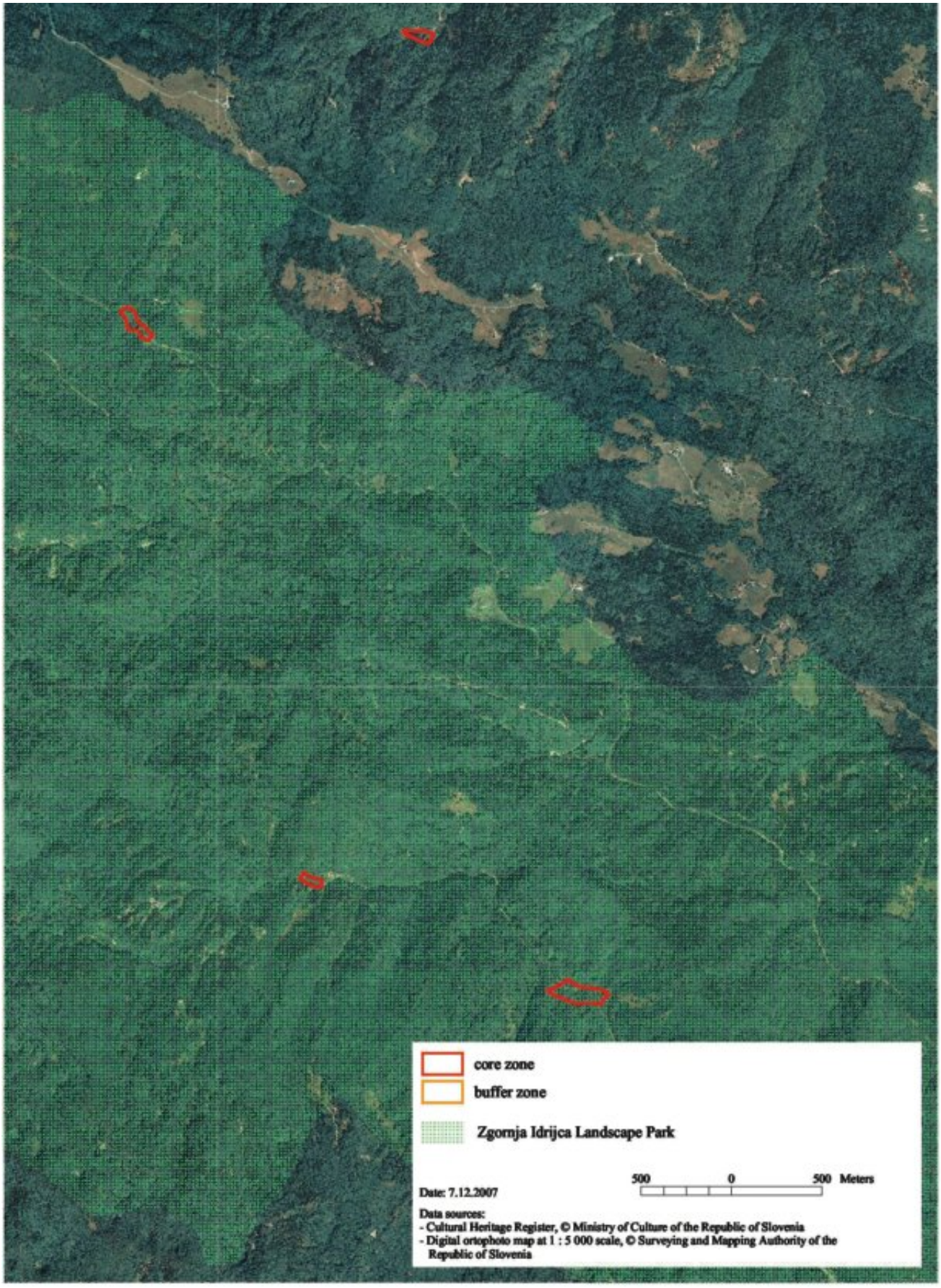
List of maps

Site element No.	Name	Map No.	Contents
001	Almadén	001 002	Boundaries of the nominated site and the buffer zone
002	Idrija	002 pregled_ kpl.pdf	Boundaries of the nominated site and the buffer zone
	Idrija – eastern part	002 pregled_1. pdf	The Core Zone 1 (The Old Town of Idrija), Core Zone 2 (Smelting Plant) and Core Zone 3 (Kamšt water pump with Rake water channell and Kobila dam) with the Buffer Zone of the nominated asset.
	Idrija – western part	002 pregled_2. pdf	The Core Zone 4, Core Zone 5, Core Zone 6 and Core Zone 7 (The Klavže water barriers) of the nominated asset.


343.000
4.295.000
N
O
E
S
CORE ZONE
BUFFER ZONE
HISTORIC SECTION OF THE ROAD
MODERN ROADWAY
336.750
4.291.000
ALMADEN. CORE AND BUFFER ZONES
DATE: 10 December, 2007
SOURCE:
POLYTECHNIC UNIVERSITY
SCHOOL OF ALMADEN (E.U.P.A)
SCALE:
1:16.000
NUMBER:
2


1
2
3
4
5
6
7
core zone
buffer zone
1000 0 1000 Meters
Date: 7.12.2007
Data sources:
- Cultural Heritage Register, © Ministry of Culture of the Republic of Slovenia
- National topographic map at 1 : 50 000 scale, © Surveying and Mapping Authority of the Republic of Slovenia


core zone
buffer zone
Zgornja Idrijca Landscape Park
ore deposit
500 0 500 Meters
Date: 7.12.2007
Data sources:
- Cultural Heritage Register, © Ministry of Culture of the Republic of Slovenia
- Digital ortophoto map at 1 : 5 000 scale, © Surveying and Mapping Authority of the Republic of Slovenia


core zone
buffer zone
Zgornja Idrijca Landscape Park
500 0 500 Meters
Date: 7.12.2007
Data sources:
- Cultural Heritage Register, © Ministry of Culture of the Republic of Slovenia
- Digital ortophoto map at 1 : 5 000 scale, © Surveying and Mapping Authority of the Republic of Slovenia

Justification. Statement of Outstanding Universal Value.

It is the processes of history that truly give significance to places or monuments, the historic fabric that gave rise to the interconnection of this serial nomination. Individual peculiarities in terms of age or size are not the only significant factors for the recognition of universal value. Those series of world-wide scope have been the axes of history and, as such, they have their own significance.

Mercury is a metallic element that has certain particularities of interest for man. It is the only heavy metal that is a liquid at room temperature, and its most common ore, cinnabar (HgS) is bright red in color, a color that was highly prized in remote times for personal adornment. On the other hand, both mercury and most of its compounds are toxic substances, and some of them cause serious human health disorders (particularly in the nervous system). This led to a progressive reduction in the industrial uses of mercury and to the European Union having established the year 2011 as the date from commerce of this metal will be banned within the community setting.

Mercury is already a thing of the past and, therefore, it is not just a matter of preserving vestiges of history or even of an evolving past. It is a matter of putting into relief something that will have to be preserved as universal heritage from the very moment at which its era came to an end.

The serial nomination includes as distinctive feature its historical links and common integration in a historic framework. Furthermore, it is a group of mining and industrial assets that are without a doubt not represented and, in addition, have an evident impact on the molding of cultures on both sides of the Atlantic.

The importance of history and its processes is highlighted. It shows an advanced scientific approach to history, thus giving an outstanding universal value to this series that serves to exemplify the significance of mercury.

This serial nomination contains such exceptional cultural values from the standpoints of history, science and technology that its significance transcends the borders of countries and becomes of universal importance, both for the present generation and for those to come.

These values are as follows:

- They are key elements articulating a process lasting for centuries and linking several parts of the world. This process made a significant contribution to the shaping of cultures on both sides of the Atlantic. This cultural fertilization was bilateral, as there were exchanges in both directions, thus adding value to all of them as part of the historic process mentioned above.

- These exchanges were mainly scientific, technical and technological, and they provide evidence of, significant moments in the history of humankind.

- With respect to their uniqueness, the mines at Almadén and Idrija are the world's most important natural deposits of their kind, as well as the most significant accumulations of technology in the production of mercury in the history of humankind. This is evident from the production volume achieved – the greatest in history – and also from the material evidence that has been maintained there in an exceptional degree.

- On the other hand, it can be said that, regardless of its uniqueness, Almadén and Idrija are the world's most representative example of historic mining sites producing mercury, as these sites made use and retain material expressions of all the processes, methods, techniques and physical components for the production of mercury ever used.

- The sites proposed served as main points during the centuries of mining for mercury. Their trade, know-how, money and culture joined nations and influenced the changes and developments on a global scale.

- The components of this serial nomination provide a lesson in the evolution, over centuries, of the scientific, technological and technical methods and procedures directly linked with the production and distribution of mercury. At the same time, they demonstrate how mining activities gave rise to particular cultural expressions and determined specific intangible and unique characteristics whose main value is the conservation of the spirit of place as manifested by the community's commitment to its history.

- They are unique examples of the man's relationship with his surroundings over centuries. The very mining, itself a predatory activity, developed a kind of stratification through history that we can now view today as a catalogue of variants and alternatives of this relationship with the environment. But at the same time, the functional relation between the towns and mines clearly shows the physical integration between both.

- The components of this serial nomination are characterized by a high degree of integrity and authenticity, derived in part from the communities' awareness of their great significance, from their roots and a sense of ownership, as evidenced by the quality of the handling of heritage, based on a commitment with culture.

Criteria under which property is nominated

(ii) exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design.

The exchange of influences is evident on the heritage created by the production, transportation and use of mercury along history. These influences are scientific, technical and technological, linked to the production of mercury but also to other issues related to mining activity. The very use of mercury in the amalgamation process is noteworthy as it generated an extraordinary and prolonged dispatch of metal from Europe to America, and, for example, technological contributions such as Bartolomé de Medina's method and aludel furnaces that went from America to Europe by the same channel through which the reciprocal cultural influences have flowed.

The wholesale mining production of precious metals began on the American continent with the arrival of Europeans and the establishment of the Spanish Empire in America. Large-scale silver production in America required the application of technologies capable of responding to this demand. One of the most significant contributions to metalworking in America and the technology that allowed massive production of silver was the application of amalgamation to metal refining.

It should also be emphasized that amalgamation was the driving force that changed the mentality of society of that time, first in the American viceroyalties – where it drove the foundation of new settlements– and later in the areas of Europe where there was a tradition of mining and metalworking.

During its history, mercury mining brought nations closer and influenced global changes and development through trading, know-how, economy and culture.

The creation of academies, the promotion of studies abroad by scholars in different countries of Europe and the importation of foreign scientists enabled the construction of scientific and technical community, which, although incipient, showed its ability to work under difficult conditions in both Europe and the American territories.

There are influences in terms of the means and system used for transportation, with a noteworthy contribution from ship building on both sides of the Atlantic. Other influences can be seen in architecture, formal patterns in cities, the immaterial heritage and in technological exchanges.

The transmittable and exportable nature of the mercury mining knowledge would last even after the end of the Spanish dominion in America. Mining cities show generic urban features that clearly distinguish them from other types of cities, such as defining the boundaries between urban and rural areas and the internal structure of the mining establishments.

The development of mining is not an isolated and exclusively technical element, but a whole, a way of giving form to the different elements making up the environment of the mine, ranging from the way of working to way of living of its inhabitants. The model had such value that it was exported to other locations virtually unchanged, as can be seen on the other side of the Atlantic.

There is clear material evidence at both sites of the exchange between Almadén and Idrija and with other parts of the world. This includes: the mineworks, Bustamante's furnaces, Čermak-Špirek's furnaces and other elements. The urban morphology is noteworthy in this sense and even specific functional and technical-formal traits of the civil engineering and architecture.

The importance of both sites has been historically recognized and tribute has been paid, even to the extent of naming two mining settlements in the United States New Idria and New Almaden respectively. Hereby it was not the origins of the founders that were honoured, but rather the discovery of deposits by means of which it was hoped to emulate the most important in the world.

(iv) be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history;

The mines at Almadén and Idrija are the world's largest natural deposits of their kind, as well as the most significant collections of technology related with mercury production and therefore the most representative of this industry in the history of mankind. From the standpoint of civil engineering, they have been the paradigm of a mercury mine throughout history, thanks to the construction systems used. Both mines complemented each other in sending mercury to America and in the development of science and technology, as witnessed by the exchange of know-how and equipment.

Innovations and technical or technological contributions have occurred in both assets throughout history, that is to say, there is not only an illustration of their evolution but the very elements comprised in mining production enshrine value in themselves, as they have been the fruit of innovative discoveries and solutions allowing the satisfaction of the growing needs of production or improvements in working conditions.

This latter aspect made it possible to open up the range of contributions not only to the direct production of mercury but to the development of systems and building methods and, in general, for the execution of works and also planning.

Technological development is shown not only in the mines, but also in the work carried out by miners, and mining engineers and architects that contributed to shaping the mining territory and also the urban appearance of the towns, with emblematic and singular buildings, demonstrating the complete technical training possessed by professionals of that time and their skillful use of materials, spaces and forms of use.

The development of mining is not an isolated and exclusively technical element, but a whole, a way of giving form to the different elements making up the environment of the mine, ranging from the way of working to way of living of its inhabitants. The model had such value that it was exported to other locations virtually unchanged, as can be seen on the other side of the Atlantic.

(v) be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment specially when it has become vulnerable under the impact of irreversible change;

The geological specificity that gave rise to the mercury deposits and their subsequent use in silver production means that the mines at Almadén and Idrija represent exceptional examples of human interaction with the environment that has now become vulnerable through the closure of the mines, following the restrictive policy in place with regard to mercury.

Together with other material aspects, these mines developed a very special and significant inmaterial culture, the culture of mining, and in particular that of mercury production. In general, the hard life of miners has throughout history produced certain manifestations of a culture with characteristic features.

One particular case is all of the culture, of extraordinary dramatic impact, developed in connection with the work of the mine's forced labour in Almadén. In the case of the Idrija mine, although it did not have the characteristics of forced labour, it does coincide with the othe case in that the culture responded to the harshness of mining life and as regards the resources that were developed by the population to transform their lives in a triumph over adversity.

In both cases, the intangible culture and craftwork (Idrija and Almadén lace, music, choir-singing and artistic manifestations) were largely the direct product of the work of the miners' family-members or tributes to their daily heroism and therefore symbols.

This serial nomination provides physical evidence of both the development of science and technology and also the spread of preventive medicine and health-care provision, all of which are supported by the work carried out in the fields of interpretation and display for museum purposes. In Almadén and Idrija, the mines and their installations are more than enough to show the evolution of science and technology in the fields of geology, mineralogy and metallurgy, as well as in civil and mechanical engineering applied to mining. In both locations, there was notable development in education at all levels, largely as a result of the development of civilian values based on historical example.

Name and contact information of official local institution/agency

001 Almadén

MUNICIPALITY OF ALMADEN

Emilio García Guisado
Mayor
alcaldia@ayto- almaden.com

Miguel Oviedo Segador
Head of the Department of Culture.
miguel.oviedo@almaden.es

Ismael Mansilla Muñoz
Head of the Urban Planning Department
Ismael.mansilla@ayuntamiento.es

Julia Cano
Head of the Tourism Department
mjulia.cano@almaden.es

REGIONAL GOVERNMENT OF CASTILE-LA MANCHA

Luis Martínez García
Director General of Cultural Heritage
lmartinez@jccm.es

---

002 Idrija

MUNICIPALITY OF IDRIJA
Address: Mestni trg 1, 5280 Idrija
Tel: + 386 –5–37-34-500
Fax: + 386 –5–37-34-531
E-mail: obcina.idrija@idrija.si
Web address: http://www.idrija.si

Bojan Sever
Mayor
bojan.sever@idrija.si

Maja Majnik
Head of the Social Affairs Department
maja.majnik@idrija.si

Mojca Remškar Planinc
Head of the Spatial Planning and Environment Protection Department
mojca.planinc@idrija.si

Chapter 1

Identification of the Property





1. a. COUNTRY.

Spain, Slovenia.

1. b. STATE, PROVINCE OR REGION

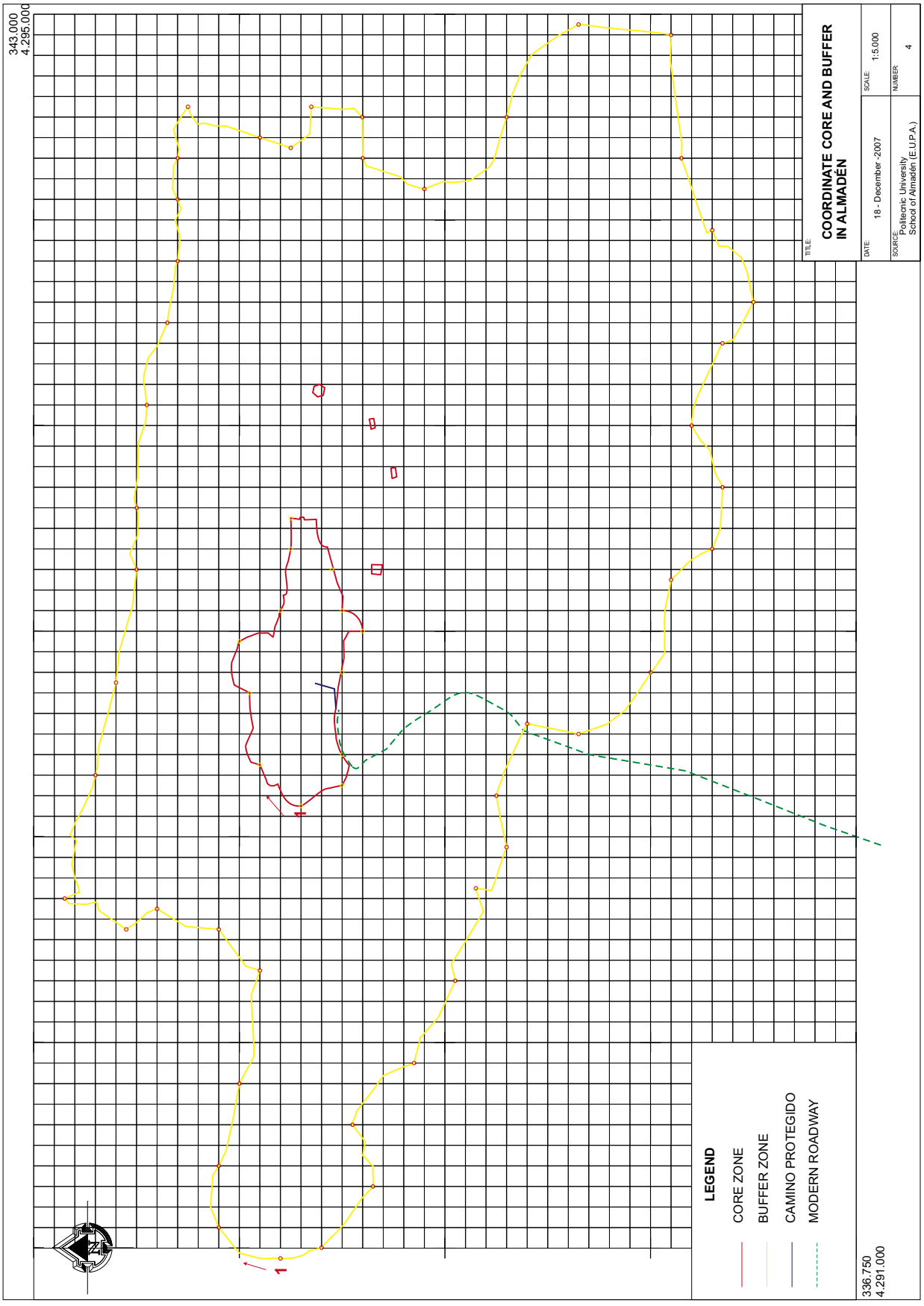
Country	State, Province or Region
Spain	Comunidad Autónoma de Castilla-La Mancha. Provincia de Ciudad Real.
Slovenia	Slovenia

1. c. NAME OF PROPERTY

Heritage of Mercury. Almadén and Idrija.

1. d. GEOGRAPHICAL COORDINATES AND AREAS OF NOMINATED PROPERTY AND PROPOSED BUFFER ZONE

Compo-nent part No.	Name	State, Province or Region	Location or Municipal-ity	Coordinates of Centre point	Area of property (ha)	Buffer zone (ha)	Map Annex
001	Almadén	Spain, Comunidad Autónoma de Castilla La Mancha. Provincia de Ciudad Real.	Almadén	38° 46' 20" N, 4° 49' 25" W	49,67	1117	001 002
002	Idrija	Slovenia.	Idrija		54,44	563,60	002 pregled_kpl.pdf
	1 Idrija – Old Town			46° 00' 08" N, 14° 01' 39" E	47,33	563,60	002 core_1.pdf
	2 Idrija – Smelting Plant			46° 00' 26" N, 14° 02' 07" E	0,6		002 core_2.pdf
	3a Idrija – Kamšt water pump with the Rake water channel and Kobila dam			45° 59' 56" N, 14° 02' 14" E,	1,33		002 core_3.pdf
	3b Idrija – Joseph's Shaft			45° 59' 55" N, 14° 02' 12" E	0,28		
	4 Gorenja Kanomlja - Kanomlja or Ovčjak Water Barrier			46° 01' 04" N, 13° 56' 22" E	0,71	none	002 core_4.pdf
	5 Vojsko – Idrijca Water Barrier			46° 00' 10" N, 13° 55' 12" E	1,21	none	002 core_5.pdf
	6 Idrijska Bela – Putrih's Water Barrier on the Belca creek			45° 58' 34" N, 13° 56' 01" E	0,49	none	002 core_6.pdf
	7 Idrijska Bela – Belca Water Barrier on the Belca creek (or Brus's Water Barrier)			45° 58' 13" N, 13° 57' 08" E	2,49	None	002 core_7.pdf
				TOTAL	**104,11**	**1680,60**	



001 004 DELINEATION OF BOUNDARIES.

CADASTRAL PLOTS

(001) Almadén

Delineation of boundaries

Polygonal plots

POINT	X	Y
1	339.150	4.293.700
2	339.350	4.293.900
3	339.700	4.294.000
4	339.950	4.294.000
5	339.950	4.293.850
6	340.100	4.293.800
7	340.400	4.293.750
8	340.550	4.293.750
9	340.550	4.293.650
10	340.300	4.293.550
11	340.100	4.293.500
12	340.000	4.293.400
13	339.800	4.293.500
14	339.400	4.293.500
15	339.250	4.293.500

Buffer Zone. Polygonal plots

POINT	X	Y
1	336.950	4.293.800
2	337.100	4.294.100
3	337.400	4.294.100
4	337.800	4.294.000
5	338.350	4.293.900
6	338.550	4.294.100
7	338.650	4.294.400
8	338.550	4.294.550
9	338.700	4.294.850
10	339.300	4.294.700
11	339.750	4.294.600
12	340.300	4.294.500
13	341.100	4.294.450
14	341.800	4.294.300
15	342.550	4.294.250
16	342.350	4.293.750
17	342.550	4.293.650
18	342.500	4.293.400
19	342.300	4.293.400
20	342.150	4.293.100
21	342.500	4.292.700
22	342.950	4.292.350
23	342.900	4.291.900
24	342.300	4.291.850

POINT	X	Y
25	341.950	4.291.700
26	341.600	4.291.500
27	341.000	4.291.800
28	340.700	4.291.650
29	340.250	4.291.900
30	339.800	4.292.000
31	339.500	4.292.350
32	339.550	4.292.600
33	339.200	4.292.750
34	338.950	4.292.700
35	338.750	4.292.850
36	338.300	4.292.950
37	337.900	4.293.150
38	337.600	4.293.450
39	337.300	4.293.350
40	337.000	4.293.600

(002) Idrija

Polygonal plots

Cadastral plots in the Core Zone 1 (Idrija – Old Town), Core Zone 2 (Idrija – Smelting Plant), Core Zone 3a (Idrija – Kamšt water pump with the Rake water channel and Kobila dam) and Core Zone 3b (Idrija – Joseph's Shaft)

Cadastral municipality of IDRIJA - MESTO:

1075 (part of the plot), 1077 (part of the plot), 1078, 1079, 1080/1, 1080/2, 1080/3, 1080/4, 1081, 1082, 1083, 1084, 1085, 1106, 1107, 1108/1, 1108/2, 1108/3, 1109, 1110, 1111, 1112/1, 1112/2, 1112/3, 1113/3, 1113/4, 1114/1, 1114/2, 1115, 1116, 1117, 1118, 1119, 1120, 1121, 1122, 1123, 1124, 1125, 1126, 1127, 1128, 1129, 1130/1, 1130/2, 1131, 1132/1, 1132/2, 1133/1, 1133/2, 1134, 1135/1, 1135/2, 1136/1, 1136/2, 1137, 1138/1, 1138/2, 1139, 1140/1, 1140/2, 1140/3, 1140/4, 1141, 1142, 1143, 1144/1, 1144/2, 1145, 1146, 1147/1, 1148, 1150, 1151, 1152, 1153, 1154/1, 1154/2, 1155, 1156, 1157, 1158, 1160, 1161, 1162/1, 1162/2, 1163, 1164, 1165/1, 1165/2, 1165/3, 1165/4, 1166/10, 1166/11, 1166/2, 1166/3, 1166/4, 1166/5, 1166/6, 1166/7, 1166/8, 1166/9, 1167/1, 1167/2, 1168, 1169, 1170, 1171, 1172, 1173, 1174/1, 1174/2, 1174/3, 1174/4, 1175/1, 1175/2, 1175/3, 1175/4, 1175/5, 1176, 1177, 1178, 1179, 1180/1, 1180/10, 1180/11, 1180/12, 1180/13, 1180/14, 1180/2, 1180/3, 1180/4, 1180/5, 1180/6, 1180/7, 1180/8, 1180/9, 1181, 1182, 1183/1, 1183/2, 1184, 1185, 1186, 1187/1, 1187/2, 1187/3, 1187/4, 1187/5, 1188, 1189, 1190, 1191, 1192, 1193, 1194, 1195, 1196/1, 1196/2, 1196/3, 1196/4, 1197, 1198, 1199, 1200, 1201, 1202, 1203, 1204, 1205, 1206, 1207, 1208, 1209, 1210, 1211/1, 1211/2, 1211/3, 1212, 1213, 1214, 1215, 1216, 1217, 1218/1, 1218/2, 1219/1, 1220, 1221/1, 1222/1, 1222/2, 1222/4, 1222/5, 1222/6, 1222/7, 1223/1, 1223/2, 1224/1, 1224/2, 1225, 1226, 1227, 1228, 1229, 1230, 1231, 1232/1, 1232/2, 1233/1, 1233/2, 1234/1, 1234/2, 1235/1, 1235/2, 1236, 1237, 1238, 1239, 1241, 1242, 1243, 1244, 1245, 1246, 1247/1, 1247/2, 1248, 1249, 1250, 1252, 1253, 1254, 1255, 1256, 1257, 1258/1, 1258/2, 1259, 1260, 1261, 1262/1, 1262/2, 1263, 1264, 1265, 1266, 1267, 1268, 1269, 1270, 1271, 1272, 1273, 1274/1, 1274/2, 1274/3, 1274/4, 1275, 1276, 1277, 1278, 1279, 1280, 1281, 1282, 1283, 1284/1, 1284/2, 1285/1, 1285/2, 1286, 1287/1, 1287/10, 1287/11, 1287/12, 1287/13, 1287/14, 1287/2, 1287/3, 1287/4, 1287/5, 1287/6, 1287/7, 1287/8, 1287/9, 1288, 1289, 1290, 1291, 1292, 1293, 1294, 1295, 1296, 1297, 1298, 1299, 1300, 1301, 1302, 1303, 1304, 1305, 1305/1, 1305/2, 1306, 1307, 1308/1, 1308/2, 1308/3, 1308/4, 1308/5, 1309/1, 1309/2, 1309/3, 1309/4, 1310, 1311/1, 1311/2, 1311/3, 1311/4, 1311/5, 1311/6, 1311/7, 1312, 1313, 1314/4, 1314/5, 1314/6, 1314/7, 1314/8, 1317/1, 1317/2, 1317/3, 1318/1, 1318/2, 1319/2, 1319/3, 1319/4, 1320/4, 1320/5, 1320/6, 1321/1, 1321/2, 1321/3, 1322, 1323/1, 1323/2, 1323/3, 1323/4, 1324, 1325, 1326, 1327, 1328/1, 1328/2, 1328/3, 1329/1, 1329/2, 1330/1, 1330/2, 1330/3, 1330/4, 1330/5, 1330/6, 1330/7, 1330/8, 1331/1, 1331/2, 1332/1, 1332/2, 1333/1, 1333/2, 1333/3, 1334, 1336/1, 1336/10, 1336/11, 1336/2, 1336/3, 1336/4, 1336/5, 1336/6, 1336/7, 1336/8, 1336/9, 1339/1, 1339/2, 1339/3, 1339/4, 1340, 1341, 1342, 1343, 1344, 1345/2, 1345/3, 1345/5, 1346, 1347, 1348, 1349/1, 1349/2, 1350/1, 1350/2, 1351/1, 1351/2, 1352, 1353, 1354/1, 1354/2, 1354/3, 1355, 1356, 1357, 1358, 1359/3, 1359/4, 1360/1, 1360/2, 1360/3, 1361/1, 1361/2, 1361/3, 1362, 1363, 1364, 1365, 1366/2, 1366/3, 1366/4, 1368/3, 1368/5, 1369, 1370, 1371, 1372, 1373, 1374/1, 1374/2, 1375, 1376, 1377, 1378/1, 1378/2, 1379/1, 1379/2, 1380, 1381, 1382/1, 1382/2, 1383, 1384, 1385, 1386, 1387, 1388, 1389, 1390, 1391/1, 1391/2, 1392/1, 1392/2, 1393, 1394, 1395, 1396/1, 1396/2, 1397, 1398, 1399, 1400, 1401, 1402,

1403, 1404, 1405, 1406, 1407/1, 1407/2, 1408, 1409, 1410/1, 1410/2, 1411/1, 1411/2, 1412/1, 1412/2, 1413, 1414, 1415, 1416, 1417, 1418/1, 1418/2, 1419, 1420, 1421, 1422, 1423, 1424, 1425, 1426, 1427/1, 1427/2, 1428, 1429/1, 1429/2, 1429/3, 1430, 1431, 1432, 1433, 1434, 1435, 1436/1, 1436/10, 1436/2, 1436/3, 1436/4, 1436/5, 1436/6, 1436/7, 1436/8, 1436/9, 1437, 1438, 1439, 1440/1, 1440/2, 1440/3, 1441/1, 1441/2, 1441/3, 1442, 1443, 1444, 1445/1, 1446/1, 1446/2, 1447, 1448/1, 1448/2, 1449, 1450, 1451, 1452/1, 1452/2, 1452/3, 1452/4, 1452/5, 1453, 1454, 1456, 1457, 1458, 1459/5, 1459/6, 1460, 1461/1, 1461/2, 1461/3, 1462, 1463, 1464, 1467, 1468, 1472/2, 1473 (part of the plot), 1486, 1487, 1488, 1493, 1495, 1496, 1497, 1498, 1499, 1500, 1501, 1502, 1503, 1504, 1505, 1506, 1507, 1508, 1509, 1510, 1511/1, 1511/2, 1512, 1513, 1514, 1515/1, 1515/2, 1515/3, 1516/1, 1516/2, 1516/3, 1516/4, 1516/5, 1516/6, 1517, 1518, 1519, 1520, 1521, 1522, 1523, 1524, 1525, 1526, 1527, 1528, 1532, 1533/1, 1533/2, 1535, 1536, 1537, 1539, 1540, 1541, 1543, 1544, 1547, 1552, 1553, 1554, 1555, 1556/1, 1556/2, 1556/3, 1556/4, 1556/5, 1556/6, 1557, 1558, 1559/1, 1559/2, 1560, 1561/1, 1561/2, 1561/3, 1561/4, 1561/5, 1561/6, 1561/7, 1562/1, 1562/2, 1563, 1564/1, 1564/2, 1564/3, 1564/4, 1564/5, 1565/1, 1565/2, 1565/3, 1565/4, 1565/5, 1565/6, 1565/7, 1565/8, 1565/9, 1566, 1567, 1568, 1569, 1570/1, 1570/2, 1570/3, 1571, 1572, 1573/1, 1573/2, 1573/3, 1573/4, 1574, 1575/1, 1575/2, 1576/1, 1576/2, 1577, 1578/1, 1578/2, 1579, 1580, 1581, 1582, 1583, 1585, 1586, 1587, 1588, 1589, 1590, 1591/1, 1591/2, 1592/1, 1592/2, 1592/3, 1592/4, 1593, 1594, 1595, 1596, 1597, 1598, 1599/1, 1599/2, 1599/3, 1600, 1601, 1602, 1603, 1604, 1605, 1606, 1607/1, 1607/2, 1608/1, 1608/2, 1609, 1610, 1611, 1612, 1613, 1614, 1615, 1616, 1617, 1618/1, 1619, 1620/1, 1620/2, 1621/1, 1621/2, 1622, 1623, 1624, 1625/1, 1625/2, 1626, 1627, 1628, 1629, 1630, 1631, 1632/1, 1632/2, 1632/3, 1635/2, 1636, 1637, 1638, 1639, 1640/1, 1640/2, 1641, 1642/1, 1642/2, 1643/1, 1643/2, 1644, 1645, 1646, 1647/1, 1647/2, 1648, 1649, 1650/1, 1650/2, 1651/1, 1651/2, 1652/1, 1652/2, 1652/3, 1652/4, 1653/1, 1653/2, 1654, 1655, 1656, 1657, 1658/1, 1658/2, 1658/3, 1659, 1660, 1661, 1662/1, 1663, 1664/1, 1664/2, 1665, 1666, 1667/1, 1667/2, 1669/15, 1671, 1672, 1673, 1674, 1675, 1676, 1677, 1678, 1679, 1680, 1681, 1682, 1683, 1684, 1685, 1686, 1687, 1688, 1689, 1690, 1691/1, 1691/2, 1691/3, 1692, 1693/1, 1693/10, 1693/2, 1693/3, 1693/4, 1693/5, 1693/6, 1693/7, 1693/8, 1693/9, 1694, 1695/1, 1695/2, 1695/3, 1695/4, 1696, 1697, 1698, 1699, 1700/1, 1701/2, 1701/3, 1702/1, 1702/2, 1702/3, 1703, 1704, 1705/1, 1705/2, 1706, 1707, 1708, 1709, 1710, 1711, 1712, 1713/1, 1713/2, 1714, 1715, 1716, 1717, 1718, 1719, 1720/1, 1720/2, 1721, 1722, 1723, 1724, 1725, 1726, 1727, 1728, 1729, 1730, 1731/1, 1731/2, 1732, 1733, 1734, 1735, 1736, 1737, 1738, 1739, 1740/1, 1740/2, 1741, 1742, 1743, 1744, 1745/1, 1745/2, 1745/3, 1746/1, 1746/2, 1746/3, 1746/4, 1746/5, 1746/6, 1746/7, 1747, 1748/1, 1748/2, 1749, 1750/1, 1750/2, 177/1 (part of the plot), 178, 179, 180, 181, 1817, 1818/1, 1818/2, 1818/3, 1819, 182, 1820, 1821, 183, 184, 185, 186/1, 186/2, 188, 1958/4, 1959/1, 1959/2, 1960, 1961, 1962/1, 1962/2, 1963, 1964/1, 1964/2, 1965, 1966, 1983, 1984/1, 1984/2, 1987/1, 1987/2, 1988/1, 1988/2, 1988/3, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012/1, 2012/2, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025/1, 2025/2, 2026, 2028/1, 2028/2, 2028/3, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039/1, 2039/2, 2040/1, 2040/2, 2040/3, 2040/4, 2042, 2043/1, 2043/2, 2043/3, 2044, 2045, 2046, 2047, 2048, 2050, 2051, 2052/1, 2052/2, 2052/3, 2623/1 (part of the plot), 2624, 2625, 2637, 2638/1, 2638/2, 2638/3, 2638/4, 2638/5, 2638/6, 2638/7, 2638/8, 264/3, 2642 (part of the plot), 2644 (part of the plot), 2653/10, 2653/4, 2653/5, 2653/6, 2653/7, 2653/8, 2653/9, 2669/1 (part of the plot), 267/1, 267/2, 2670, 2674 (part of the plot), 2675, 268, 2685, 2687/1, 2687/2, 2688/1, 2688/2 (part of the plot), 2689, 269, 2690, 2691, 2692, 2693/1, 2694, 2695, 2696 (part of the plot), 2697, 2698 (part of the plot), 2699/1 (part of the plot), 270/1, 270/2, 2700 (part of the

plot), 2701/1 (part of the plot), 2702 (part of the plot), 2703, 2704 (part of the plot), 2706 (part of the plot), 271, 272, 273, 274, 275/1, 275/10, 275/2, 275/3, 275/4, 275/5, 275/6, 275/7, 275/8, 275/9, 276, 280, 281, 282, 283/1, 283/2, 283/3, 283/4, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293/1, 293/2, 293/3, 351/1 (part of the plot), 365, 366/1, 366/10, 366/11, 366/12, 366/13, 366/14, 366/15, 366/16, 366/17, 366/18, 366/19, 366/2, 366/20, 366/21, 366/22, 366/23, 366/24, 366/25, 366/26, 366/27, 366/3, 366/4, 366/5, 366/6, 366/7, 366/8, 366/9, 367, 368/1, 368/2, 369, 370/1, 370/2, 370/3, 370/4, 371/1, 371/2, 372/1, 372/2, 372/3, 373, 374, 375, 376, 377, 378, 379, 380/1, 380/2, 380/3, 380/4, 380/5, 380/6, 380/7, 381/1, 381/10, 381/2, 381/3, 381/4, 381/5, 381/6, 381/7, 381/8, 381/9, 382, 383, 384, 385/1, 385/2, 386, 387, 388/1, 388/2, 388/3, 389, 390, 391, 392/1, 392/2, 392/3, 393, 394, 395/1, 395/2, 396, 397, 398/1, 398/10, 398/11, 398/12, 398/2, 398/3, 398/4, 398/5, 398/6, 398/7, 398/8, 398/9, 399, 400, 401, 402, 403/1, 403/2, 403/3, 403/4, 404/1, 404/2, 405, 406/1, 406/2, 407, 408, 409, 410/1, 410/2, 411, 412/1, 412/2, 412/3, 413, 414, 415, 416, 417, 418, 419, 420, 421/1, 422, 423, 424, 425, 426, 427, 428, 429/1, 429/2, 429/3, 429/4, 429/5, 430, 431, 432, 433, 434, 435, 436, 437, 438/1, 438/2, 439/2, 440/1, 441, 673, 674, 675/1, 675/2, 676.

Cadastral plots in the Core Zone 4 (Gorenja Kanomlja - Kanomlja or Ovčjak Water Barrier)
Cadastral municipality of VOJSKO:
411/1 (part of the plot)

Cadastral plots in the Core Zone 5 (Vojsko – Idrijca Water Barrier)
Cadastral municipality of VOJSKO:
1148 (part of the plot)

Cadastral plots in the Core Zone 6 (Idrijska Bela – Putrih's Water Barrier on the Belca creek)
Cadastral municipality of ČEKOVNIK (Idrija):
892 (part of the plot)

Cadastral plots in the Core Zone 7 (Idrijska Bela – Belca Water Barrier on the Belca creek , also Brus's Water Barrier)
Cadastral municipality of ČEKOVNIK (Idrija):
1049 (part of the plot)

Cadastral plots in the Buffer Zone
Cadastral municipality of ČEKOVNIK (Idrija):
1056 (part of the plot), 1057 (part of the plot), 1060, 1061, 1062, 1063, 1064, 1065, 1067, 1068, 1069, 1070, 1078/1, 1078/2, 1078/3, 1079/1, 1079/2, 1080, 1081, 1082, 1083, 1084, 1085/1, 1085/2, 1086/1, 1086/2, 1087/1, 1087/2, 1087/4, 1087/6, 1087/7, 1087/8, 1088/1, 1088/2, 1089, 1090/1, 1090/2, 1095 (part of the plot), 1102 (part of the plot), 1105 (part of the plot), 1108, 1109 (part of the plot), 1113.

Cadastral municipality of IDRIJA - MESTO (Idrija):
1, 10, 100, 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 101, 1010, 1011, 1012, 1013/1, 1013/2, 1014/1, 1014/2, 1014/3, 1015/1, 1015/3, 1015/4, 1016/1, 1016/2, 1017, 1018, 1019/2, 1019/3, 1019/4, 1019/6, 1019/7, 1019/8, 102/1, 102/2, 102/3, 1020, 1021, 1022/1, 1022/2, 1023, 1024, 1025, 1026, 1027, 1028, 1029, 103, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1037, 1038, 1039/1, 1039/2, 104/1, 104/2, 1040, 1041, 1042, 1043, 1044, 1045, 1046, 1047, 1048, 1049, 105/1, 105/10, 105/2, 105/3, 105/4, 105/5, 105/7, 105/8, 105/9, 1050, 1051, 1052, 1053, 1054, 1055, 1056, 1057, 1058, 1059, 106/1, 106/2, 106/3, 106/4, 1060, 1061, 1062, 1063, 1064, 1065/1, 1065/2, 1065/3, 1065/4, 1065/5, 1065/6,

1065/7, 1065/8, 1066, 1067/1, 1067/2, 1068, 1069, 107, 1072, 1073, 1074, 1075 (part of the plot), 1076, 1077 (part of the plot), 108, 1089/1, 1089/2, 1089/3, 109, 1090, 1091, 1092, 1093, 1094, 1095, 1096, 1097, 1098, 1099/1, 1099/2, 1099/3, 1099/5, 1099/6, 11, 110/1, 110/2, 110/3, 110/4, 1100/1, 1100/2, 1100/3, 1101, 1102, 1103, 1104, 1105, 111, 112, 113/1, 113/2, 114, 115/1, 115/2, 115/3, 115/4, 115/5, 115/6, 115/7, 116, 117/1, 117/2, 118/2, 118/3, 118/4, 118/5, 118/7, 119/1, 119/2, 12, 120, 121/1, 121/2, 122/1, 122/2, 123, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133/1, 133/2, 134, 135, 136, 137/3, 137/4, 138, 139, 14, 141, 142, 143, 144/1, 144/2, 145/1, 145/2, 145/3, 146/1, 146/2, 146/4, 147, 1473 (part of the plot), 1474, 1475, 1476, 1477, 1478/1, 1478/2, 1479, 148, 1480, 1481, 1482, 1483, 1484, 1485, 1489, 149, 1490, 1491, 1492, 1494, 15, 150, 151, 152, 1529, 153, 1530, 1531, 1534, 1538, 154, 1542, 1545, 1546/1, 1546/2, 1548, 1549, 155, 1550, 1551, 156, 157, 158, 159, 16, 160, 161, 162, 163, 1633, 1634, 1635/1, 164/1, 164/2, 165, 166, 1668, 1669/1, 1669/10, 1669/11, 1669/12, 1669/13, 1669/14, 1669/16, 1669/17, 1669/2, 1669/3, 1669/4, 1669/5, 1669/6, 1669/7, 1669/8, 1669/9, 167, 1670/1, 1670/2, 168/1, 168/2, 169, 17, 170, 171, 172, 173, 174, 175, 1751, 1752, 1753, 1754, 1755, 1756/1, 1756/2, 1757, 1758/1, 1758/2, 1758/3, 1758/4, 1758/5, 1758/6, 1758/7, 1758/8, 1758/9, 1759, 176, 1760/1, 1760/2, 1761/1, 1761/2, 1762/1, 1762/2, 1762/3, 1763, 1764, 1765/1, 1765/2, 1766/1, 1766/2, 1766/3, 1766/4, 1767/1, 1767/2, 1768/1, 1768/2, 1769/1, 1769/2, 177/1 (part of the plot), 177/2, 177/3, 177/4, 1770/1, 1770/10, 1770/11, 1770/12, 1770/13, 1770/2, 1770/3, 1770/4, 1770/5, 1770/6, 1770/8, 1770/9, 1772, 1774/1, 1774/2, 1775, 1776/1, 1776/3, 1776/4, 1777, 1778/1, 1778/2, 1779/1, 1779/2, 1780, 1781, 1782, 1783, 1784/1, 1784/2, 1785/1, 1785/2, 1786, 1787, 1788/1, 1788/2, 1789/1, 1789/2, 1790, 1791, 1792, 1793/1, 1793/3, 1794, 1795, 1796, 1797, 1798, 1799/1, 1799/2, 18, 1800, 1801, 1802/1, 1802/2, 1802/3, 1803, 1804, 1805/1, 1805/2, 1805/3, 1806, 1807, 1808/1, 1808/2, 1809/1, 1809/2, 1809/3, 1810/1, 1810/2, 1811, 1812/1, 1812/2, 1812/4, 1813, 1814, 1815, 1816, 1822, 1823/1, 1823/2, 1823/3, 1824/1, 1824/2, 1824/3, 1824/4, 1824/5, 1825, 1826, 1827/1, 1827/2, 1827/3, 1828, 1829/1, 1829/2, 1830/2, 1830/3, 1830/4, 1830/5, 1832, 1833, 1834, 1835/1, 1835/2, 1836, 1837, 1838, 1839, 1840/1, 1840/2, 1841, 1842/2, 1843, 1844/1, 1844/2, 1844/3, 1845/1, 1845/2, 1845/3, 1845/4, 1845/5, 1846/1, 1846/2, 1846/4, 1846/5, 1847, 1848, 1849, 1850, 1851, 1852/2, 1852/3, 1852/4, 1853/1, 1853/2, 1854, 1855, 1856, 1857, 1858, 1859/1, 1859/2, 1859/3, 1859/4, 1861, 1862, 1863, 1864, 1865, 1866, 1867, 1868, 1869, 1870, 1871, 1872, 1873, 1874, 1875, 1876, 1877, 1878, 1879, 1880, 1881, 1882, 1883, 1884, 1885, 1886/1, 1886/2, 1887, 1888, 1889, 189/1, 189/2, 1891/1, 1891/2, 1892, 1893, 1894, 1895, 1896, 1897, 1898, 1899, 19, 190/1, 190/2, 190/4, 1900, 1901, 1902/1, 1902/2, 1902/3, 1904, 1905, 1906, 1907/1, 1907/2, 1908, 1909, 191, 1910, 1911/1, 1912, 1913, 1914, 1915/1, 1915/2, 1916/1, 1916/2, 1916/3, 1916/4, 1916/5, 1916/6, 1917, 1918, 1919, 192/1, 192/2, 1920/1, 1920/2, 1921/1, 1921/2, 1922/1, 1922/2, 1923/1, 1923/2, 1924, 1925, 1926, 1927, 1928, 1929, 193/1, 193/10, 193/11, 193/12, 193/2, 193/3, 193/4, 193/5, 193/6, 193/7, 193/8, 193/9, 1930, 1931, 1932, 1933, 1934, 1935/1, 1935/2, 1936, 1937, 1938, 1939, 194/1, 194/2, 1940, 1941, 1942/1, 1942/2, 1942/3, 1943, 1944/1, 1944/2, 1945, 1946, 1947, 1948, 1949, 195, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958/1, 1958/2, 1958/3, 1958/5, 196/1, 196/2, 1967, 1968, 1969, 197/1, 197/2, 197/3, 197/4, 1970, 1971/1, 1971/2, 1971/3, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 198/1, 198/2, 198/3, 1980, 1981, 1982, 1985, 1986/1, 1986/2, 1986/3, 199/1, 199/2, 199/3, 199/4, 2, 20, 200/1, 200/10, 200/11, 200/12, 200/13, 200/14, 200/15, 200/16, 200/17, 200/18, 200/19, 200/2, 200/20, 200/21, 200/22, 200/23, 200/24, 200/25, 200/26, 200/3, 200/4, 200/5, 200/6, 200/7, 200/8, 200/9, 201, 202, 203, 204/1, 204/2, 2049, 205, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 206, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 207, 2070/1, 2070/2, 2070/3, 2070/4, 2070/5, 2071, 2072, 2073/1, 2073/2, 2074, 2075/1, 2075/2, 2076, 2077, 2078, 2079, 208, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088,

2089, 209, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098/1, 2098/2, 2099, 21, 210, 2100, 2101, 2102, 2103, 2104/1, 2104/2, 2105/1, 2105/2, 2106, 2107, 2108, 2109/1, 2109/2, 211, 2110, 2111, 2112, 2113, 2114, 2115, 2116/1, 2117, 2119/1, 2119/2, 2119/3, 212, 2121/1, 2121/2, 2122, 2123/1, 2123/2, 2123/3, 2123/4, 2124, 2125, 2126, 2127/1, 2127/2, 2127/3, 2129, 213, 2130/1, 2130/2, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 214, 2140, 2141/1, 2141/2, 2141/3, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 215/1, 215/2, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 216, 2160, 2161, 2162, 2163/1, 2163/2, 2163/3, 2163/4, 2164, 2165, 2166, 2167, 2168, 2169, 217, 2170/1, 2170/2, 2170/3, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 218, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 219/1, 219/2, 2190/1, 2190/2, 2190/4, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 22, 220, 2200, 2201, 2202, 2203, 2204/1, 2204/2, 2204/3, 2204/4, 2205/1, 2205/2, 2206/1, 2206/2, 2207, 2208, 2209, 221, 2210/1, 2210/2, 2210/3, 2210/4, 2210/5, 2211, 2212, 2213, 2214, 2215, 2216/1, 2216/2, 2217, 2218/1, 2218/2, 2219, 222, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 223, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 224, 2240, 2241, 2242, 2243, 2244/1, 2244/2, 2245, 2246, 2247, 2248, 2249, 225, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 226, 2260, 2261/1, 2261/2, 2262, 2263, 2264, 2265/1, 2265/2, 2265/3, 2265/4, 2266/2, 2266/3, 2266/4, 2266/5, 2266/6, 2266/7, 2266/8, 2267/1, 2267/2, 2267/3, 2267/4, 2267/5, 2267/6, 2267/7, 2267/8, 2268, 2269/2, 2269/3, 2269/4, 2269/5, 2269/6, 227, 2270, 2271, 2272, 2273, 2274/1, 2274/2, 2274/3, 2275/1, 2275/2, 2275/3, 2275/4, 2275/5, 2276, 2277, 2278, 2279, 228, 2280/1, 2280/10, 2280/11, 2280/12, 2280/13, 2280/14, 2280/2, 2280/3, 2280/4, 2280/5, 2280/6, 2280/7, 2280/8, 2280/9, 2281, 2282, 2283/1, 2283/2, 2283/3, 2284, 2285, 2286, 2287/1, 2287/2, 2288/1, 2288/2, 2288/3, 2288/4, 2288/5, 2289, 229, 2290, 2291, 2292, 2293, 2294, 2295, 2296/1, 2296/2, 2296/3, 2297/1, 2298, 2299/1, 2299/2, 23, 230, 2300, 2301/1, 2301/10, 2301/11, 2301/12, 2301/13, 2301/14, 2301/15, 2301/16, 2301/2, 2301/3, 2301/4, 2301/5, 2301/6, 2301/7, 2301/8, 2301/9, 2303/1, 2303/2, 2303/3, 2303/4, 2304, 2306, 2307, 2308, 2309/1, 2309/2, 231, 2310/1, 2310/2, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 232, 2320, 2321/1, 2321/2, 2322, 2323/1, 2323/2, 2325, 2326, 2327/1, 2327/2, 2328/1, 2328/2, 2328/3, 2329/1, 2329/2, 2329/3, 233/1, 233/2, 233/3, 233/4, 233/5, 233/6, 2330/1, 2330/2, 2331, 2332, 2333/1, 2333/2, 2333/3, 2333/4, 2333/5, 2333/6, 2334/1, 2334/2, 2336, 2337, 2338/1, 2338/2, 2338/3, 2338/4, 2338/5, 2339, 234, 2340, 2341, 2342, 2343, 2344/1, 2344/2, 2345, 2346/1, 2346/2, 2347, 2349/1, 2349/2, 235, 2351, 2352/1, 2352/2, 2352/3, 2352/4, 2353/1, 2353/2, 2353/3, 2353/4, 2354, 2355, 2356, 2357, 2358/1, 2358/10, 2358/11, 2358/12, 2358/13, 2358/14, 2358/15, 2358/16, 2358/17, 2358/18, 2358/2, 2358/20, 2358/21, 2358/22, 2358/23, 2358/24, 2358/25, 2358/26, 2358/3, 2358/4, 2358/5, 2358/6, 2358/7, 2358/8, 2358/9, 2359, 236, 2360/1, 2360/2, 2360/3, 2361/1, 2361/2, 2362, 2363/1, 2363/2, 2363/3, 2364/1, 2364/2, 2365, 2366, 2367, 2368/1, 2368/2, 2368/3, 2368/4, 2369, 237, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 238, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389/1, 239, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399/1, 2399/2, 24, 240, 2400, 2401, 2402, 2403/1, 2403/2, 2404, 2405, 2406/1, 2406/2, 2407/1, 2407/10, 2407/11, 2407/12, 2407/13, 2407/14, 2407/15, 2407/16, 2407/2, 2407/3, 2407/4, 2407/5, 2407/6, 2407/7, 2407/8, 2407/9, 2408/1, 2408/2, 2408/3, 2408/4, 2408/5, 2409, 241, 2410, 2411, 2412/1, 2412/2, 2412/3, 2412/4, 2412/5, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 242, 2420/1, 2420/2, 2420/3, 2420/4, 2421/1, 2421/2, 2422/1, 2422/2, 2423/1, 2423/10, 2423/11, 2423/3, 2423/4, 2423/5, 2423/6, 2423/7, 2423/8, 2423/9, 2424/1, 2424/2, 2425/1, 2425/2, 2425/3, 2426/1, 2426/2, 2426/3, 2426/4, 2426/6, 2426/7, 2426/8, 2426/9, 2427/1, 2427/2, 2428, 2429, 243, 2430, 2431, 2432, 2433, 2434/1, 2434/2, 2434/3, 2434/4, 2434/5, 2434/6, 2434/7, 2434/8, 2435/1, 2435/2, 2436/1, 2436/2, 2436/3, 2437/1, 2437/2, 2439/1, 2439/2, 2439/3, 2439/4, 2439/5, 244, 2440/1, 2441/1, 2441/2, 2441/3,

2441/4, 2441/5, 2441/6, 2441/7, 2443, 2446, 2447/2, 2447/3, 2447/4, 2448/1, 2448/2, 2448/3, 2448/4, 2448/5, 2449/1, 2449/3, 245, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 246, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469/1, 2469/2, 2469/3, 247, 2470, 2471, 2472, 2473, 2474/1, 2474/2, 2475, 2476, 2477, 2478, 2479, 248/1, 248/2, 2480, 2481, 2482/1, 2482/2, 2483, 2484/1, 2484/2, 2485/1, 2485/2, 2485/3, 2485/4, 2486/1, 2486/10, 2486/11, 2486/12, 2486/13, 2486/14, 2486/15, 2486/2, 2486/3, 2486/4, 2486/5, 2486/6, 2486/7, 2486/8, 2486/9, 2488, 2489/1, 2489/2, 2489/3, 249/1, 249/2, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 25, 250/1, 250/2, 250/3, 2500, 2501/1, 2501/2, 2502/1, 2502/2, 2503, 2504/1, 2504/2, 2505, 2506/1, 2506/2, 2506/3, 2508, 2509, 251, 2510/1, 2510/2, 2511, 2512, 2513, 2514/1, 2514/2, 2515, 2516, 2517/1, 2517/2, 2518, 2519, 252, 2520, 2521, 2522, 2523, 2524/1, 2524/2, 2525/1, 2525/2, 2525/3, 2526, 2527, 2528, 2529, 253, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 254, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 255, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 256, 2560, 2561, 2562, 2563, 2564, 2565, 2566/2, 257, 258, 2586, 2587, 2588, 2589, 259, 2590, 2591, 2592, 2593/1, 2593/2, 2594, 2595, 2596, 2597, 26/1, 26/2, 26/3, 260, 2603/1, 2603/10, 2603/11, 2603/12, 2603/14, 2603/15, 2603/16, 2603/17, 2603/18, 2603/19, 2603/2, 2603/20, 2603/3, 2603/4, 2603/5, 2603/6, 2603/7, 2603/8, 2603/9, 2604, 2605, 2606, 2607, 2608/1, 2608/2, 2609, 261/1, 261/2, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 262, 2620, 2621, 2622, 2623/1 (part of the plot), 2626, 2627/1 (part of the plot), 263/1, 263/2, 2633, 2634, 2635/1, 2635/3, 2636/1, 2636/2, 2639/1, 2639/2, 264/1, 264/2, 2640, 2641/1, 2641/2, 2642 (part of the plot), 2643, 2644 (part of the plot), 2645/1, 2645/2, 2646, 2647, 2648, 265, 2650, 2651, 2652, 2653/1, 2653/11, 2653/2, 2653/3, 2654, 2655/1, 2655/2, 2655/3, 2655/4, 2655/5, 2655/6, 2655/7, 2656, 2657, 2658, 2659, 266, 2660, 2665, 2666, 2667, 2668, 2669/1 (part of the plot), 2669/2, 2671, 2672, 2673, 2674 (part of the plot), 2676, 2677, 2678/1, 2678/3, 2678/4, 2679, 2680, 2681/1, 2681/2, 2682/1, 2682/2, 2682/3, 2682/4, 2683, 2684, 2686/1, 2686/2, 2686/3, 2686/4, 2686/5, 2688/2 (part of the plot), 2696 (part of the plot), 2698 (part of the plot), 2699/1 (part of the plot), 2699/2, 2699/4, 2699/5, 27, 2700 (part of the plot), 2701/1 (part of the plot), 2701/2, 2701/3, 2701/4, 2701/5, 2702 (part of the plot), 2704 (part of the plot), 2705, 2706 (part of the plot), 2707, 2708, 2709, 2710/1, 2710/2, 2711, 2712/1, 2713/1, 2713/2, 2714, 2716, 2717, 277/1, 277/2, 278/1, 278/2, 279, 28, 29, 294, 295/1, 295/2, 296/1, 296/2, 297/1, 297/2, 298/1, 298/2, 299, 3, 30, 300/1, 300/2, 300/3, 301/1, 301/2, 302/1, 302/2, 303/1, 303/2, 304, 305, 306, 307, 308, 309/1, 309/2, 31, 310, 313, 314, 315, 316, 317, 318, 319, 32, 320, 321, 322/1, 322/2, 322/3, 323/1, 323/2, 323/3, 323/5, 324, 325, 326, 327/1, 327/2, 327/3, 327/4, 327/5, 328, 329/1, 329/2, 329/3, 33, 330, 331, 332, 333, 334, 335/1, 335/2, 336/1, 336/2, 337/1, 337/2, 338, 339, 34, 340, 341, 342, 343, 344, 345, 346, 347/1, 347/2, 348, 349, 35, 350, 351/1 (part of the plot), 351/2, 352/2, 354/10, 354/12, 354/13, 354/14, 354/15, 354/16, 354/2, 354/3, 354/4, 354/5, 354/6, 354/7, 354/8, 354/9, 355/10, 355/12, 355/2, 355/3, 355/4, 355/5, 355/6, 355/7, 355/8, 355/9, 356/1, 356/2, 356/3, 356/4, 356/5, 356/6, 357, 358/1, 358/2, 358/3, 359/1, 359/2, 36/1, 36/2, 360/1, 360/10, 360/11, 360/12, 360/13, 360/14, 360/15, 360/16, 360/17, 360/18, 360/19, 360/20, 360/21, 360/22, 360/23, 360/24, 360/25, 360/26, 360/27, 360/28, 360/29, 360/3, 360/30, 360/31, 360/32, 360/4, 360/5, 360/6, 360/8, 361/1, 361/2, 361/3, 361/4, 361/5, 363, 364, 37, 38, 4, 40, 41, 439/1, 44, 440/2, 442, 443, 444, 445/1, 446, 447, 448, 449/1, 449/2, 45, 451, 452, 453, 454, 455/1, 456, 457, 458, 459/1, 459/2, 459/3, 46, 460/1, 460/2, 461/1, 461/2, 461/3, 461/4, 462, 463/1, 463/2, 463/3, 463/4, 463/5, 463/6, 464, 465/1, 465/2, 466, 468, 469, 47, 472/1, 472/2, 473/1, 473/2, 474, 475/1, 475/2, 475/3, 475/4, 476, 477, 478/1, 478/2, 479/1, 479/2, 479/3, 48, 480/1, 480/2, 481/1, 482, 483/2, 485, 486, 487/1, 487/2, 488/1, 488/2, 49, 492, 493, 494/1, 494/2, 494/3, 494/4, 496/4, 496/5, 497/1, 497/2, 497/3, 498/2, 498/3, 498/4, 498/5, 498/6, 499/1, 499/2, 499/3, 5,

50, 500/1, 500/2, 500/3, 501/1, 501/2, 501/3, 502/1, 502/2, 503, 504, 505, 506, 507, 508, 509, 51/1, 51/2, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 52/1, 52/2, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 53, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539/1, 539/2, 539/3, 54/1, 54/2, 541/2, 541/3, 541/4, 541/5, 541/6, 544, 545, 546, 547, 548/1, 548/2, 548/3, 549, 55, 550/1, 550/2, 551/1, 552, 553/1, 553/2, 554, 555, 556, 557/1, 557/2, 558, 559, 56, 560/1, 560/2, 561, 562, 563/1, 563/2, 564, 565, 566/1, 566/2, 567, 568, 569/1, 569/2, 569/3, 57/1, 57/2, 570, 571, 572, 573, 574/1, 574/2, 575, 576, 577/1, 577/2, 577/3, 577/4, 578, 579, 58, 580/1, 580/2, 580/3, 581, 582, 583/1, 583/2, 583/3, 583/4, 583/5, 583/6, 583/7, 584/1, 584/2, 584/3, 585/1, 585/10, 585/11, 585/12, 585/13, 585/14, 585/15, 585/16, 585/17, 585/2, 585/3, 585/4, 585/5, 585/6, 585/7, 585/8, 585/9, 586/1, 586/2, 586/3, 586/4, 586/5, 587, 588, 589/1, 589/2, 589/3, 589/4, 589/5, 59, 590, 591, 592, 593, 594, 595, 596/1, 596/2, 596/3, 597, 598/1, 598/2, 598/3, 599, 6, 60, 601/1, 601/3, 601/5, 601/6, 601/7, 603/1, 603/10, 603/11, 603/12, 603/13, 603/2, 603/3, 603/4, 603/5, 603/6, 603/7, 603/8, 603/9, 604, 605, 606, 607/1, 607/2, 607/3, 607/4, 607/5, 608, 609, 61/1, 61/2, 610, 611, 612, 613, 614, 615, 616, 617, 618/1, 618/2, 618/3, 619, 62, 620, 621/10, 621/7, 621/8, 621/9, 622/1, 622/2, 622/3, 622/4, 622/5, 622/6, 623, 624/1, 624/2, 624/3, 625/1, 625/2, 626, 627, 628, 629, 63, 630, 631, 632, 633, 634, 635, 636, 637/1, 637/2, 638/1, 638/2, 639/1, 639/2, 64, 640/1, 640/2, 641, 642/2, 642/5, 642/6, 643, 644/1, 644/2, 644/3, 644/4, 644/5, 644/6, 644/7, 644/8, 644/9, 645, 646, 647, 648, 649, 65, 650, 651, 652, 653, 654, 655, 656, 657/1, 657/2, 658/10, 658/2, 658/3, 658/4, 658/5, 658/6, 658/7, 658/8, 658/9, 659/1, 659/2, 659/3, 659/4, 66, 660, 661, 662/1, 662/2, 662/3, 662/4, 663, 664, 665, 666/1, 666/2, 666/3, 667/1, 667/3, 668/1, 668/2, 668/3, 669/1, 669/2, 67, 670, 671, 672, 677/1, 677/2, 678, 679, 68, 680, 681, 682, 683, 684, 685/1, 685/2, 686, 687, 688/1, 688/2, 689/1, 689/2, 69, 690, 691/1, 691/2, 692/1, 692/2, 692/3, 693/3, 693/4, 694, 695, 696, 697, 698/1, 699/1, 699/2, 699/3, 699/4, 699/5, 699/6, 699/7, 699/8, 7, 70, 700, 701, 702, 703/1, 703/10, 703/11, 703/12, 703/13, 703/14, 703/15, 703/16, 703/17, 703/18, 703/2, 703/3, 703/4, 703/5, 703/6, 703/7, 703/8, 703/9, 704, 705, 706, 707/1, 707/2, 708/1, 708/3, 709/1, 709/2, 709/3, 709/4, 71, 710, 711, 712, 713, 715/1, 715/2, 716/2, 72, 720/2, 720/3, 721, 722, 723, 724/1, 724/2, 725, 726, 727/1, 727/2, 727/3, 727/4, 727/5, 729, 73, 730, 731, 732, 733, 734, 735/1, 735/2, 735/3, 736, 737, 738/1, 738/2, 738/3, 739, 74/1, 74/2, 74/3, 74/4, 740, 741, 742, 743, 744/1, 744/2, 744/3, 745, 746, 747, 748, 75, 750/1, 750/2, 750/3, 750/4, 751, 752, 753, 755, 756, 757, 758, 759, 76, 760/1, 760/2, 761, 762, 763, 764, 765, 766, 767, 768, 769, 77/1, 77/2, 770, 771, 772/1, 772/2, 773/1, 773/2, 773/3, 773/4, 773/5, 773/9, 774, 775/1, 775/10, 775/4, 775/5, 775/7, 775/8, 775/9, 776, 777, 778, 779, 78, 780/1, 780/2, 781, 782, 783, 784, 785, 786, 787, 788, 789/1, 789/2, 79, 790, 791, 792, 793, 794, 795, 796/1, 796/2, 797/1, 797/2, 798, 799, 8, 80/1, 80/2, 800, 801/1, 802/1, 802/2, 803, 804, 805, 806/1, 806/2, 807, 809/1, 809/2, 809/3, 809/4, 809/5, 809/7, 809/8, 809/9, 81, 810, 811/1, 811/2, 812, 813, 814, 815, 816, 817, 818, 819, 82/1, 820, 821, 822, 823/1, 823/2, 824, 825/1, 825/2, 825/3, 825/4, 826, 827/1, 827/2, 828/3, 829/1, 829/2, 83/1, 83/2, 830, 831, 832, 833/1, 833/2, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 85/1, 85/2, 85/3, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862/1, 862/2, 863/1, 863/2, 864, 866, 867/1, 867/2, 869/1, 869/2, 87/2, 87/3, 87/4, 87/5, 87/6, 870, 871, 872/1, 872/3, 873, 874/1, 874/2, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 9, 90, 900, 901, 902/1, 902/2, 903/1, 903/2, 903/3, 903/4, 904/1, 905/1, 905/2, 905/3, 905/4, 906, 907, 908, 909, 91/1, 91/2, 91/3, 910, 911/1, 911/2, 911/3, 912, 913/1, 913/2, 913/3, 913/4, 913/5, 914/1, 915/1, 915/2, 915/3, 916, 917/1, 917/2, 918/1, 918/2, 918/3, 919/1, 919/2, 919/3, 919/4, 919/5, 92/1, 92/2, 920, 921/1, 921/2, 922, 923, 925, 926/4, 926/5, 927/1, 927/2, 928/1, 928/2, 929/1, 929/2, 929/3, 929/4, 929/5, 93, 930, 931, 932, 933, 934, 935, 936/3, 936/4, 938/1, 938/2, 938/3, 939, 94/1, 94/2, 940/1, 940/2, 942, 943, 944/1, 944/2, 944/3, 944/4,

945, 946/1, 946/2, 946/3, 946/4, 947/1, 947/2, 948, 949, 95, 950/1, 950/2, 950/3, 950/4, 950/5, 951/1, 951/2, 951/3, 952, 953, 954, 955, 956, 957, 958, 959, 96, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 97, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 98/1, 98/2, 980, 981, 982, 983, 984, 985/1, 985/2, 986/1, 986/2, 987, 988, 989, 99, 990, 991, 992, 993, 994/1, 994/2, 995, 996, 997, 998, 999/1, 999/2.

Cadastral municipality of JELIČNI VRH (Idrija):
1010/1, 1010/2, 1011/1, 1011/2, 1012, 1013/1, 1013/10, 1013/11, 1013/12, 1013/13, 1013/14, 1013/2, 1013/4, 1013/6, 1013/7, 1013/8, 1013/9, 1014, 1015, 1017 (part of the plot), 1018 (part of the plot), 1019, 1020, 1021, 1023 (part of the plot), 1024 (part of the plot), 938/2, 953, 954, 955, 956, 957, 958, 959, 960, 961/1, 961/2, 961/3, 961/4, 962, 963/1, 963/2, 963/3, 963/4, 964, 965/1, 965/2, 965/3, 966, 967, 968, 969, 970/1, 970/2, 993, 994, 995, 996, 997, 998, 999.

Cadastral municipality of SREDNJA KANOMLJA (Idrija):
788/2, 788/3, 789, 791/1, 791/2, 791/3, 791/4, 791/5, 792/1, 792/2, 794/1, 794/2, 794/4, 795, 796, 797, 798, 802, 803, 804, 805, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 843/1, 843/2, 844/1, 844/2, 844/4, 844/5, 844/6, 844/7, 844/8, 844/9, 845, 846, 847, 848/1, 848/2, 848/3, 849/1, 849/2, 850/1, 850/2, 851/1, 851/2, 851/3, 852, 853, 854, 855, 856, 857, 859 (part of the plot), 888, 889 (part of the plot), 890 (part of the plot), 891 (part of the plot), 892, 893 (part of the plot), 895 (part of the plot), 897, 898, 899, 900, 901, 902, 903, 904.

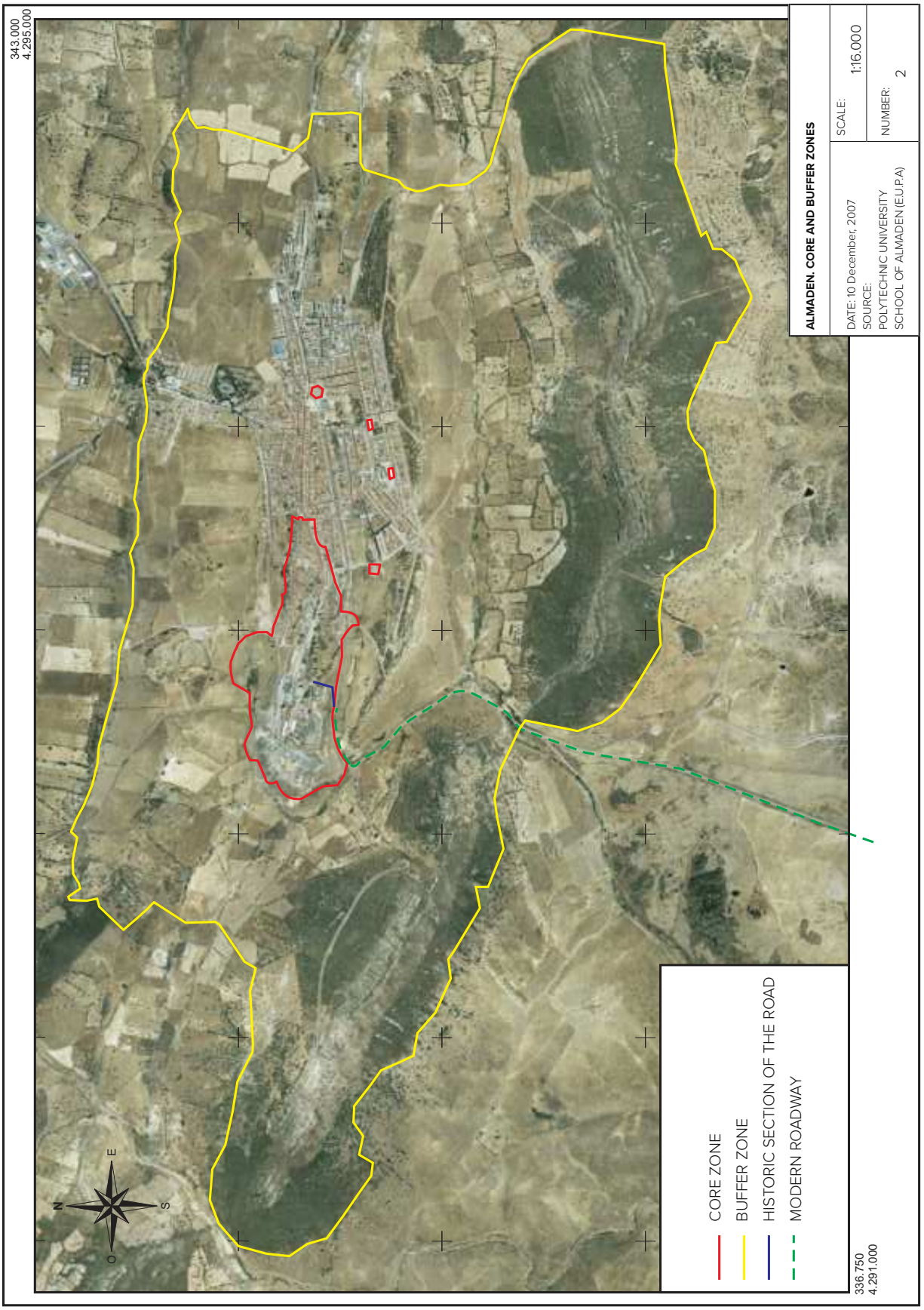
1.e. Maps

List of maps

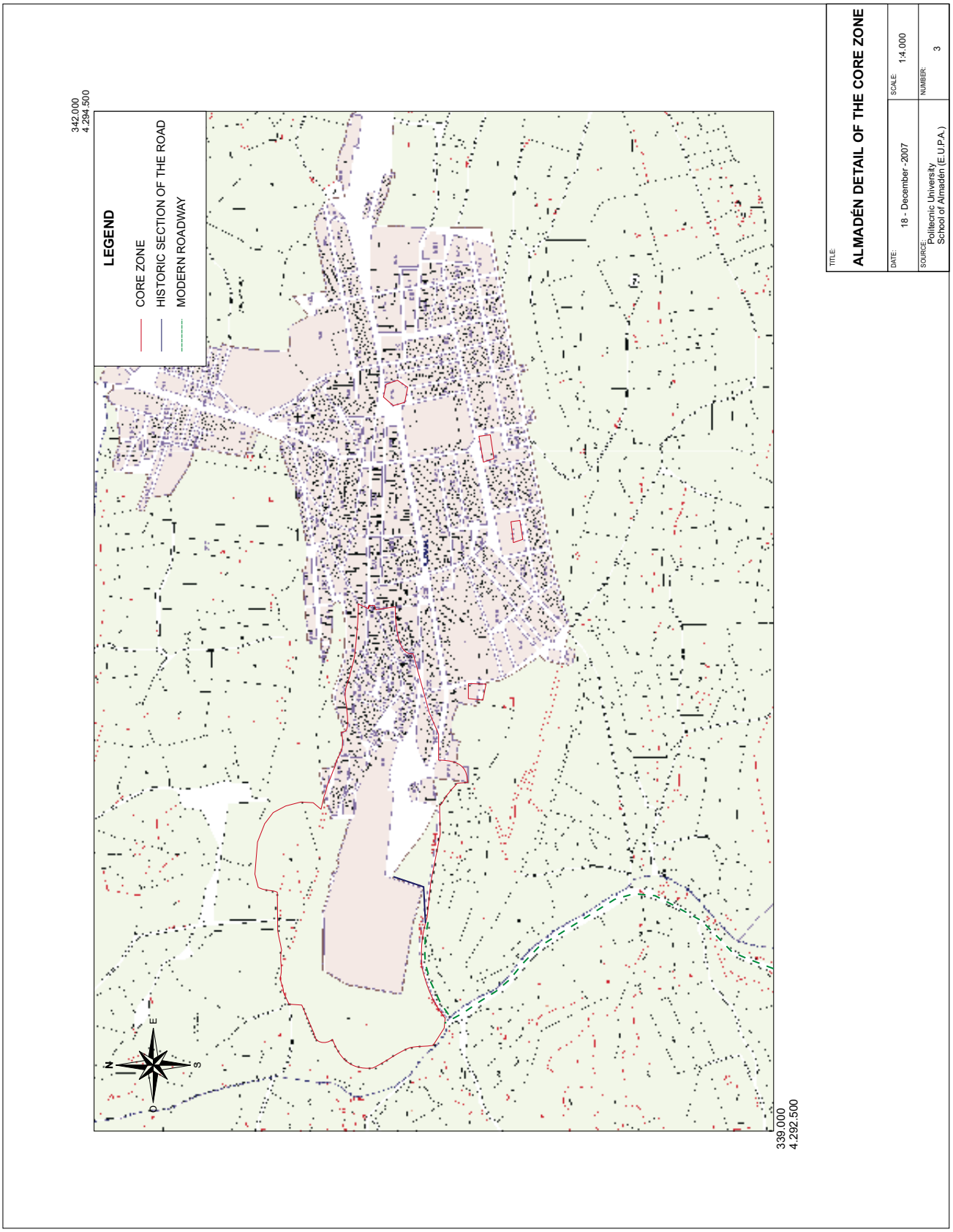
Component No.	Name	Map No.	Contents
001	Almadén	001 001	Localization of Almaden's County
		001 002	Boundaries of the nominated component and the buffer zone
		001 003	Almaden. Boundaries of the nominated asset. Detail.
002	Idrija	002 pregled_ kpl.pdf	Boundaries of the nominated component and the buffer zone
		002 pre-gled_1.pdf	The Old Town of Idrija, Smelting Plant, Kamšt water pump with the Rake water channel and Kobila water dam, Joseph's Shaft, with the Buffer Zone of the nominated component.
		002 pre-gled_2.pdf	The Klavže water barriers
		002 core_1. pdf	The Old Town of Idrija
		002 core_2. pdf	The Smelting Plant
		002 core_3. pdf	Kamšt water pump with the Rake water channel and Kobila water dam, Joseph's Shaft
		002 core_4. pdf	Gorenja Kanomlja - Kanomlja or Ovčjak Water Barrier
		002 core_5. pdf	Vojsko – Idrijca Water Barrier
		002 core_6. pdf	Idrijska Bela – Putrih's Water Barrier on the Belca creek
		002 core_7. pdf	Idrijska Bela – Belca Water Barrier on the Belca creek (or Brus's Water Barrier)



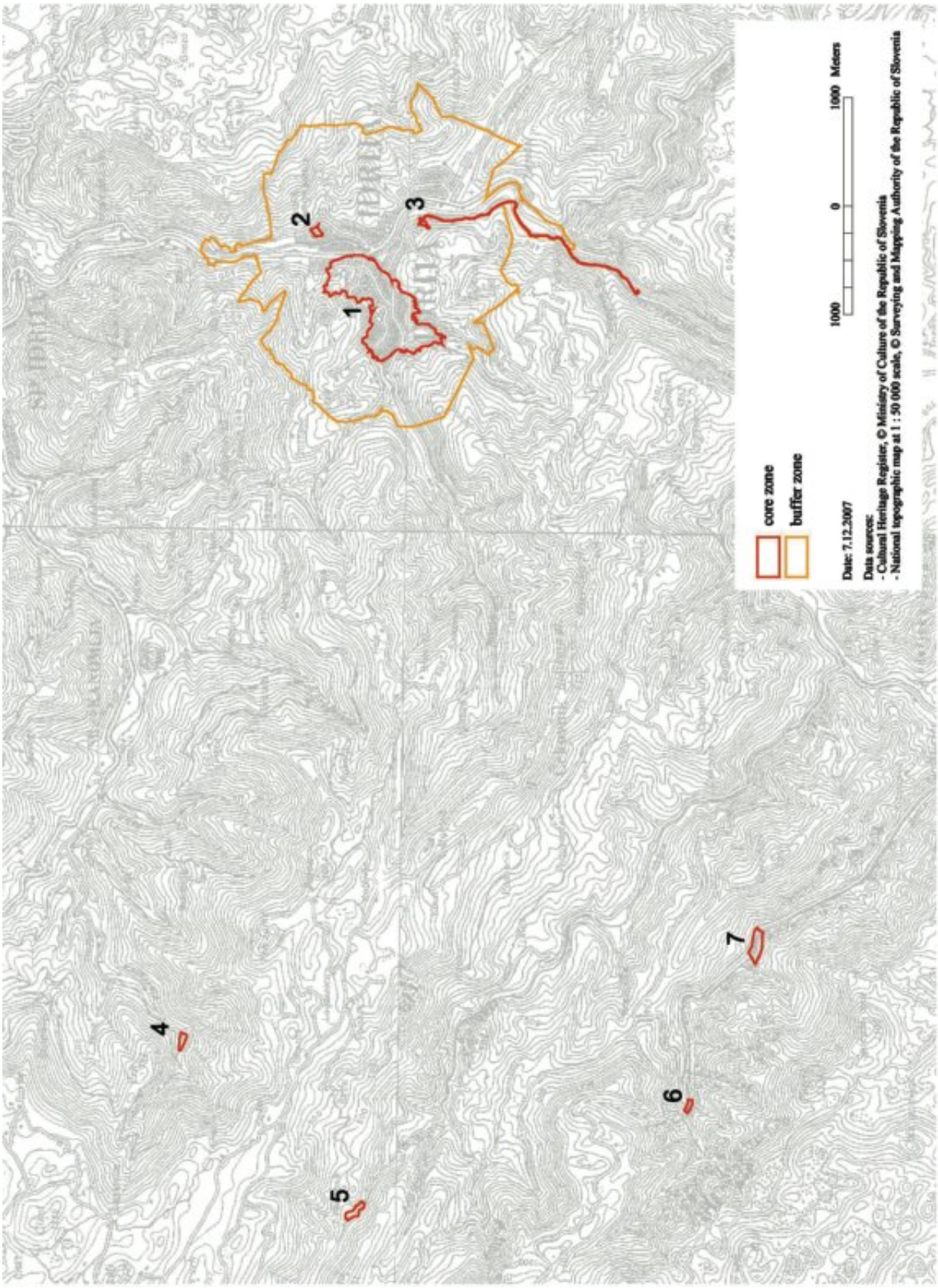
001 001 LOCALIZATION OF ALMADEN'S COUNTY



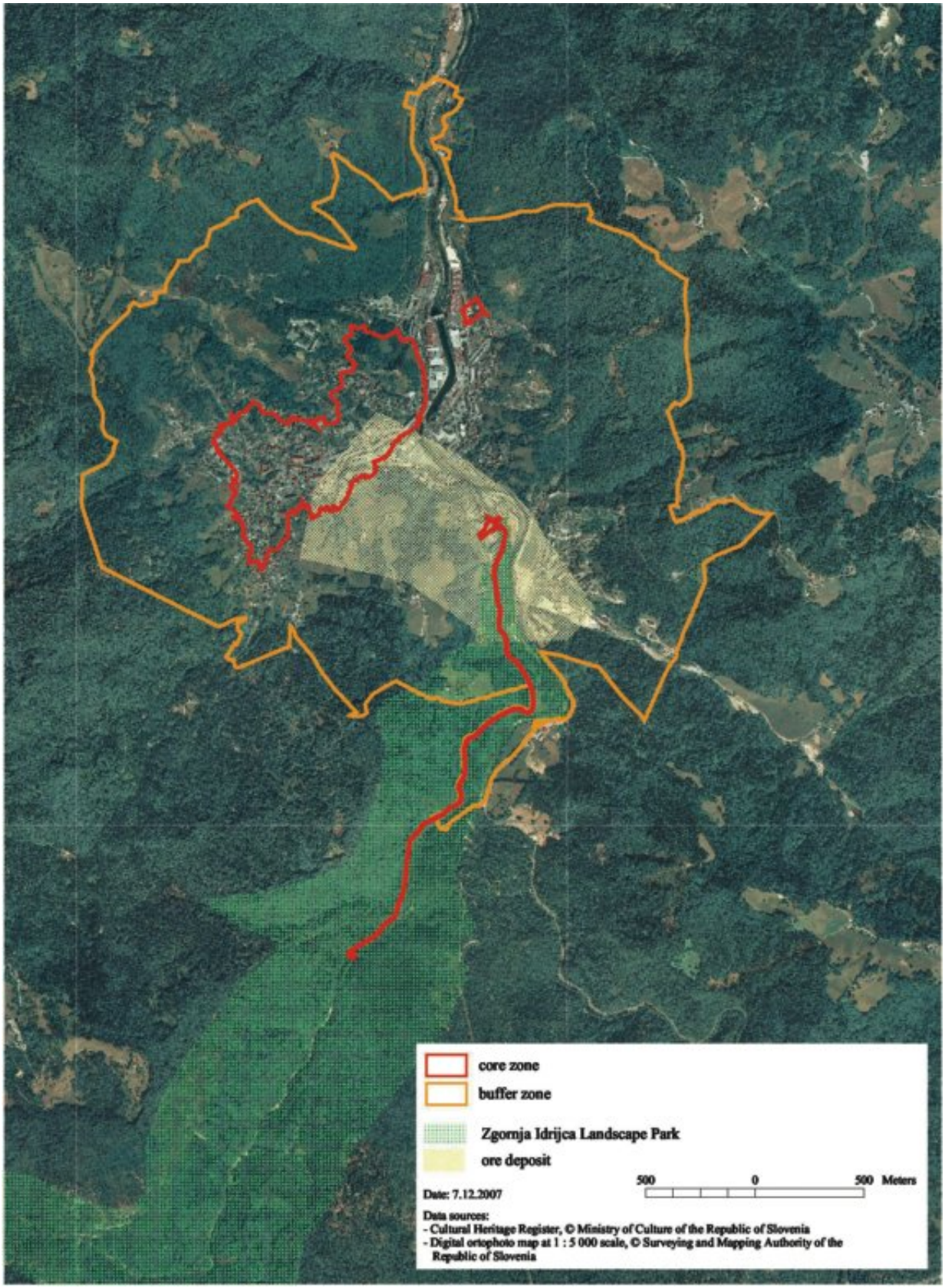
001 002 ALMADÉN . BOUNDARIES OF THE NOMINATED COMPONENT AND BUFFER ZONE.



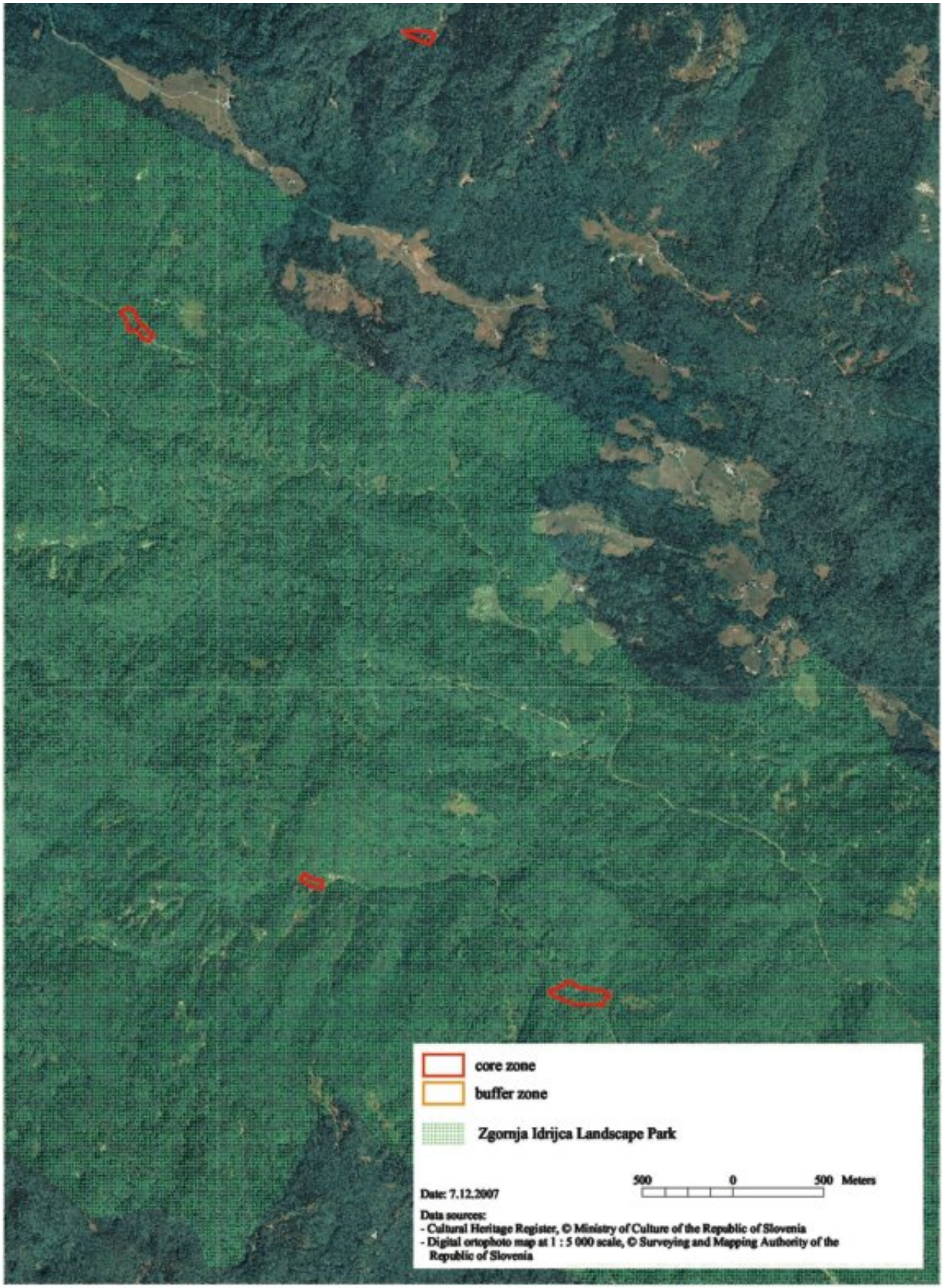
001 003 ALMADEN. BOUNDARIES OF THE NOMINATED COMPONENT. DETAIL.



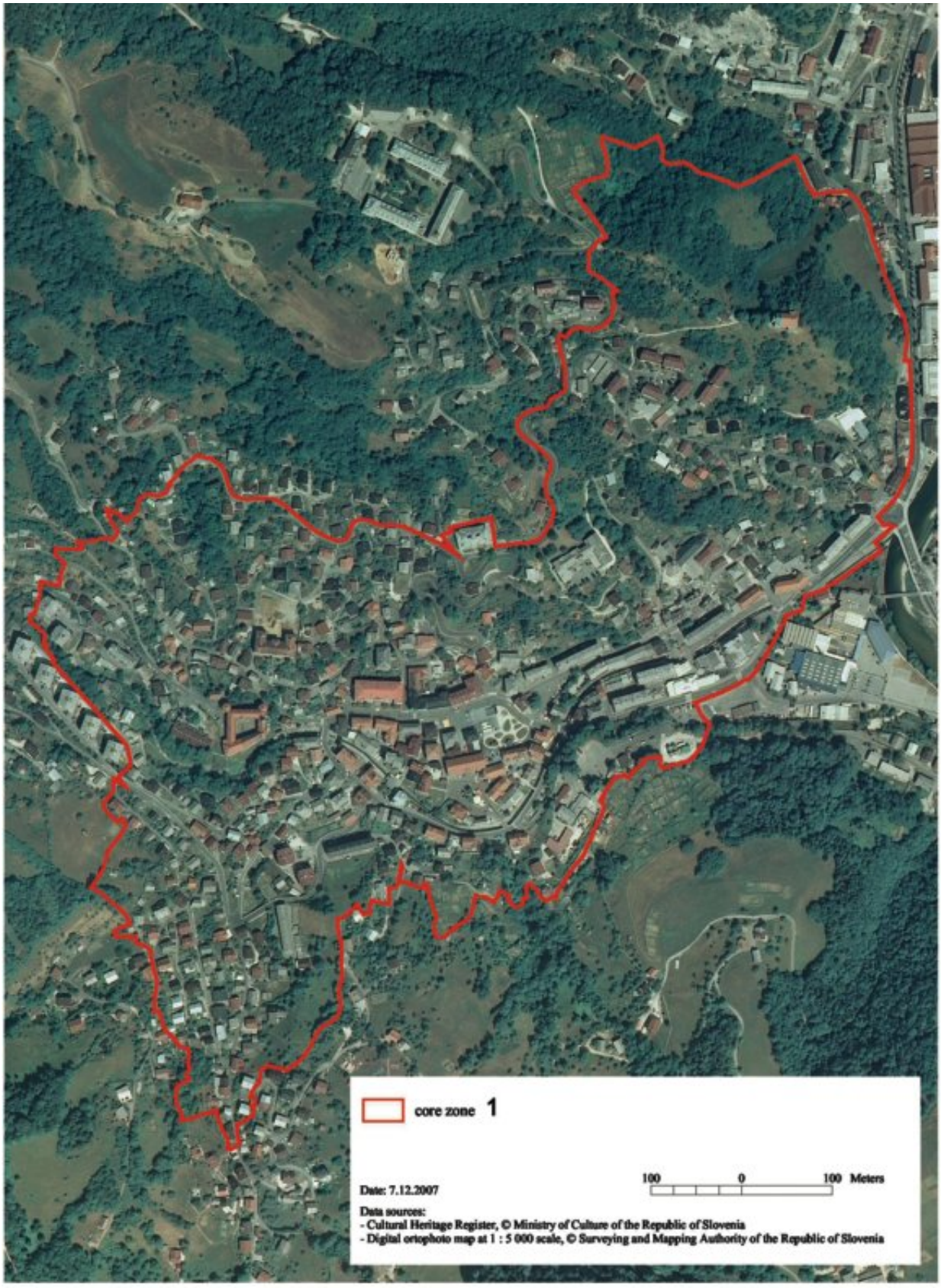
002 pregled_kpl.pdf BOUNDARIES OF THE NOMINATED COMPONENT AND BUFFER ZONE



002 pregled_1.pdf THE OLD TOWN OF IDRIJA, SMELTING PLANT, KAMŠT WATER PUMP WITH THE RAKE WATER CHANNEL AND KOBILA WATER DAM, JOSEPH'S SHAFT, WITH THE BUFFER ZONE OF THE NOMINATED COMPONENT



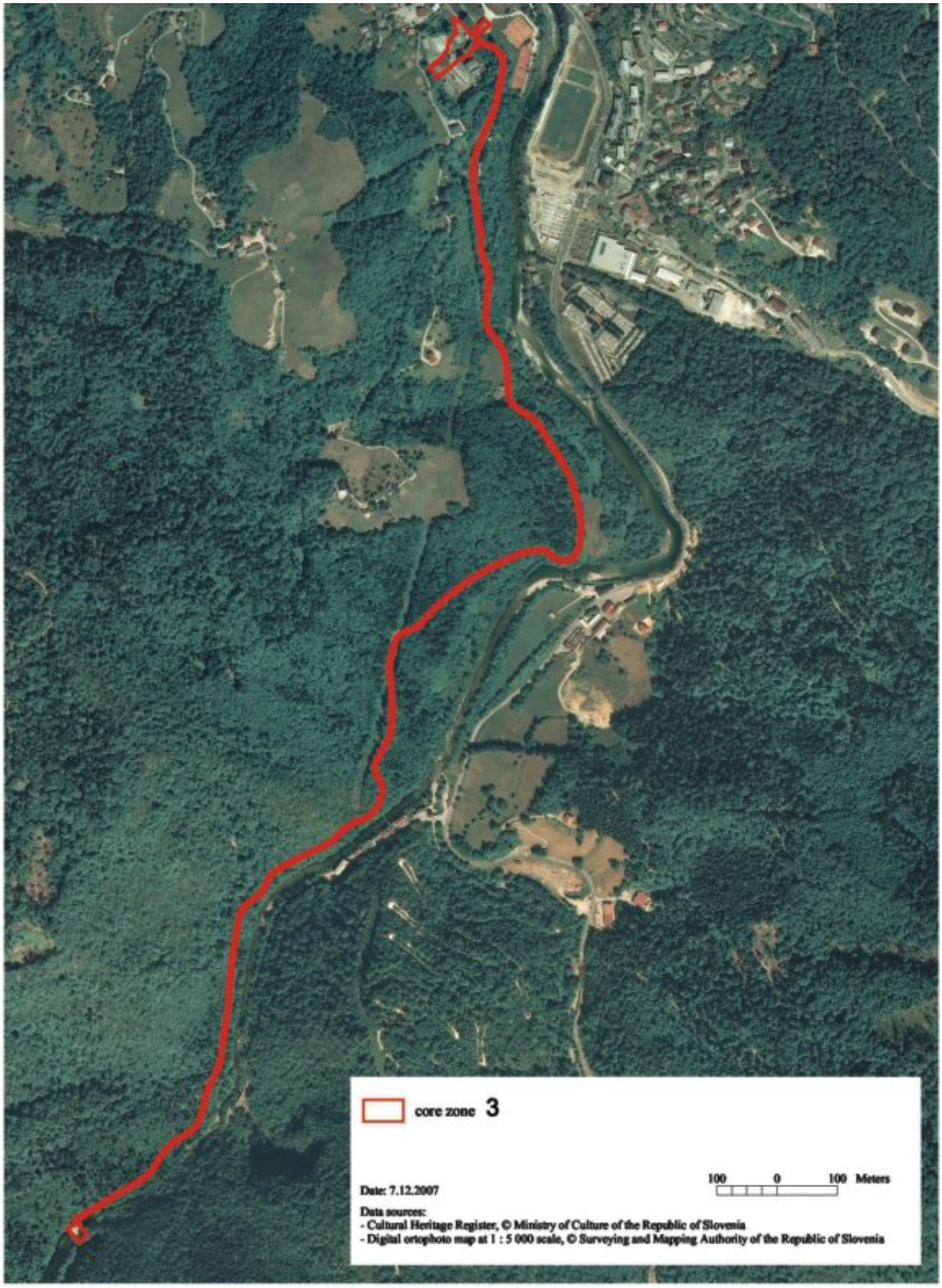
002 pregled_2.pdf THE KLAVŽE WATER BARRIERS



002 core_1.pdf THE OLD TOWN OF IDRIJA



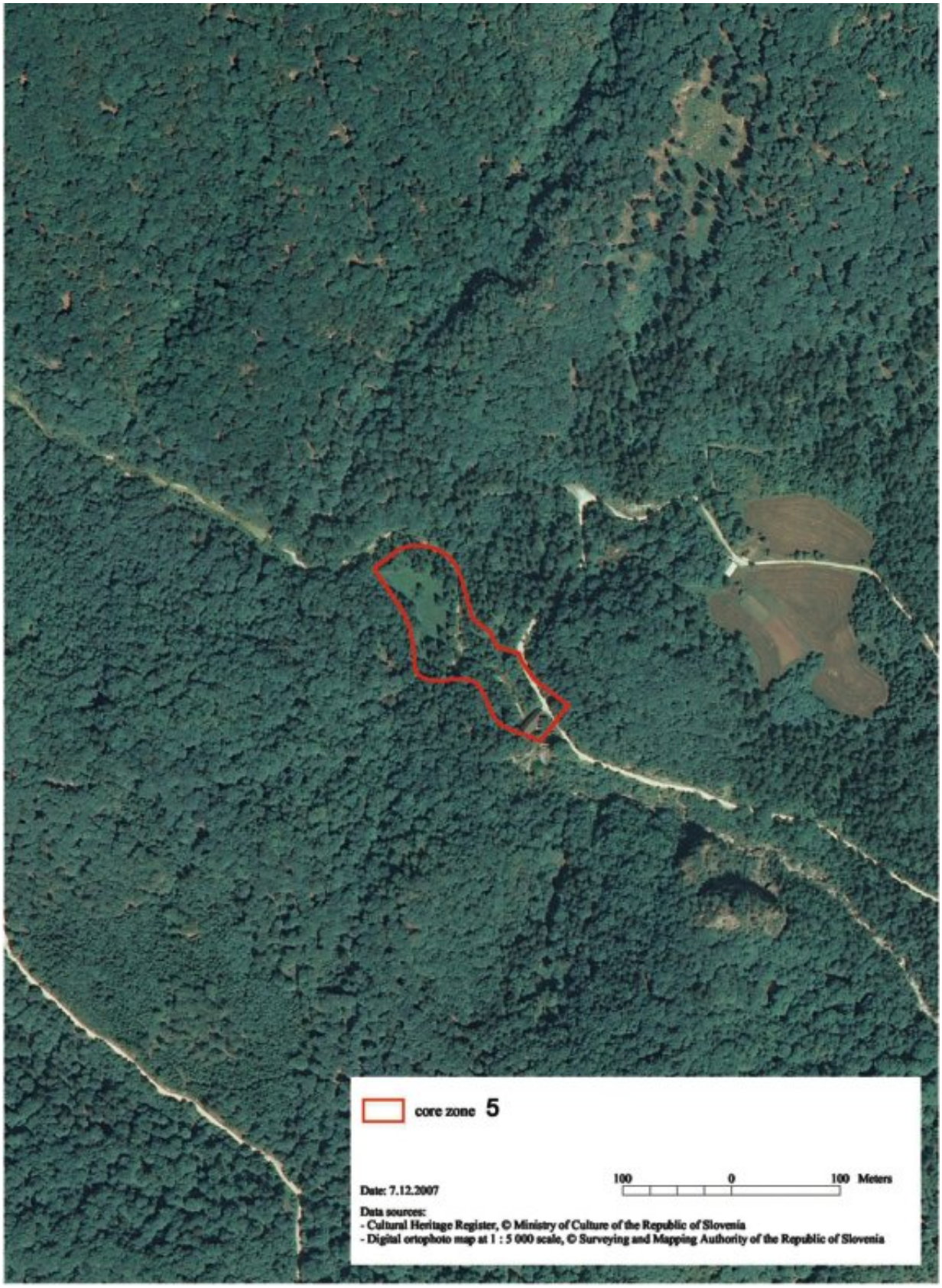
002 core_2.pdf THE SMELTING PLANT



002 core_3.pdf KAMŠT WATER PUMP WITH THE RAKE WATER CHANNEL AND KOBILA WATER DAM, JOSEPH'S SHAFT



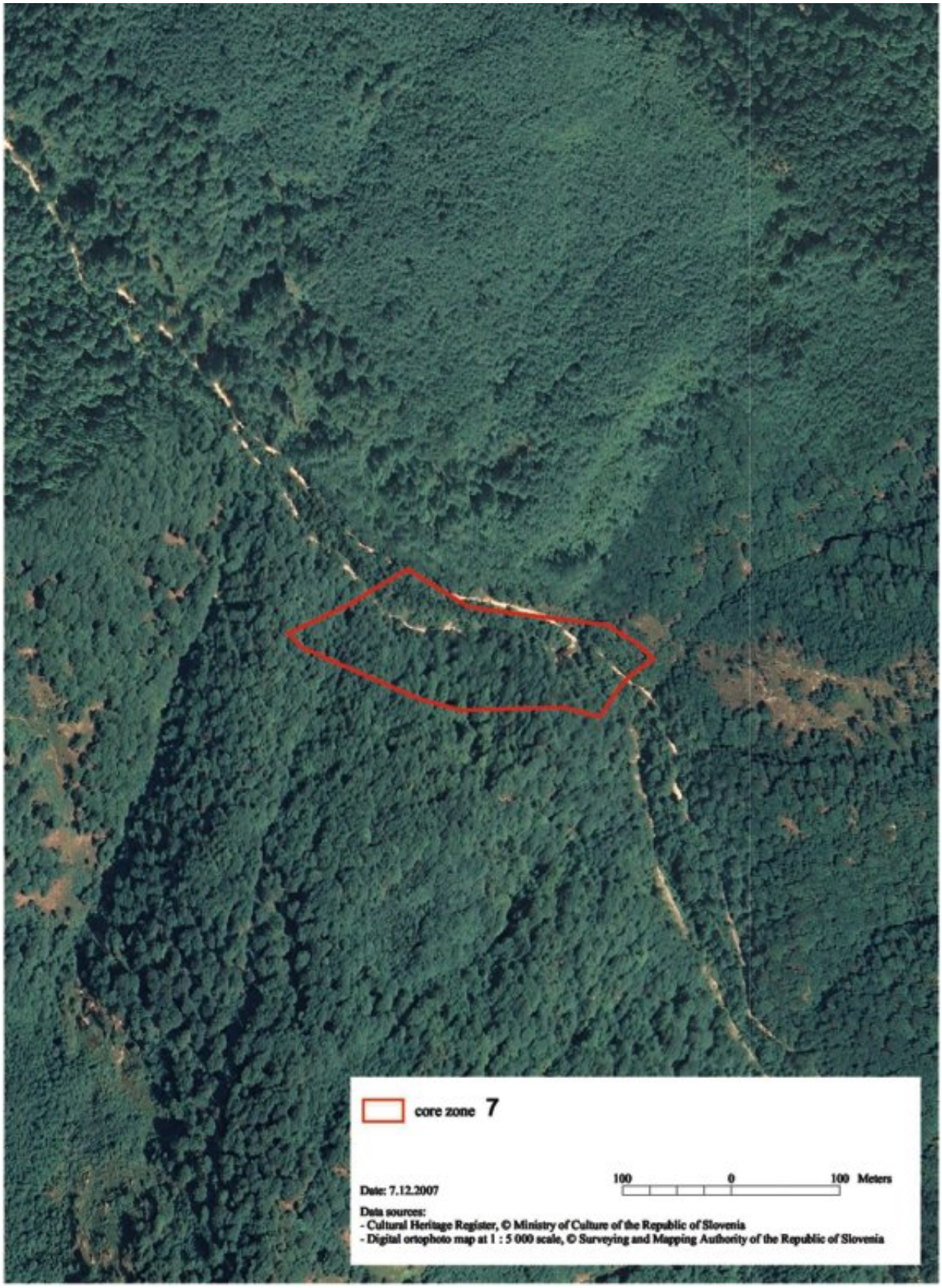
002 core_4.pdf GORENJA KANOMLJA - KANOMLJA OR OVČJAK WATER BARRIER



002 core_5.pdf VOJSKO – IDRIJCA WATER BARRIER



002 core_6.pdf IDRIJSKA BELA – PUTRIH'S WATER BARRIER ON THE BELCA CREEK



I 002 core_7.pdf DRIJSKA BELA – BELCA WATER BARRIER ON THE BELCA CREEK (OR BRUS'S WATER BARRIER)

Chapter 2

Description





2. a. Description of Property

The sites forming part of the proposed series constitute the most noteworthy examples of mercury mines in the world and because of this they have had an important role in the history of humanity, from ancient times up to the present day.

Their moment of greatest historical significance was at the point when they complemented each other to achieve the production that was sent to America along Intercontinental Camino Real of the Spanish Empire, from Europe to Spanish America. It dates from the second half of the 16th Century, when the mercury amalgamation process made possible the large-scale exploitation of the silver of New Spain. Europe and America were closely tied together in a structure linking ports and cities, peoples and communication nodes in order to ensure the stability of the economic model of trading monopolies and other cultural and spiritual values developed by the Spanish Monarchy to serve as the basis for the goal of the Empire.

The transcendence of this phenomenon was such that while it marked the territorial structure of America, among other aspects, it also influenced the subsequent development of the mercury culture on both sides of the Atlantic and has continued to the present day.

A relative rare metal, liquid at room temperature, mercury is produced only by a few mines across the world, of which the largest is at Almadén in Spain and the second largest at Idrija in Slovenia. In addition to the aforementioned historical link, there are many similarities between the two mining complexes in terms of other historical periods, the way in which the population responded to the difficult living conditions of mercury production, and especially the amazing technical and scientific response to all kinds of challenges. They jointly form a set of assets constituting a serial property representing a complex and inter complementary mercury mining engineering methods and related industrial and technical development from the Roman Empire time to the first years of the 21th century. It also offers a complete panorama of the different uses and utilities of mercury throughout history.

(001) 2. a. 1. ALMADÉN

Almadén is located in the province of Ciudad Real to the SW of its capital and close to the boundaries with the provinces of Badajoz and Córdoba. It is a transition zone between the Guadalquivir Valley and the Southern Subplateau. The ancient Roman road between Emérita Augusta (Mérida)

001 010 PUERTA DE CARLOS IV



and Cástulo (Linares) passed through the nearby Alcudia Valley. The Roman road from Córdoba to Toledo also lies somewhat to the west and has a branch to Almadén, which after leaving Alcudia Valley crosses the mining town through Juan Gil Valley. Many sections of this road, magnificently preserved, can still be found today. This exceptional geographical location would facilitate the discovery, exploitation and transportation of the extensive local mining resources (ESTEBAN, Germán, 2006). (MINAS DE ALMADÉN Y ARRAYANES, SA, 2007)

The local natural heritage (flora, fauna and minerals) is enormously rich. Most notable are the Mediterranean forest and the holm oak meadows, where it is common to see wild animals living in freedom.

From a geological viewpoint, Almadén is located in the Central Iberian Zone, corresponding to the central part of the now completed eroded away Hercynian Chain (more than 300 Ma). This zone forms part of the so-called domain of vertical folds, whereas the domain of recumbent folds appears to the north of it.

The succession of quartzite (compact) and slate (soft) layers, combined with the vertical position of the layers, creates a characteristic and spectacular Appalachian landscape. The soft layers erode away to form the valley bottoms, while the hard layers form vertical walled ridges, the most notable of these formations being the Armorican Quartzite (Arenig) and to a lesser extent the Cantera Quartzites (Berounian), Criadero Quartzites (Llandovery) and Base Quartzites (Pragian).

The sandstone and slate deposits contain abundant fauna mainly from the Ordovician, Silurian and Devonian periods. The mining importance of the area led Ezquerra del Bayo (1838), when conducting a geological survey of the surroundings of Almadén, to report the first data on the existence of fossils from the Ordovician (Calymene blumenbachii) and Devonian (Stringocephalus burtini) in Spain. The great paleontological richness of the territory allowed 46 taxa (new fossil species) to be defined.

Among the unique minerals making up the geological heritage of this area, we can find massive cinnabar (locally called "carving stone" because it is used to make hand-crafted carvings), crystallized cinnabar (extraordinary pieces) and other curious minerals (such as barite with inclusions of mercury sulfide).

Paleozoic volcanism was also important in the geology of Almadén. Volcanic activity started in the Dobrotivian (Middle Ordovician) and reached its highest intensity in the Silurian and the Devonian. We initially find alkaline basalts originating in deep zones (with an abundance of sills, pyroclastic breccias and peridotitic enclaves), which evolve to tholeiitic basalts (spongy or pumiceous lava flows with the formation of stratoid pockets) due to progressive distension and the consequent elevation of the source area of the volcanism. We should also highlight the presence of unique rocky outcrops, such as the diabases located at km. 3 of the Saceruela highway, the columnar jointing of the Montejecar trachybasalts, the frequent outcrops of what are locally called "frailesca rocks" (pyroclastic breccias), etc.

But the most important event that has shaped the history of Almadén is the existence of its mine. Epigenetic mineralization of cinnabar and other minerals (barite, calcite, etc.) is associated with Hercynian orogenesis. It was no doubt an extraordinary geochemical anomaly that gave rise to this mercury deposit, which has produced approximately one third of the mercury consumed by man down through the ages, with a total of 7,500,000 flasks (PUCHE, Octavio, 2006).

The territory of the mines at Almadén comprises elements of dif-



001 005 VIEW OF ALMADÉN AND THE MINE

ferent types and scales including geological, geographical and geomorphological aspects, landscapes, paths, the mines, other engineering works and the historic town centre of Almadén.

The mines at Almadén are made up of a system of tunnels and shafts from different eras, ranging from ancient times to modern day, and it is possible to observe stratification in different senses. There are also the ore processing and metal working areas, administrative buildings and warehouses along with constructions and installations from different periods in history.

The area proposed for inclusion as the core area comprises the following assets:

Cultural Asset	Protection. Legal Status
Almadén Mines	Full legal protection.The Almaden Mines are declared as Property of Cultural Interest (B.I.C.) in the category of Historic Ensemble, which also include unique related assets in its surroundings.
Royal Forced Labour Gaol	Property of Cultural Interest (B.I.C.), Included in the above protected Historic Ensemble as a substantial element located outdoors.
Bullring	Property of Cultural Interest (B.I.C.), in the Monument category
Retamar Castle	Property of Cultural Interest (B.I.C.), in the monument category
San Rafael Royal Hospital for Miners	Property of Cultural Interest (B.I.C.), in the monument category. Included in the above protected Historic Ensemble as a substantial element located outdoors.
Bustamante Furnaces	Property of Cultural Interest (B.I.C.), in the monument category
Historic Mining Academy building	Property of Cultural Interest (B.I.C.), Included in the above protected Historic Ensemble as a substantial element located outdoors.
House of the Mine Superindendent	Property of Cultural Interest (B.I.C.), Included in the above protected Historic Ensemble as a substantial element located outdoors.
Historic centre of town of Almadén	Included in the above protected Historic Ensemble as settings and in the Special Protection Plan for Almadén.
San Sebastián el Nuevo Church	Included in the Special Protection Plan for Almadén as a unique element entitled to comprehensive protection. Included in the Special Protection Plan for Almadén
House of the Inquisitor	Unique building in the surroundings that are related to the mines. Included in the Special Protection Plan for Almadén
Original historic section of the mercury's transportation road	Included in the above protected Historic Ensemble.
Buffer zone	Included in the Municipal General Plan of Almadén (POM). Also coincides partially with rupestrian art sites that have been declared as Property of Cultural Interest, (B.I.C.).It also coincides partially with the Special Bird Protection Zone (ZEPA)
Mina del Castillo buildings	Included in the Special Protection Plan for Almadén.

1.- The Mine at Almadén with all the components corresponding to the mine itself, the tunnels and shafts, the ore and metal processing areas, workshops, tips and administrative and social buildings. This area includes elements of great value:

External historic mining and metal working assets:

- Bustamante Furnaces, Horno de Tejeras (Tile Kiln), Wall of the Cerco (Palisades), Puerta de Carros, Puerta de Carlos IV.

- Buildings and installations that have been produced through the stratification and evolution of the technical procedures in the mines, such as San Aquilino shaft, tower (Castillete) and machinery building; San Teodoro shaft, tower, hopper and conveyor belt for barren material, and ore feed hopper; Mercury store (Today Mercury Museum), San Joaquín shaft, Čermak-Špirek furnaces and other buildings and installations from the 20th. century.

Historic mining internal area

- Entranceways to the Mina del Pozo and Mina del Castillo, La Contramina entranceway, San Andrés shaft, Baritel and winch of San Andrés, Forced Labour Tunnel, Caña Gitana, Tunnel to San Aquilino, Level 1 landing in the San Aquilino shaft and tunnel for transporting ore.

- Stretches of the road to Seville along which the production of the mines at Almadén was sent on its way to America.

2.- Almadén's historic town centre, from the mine to the Plaza de la Constitución square. This area contains several monuments of high value, as well as domestic constructions of historic and typological value. This characteristic also extends to part of the shafts and entranceways at the mines. It includes Castillo de Retamar (Retamar Castle) and buildings in the surroundings that are linked with the mines, such as the Chapel of Saint Michael, San Miguel shaft and building, House of the Mine Superintendent, New Church of Saint Sebastian, Mining Academy building and the House of the Inquisitor.

3. - High-value elements outside the historic town centre and the limits of the site proposed, but within the buffer zone: Archaeological remains of the Royal Forced Labour Gaol, Saint Raphael Royal Miners' Hospital, and the Bullring.

The Mines at Almadén

The mines comprise a system of tunnels and shafts corresponding to different ages, in which it is possible to observe stratification, particularly on the vertical. Part of the oldest working areas have been conserved and it is possible to observe the different methods used for excavating the ore. There are also metal working areas, administrative and storage buildings, with installations from the different periods of history.

The mines, apart from having an extraordinary historic value, also document their own evolution, so even the most recent installations contain heritage of significance. Their values don't derive their significance from the historic functionality, but rather from their "inertia" over time, as they are the result of the advances of science and technology.

The area of the tips has also been considered, as they comprise the landscape adjacent to the mines and document part of the process carried out over the years.

External historic mining and metal working assets:

This suite of assets is all located within a walled perimeter enclosing the former Cerco de San Teodoro and Cerco de Buitrones areas. They are currently connected as one area.

Bustamante Furnaces (1720)

The first furnace of this kind, named Nuestra Señora de la Concepción (Our Lady of the Immaculate Conception), was built at Almadén in 1646 by Juan Alonso de Bustamante, using as a reference the type invented in 1633 by Lope Saavedra Barba for the mercury mine at Huancavelica. Until then, the only kilns used had been the *xabeca* ovens of the Arabs and later on the reverberation furnaces or *buitrones*.

Following the journeys around Europe by Diego de Larrañaga in search of new metal processing methods for mercury, the *aludel* furnace ceased to be the only system used in the mines at Almadén, co-existing first with the furnaces from Idrija and later with the Čermak-Špirek furnaces in the middle of the twentieth century, until its death sentence was signed on December 30th, 1929, in a Royal Exchequer Order after more than 280 years of operation in the mines at Almadén. Its use resurfaced sporadically one last time during World War II in order to cope with the great demand for mercury in this period, a situation that rose mercury production in the Mines at Almadén to record-breaking levels. Tose already restored have been built in 1720.

These installations of ordinary stonework and lacing bricks basically comprise two paired furnaces, the San Eugenio and the San Julián furnaces. Each of these in turn is composed of two rectangular bodies facing each other and made from rubblework and mortar, with lines of levelling brickwork, separated by a terrace comprising two inclined planes joining up in the central area, where the ceramic containers or *aludeles* are laid out in rows.

The southernmost body is in two heights, with the lower one, the *cenicero* (ashpan) or *caldera* (boiler), used to burn the fuel (originally lo-

001 006 BUSTAMANTE FURNACES. ALMADÉN





001 007 BUSTAMANTE FURNACES. ALMADÉN (2)

cal firewood and later coal), while the upper part, the *vaso* (vessel) or *laboratorio* (laboratory), was where the ore was placed for roasting; the entire process was controlled by means of a small hole located on the upper terrace called the *válvula* (valve).

The mercury vapours produced during roasting went up through small holes in the wall of the vessel into a chamber where they emerged through 16 pipes formed by *aludeles,* baked clay containers with a hole at the bottom, placed on the dual sloping terrace mentioned above. The mercury first condensed and then dripped out through these holes into a trough placed at the point where the planes converged to allow easy collection. Prior to the next batch, the rows of *aludeles* were dismantled to recover any mercury that may have remained on the walls. These stopped being used in 1928, after having produced 46,000 tonnes of mercury.

Horno de Tejeras (Tile Kiln) (17th century)

Semi-buried brick furnace with arches reaching from the ground. Above these arches, there is also a framing ridge in brick; the rest is solid.

Located in the Cerco de Buitrones, this furnace is known as the *horno de tejeras* (tile kiln). It is assumed to have been built in the 17th century and remained in operation until the first half of the 20th century. It was used to bake tiles, bricks and *aludeles* for the mining installation, using clay brought in from quarries around Almadén. The consumption of the *aludeles* (the ceramic tubes used in the Bustamante furnaces) must have been huge, as many of them were broken during the regular clean-out operation applied to the *aludeles*. The mine had to be self-sufficient, as transportation from other parts of Spain was very costly and took a long time.

Wall of the Cerco (Palisades)

There is a wall enclosing the Cerco de San Teodoro and the Cerco de Buitrones, built in brick and stone rubblework. There are two gates through this wall, the old *Puerta de Carros* (Cart Gate) and the *Puerta de Carlos IV* (King Charles IV's Gate).

001 008 HORNO DE TEJERAS
(TILE KILN)



Puerta de Carros (17th century)

Built in the 17th century, this was the main access into the Cerco de Buitrones until the *Puerta de Carlos IV* was built in 1795. It was then bricked up with stones and incorporated into the perimeter wall. It is a very simple structure produced with boxes of rubblework held between buttresses and compensating lines of brickwork to level it off. The overhead arch was solved by building a splayed segmental arch, with a small hip roof.

This gate has since been restored, along with about 100 metres of the road setting off from the gate.

001 009 PUERTA DE CARROS



Puerta de Carlos IV (1795)

This is the monumental entrance into the area known as the Cerco de Buitrones or the Metal Processing area in the Mine at Almadén. It was built in 1795 during the reign of King Charles IV as the main access and a prestigious architectural element setting off with its spectacular appearance the importance of the product obtained within its walls. It is not a free-standing element, but is attached to and part of the rubblework wall separating the mine's metal processing area. The structure is almost completely made from brick, with two very similar façades, albeit with some differences. It measures 6.25 m x 7 m.

The outer façade of the palisade has a large segmental arch in the centre with marked impost and keystone, flanked by two pairs of pilasters and Tuscan style columns. The frieze shows a curious alternation of triglyphs with gola and metopes, achieved through the differing arrangement of the bricks, headers for the first and stretchers for the others. The central area of the frieze is reserved for an inscription: *"CERCO DE BUITRONES"*. Its uppermost section is defined by an elegant cornice characterized by the ins and outs following the lines imposed by the supporting elements underneath. The whole set of elements is concluded with a pediment with a large central crest in the middle of the tympanum. This is none other than the royal crest, identified, among

001 010B PUERTA DE CARLOS IV



other elements, by the crown and the collar of the Golden Fleece, culminating in a Greek pomee cross and engraved with two fine scrolls. It is noteworthy that this is one of the few elements produced in a material, limestone, other than brick. On either side of the crest are two squares of matching size indicating the date of construction.

The inner façade of the palisade is identical in structure, except for the absence of brackets on the frieze and tympanum and the different crest, also a royal crest but alternating in the field two turrets and two lions rampant. The same Greek pomee cross on a plinth is repeated above the crest and it is surrounded by the collar of the Golden Fleece. The lower part has another inscription similar to the others. The inside of the door is resolved with a groined arch with a central rosette.

Buildings and installations that have been produced through the stratification and evolution of the technical procedures in the mines:

These assets do not have the high value of those mentioned earlier, nonetheless, they are of historic value and linked to mercury production, and this, regardless of the date they originated, is already history.

On the other hand, they coincide in the same place with the high value assets and in several cases such as the San Aquilino and San Teodoro shafts, they are interconnected with the underground assets and the shafts coincide in spatial terms. In their own right, they have their own high value from an aesthetic viewpoint.

San Aquilino shaft, Tower (Castillete), Machinery Building and Extraction machine

This shaft was originally known as *La Grúa* (The Crane) in the 16th century. Already in the time of the Függer family, during a visit to the mines in 1609 by the Royal administrator, there is a reference to the *La Grúa* shaft at the oldest and 17 *varas* wide. There is also a reference to the "Resolladero La Grúa de 26 estados" [the Crane blower, 26 *estados* tall] on a drawing from 1631 in the Függer Archive.

After the 1755 fire in the Mina del Castillo shaft, San Aquilino was used to try to recover the old exploitation of the so-called Southern Branch.

In the middle of the 18th century, this shaft was one of the three that connected the outside world with the three ore deposits known as San Diego or San Pedro, San Francisco and San Nicolás.

Around 1856, the shaft was at level 9 and towards the end of the 19th century, the rail transport installations were fitted on the inside and on the surface.

At the end of the 19th century (1870 and 1871), the first extraction machine began to be assembled, initially a steam-powered system.

From 1918 on, the electrification of the shaft began, as did the use of compressed air and pneumatic drilling. The extraction machine was electrical by now. At this time, the shaft reached level 13 and was used for access by personnel and the extraction of ore.

In 1955, a regrettable accident occurred, in which the cage became stuck, probably because of pressure from the terrain. This shaft was definitively abandoned after this.

The shaft, located in the Cerco de San Teodoro work area, has a cross section of 2.9 m x 2.7 m and reached 378 metres (level 14) in depth after several extensions, although it is currently only possible to reach level 9. It has pyroclastic rock down to level 9 and black slate and quartzites to level 14.

From the beginning of the 20th century and until 1955, it was used as the second ore extraction shaft, with the mineral being brought out loaded



001 011 CASTILLETE DE SAN AQUILINO

in iron hutches. It was also used for access by personnel, the transfer of materials and as a ventilation outlet. At the end of the 1960s, it was sporadically used to transport materials until the final shutdown. It has now been rehabilitated.

Castillete de San Aquilino

The current *castillete* (tower) replaced a wooden tower built in the 19th century that in turn replaced the hoists previously mounted above the shaft known as the Pozo de la Grúa (the Crane shaft). It is a metallic structure from the beginning of the 20th century, built from beams and lattice work, not welded but riveted. Its rear feet are vertical and the front two angled to support the stress of the extraction cable.

Its supports are spread around the shaft, each 16 metres in height and with a rectangular base of 14 m x 5.6 m, holding up the pulley guides in line with the entrance to the shaft, over which the flat suspension cables for the cage are slung to provide access for people and materials. It was decommissioned in 1960.

Machinery building for the San Aquilino shaft

It was built between 1907 and 1910 to house the new electrical extraction machine that replaced the previous steam-powered one from 1874.

It is an industrial building with a rectangular base and a single double-height floor, cellar of intermediate columns and with its bearing walls in undressed brick, with a socle in the same material and pilasters on the four corners.

The main façade has three openings with semicircular arches, the central one higher to mark the axis of the structure. Initially, it was built with openings and these were later closed with wooden windows and single glazing. This frontage is completed by a stepped pediment with three distinct parts with openings finished in semicircular arches, three in the centre and two on the sides. The sides of the building are the same, with four openings per level. It has two levels of windows finished in flattened arches and a brick cornice tops these elevations.

To the rear, there were originally two side openings per level, each finished in an arch, and a single central opening for the connection of the machinery with the shaft. This opening was later closed with brickwork, leaving two rectangular openings. All of the façade openings are framed in brick. The wall is crowned by a pediment with a vertical decorative element. The ridge roof is of flat tile on wooden purlins.

Both the building and the extraction machinery it contains, although they do not correspond to the period of history on which the nomination is based, are a consequence of the mine's processes, so they have a certain value given by historic continuity or by a process of stratification that does not contradict the preceding values but reinforces them. In addition, they have high formal values through the use of each element (building and machine) through the combination of space and volume on both and the proportions of the building and the delicacy of the brickwork.

001 012 MACHINERY BUILDING FOR THE SAN AQUILINO SHAFT



San Teodoro shaft, tower, hopper and conveyor belt for barren material, and ore feed hopper

San Teodoro shaft

Located in the Cerco de San Teodoro work area, this shaft is 4.5 metres in diameter and about 500 metres deep (Level 19), totally lined in concrete and equipped with metal guides for the passage of the cages.

It has two cages which are operated by means of an extraction machine installed on a platform located in the upper part of the shaft's tower. This shaft also has an auxiliary shaft fitted with metal ladders for personnel access.

In 1965 it underwent a profound restructuring with the current extraction machine fitted and the change of the systems for removing and loading the ore and its transport in hutches. This shaft was the master shaft until 1975 and was capable of extracting about 50 tonnes/hour. In it latter days it was used as a secondary exit for personnel only.

It has currently been refurbished down to a depth of 50 m and a lift has been installed, in imitation of an extraction cage, so that visitors can access the inside of the mine.

This shaft began with a winch for the extraction of ore from the "Las Hoyas" mine at the beginning of the 18th century. In the last decades of the 18th century, the depth achieved in the mine meant that there were tremendous difficulties in the drainage as well as the extraction of ore and ventilation of the workfaces. In addition to this situation, the air was fouled by the smoke from the explosions. For these reasons, having the winch inside was very problematic for both people and animals, so it was installed on the surface next to the edge of the San Teodoro shaft.

Another of the main problems as the depth increased was drainage. From 1755 on, manual suction pumps began to be fitted; they were very rudimentary but were an improvement on the traditional system of water sacks by establishing a procedure the continues gradual bailing out of the shaft.

In 1786, studies began into the possibility of using the first steam-powered machines to pump out water from inside the mine and the shaft begin to be remodelled to adapt it to the use of the steam engine. It seems that steam power began to be used around 1799 to bail out water.

The machine installed was the first of its kind to be installed in Spain for mine drainage and represented a spectacular advance, contributing to an increase in production at Almadén.

After the great fire that took place in 1755, the reinforcements around the shafts and tunnels was increased with the use of rubblework and from this date on there was a mandatory ban on the use of timber for supports in the mine.

Towards 1802, under the new Director of Almadén, Mr. Diego de Larrañaga, massive use began to be made of arches and rubble walls in mining operations, a major change in the exploitation system. This method is particularly interesting on the San Nicolás vein, between levels 6 and 10.

Around 1856, this method was called into question due to its high cost and mineral losses, but it was still in use until 1910. From 1914 on, the only method used was cut and fill.

Tower above the San Teodoro shaft

At the end of the 18th century, a large whim was installed to bring up the ore and lower materials.

Around 1870, the tower was made of wood and housed the pulleys for the steam-powered extraction machine. This system was in operation until 1920; from this moment on, a new tower was installed with pulleys to guide the cables operated by an electric machine.

Hopper and conveyor belt for barren material

Located about 20 metres to the south of the shaft, this system began to be used at the start of the 20th century when it was decided to abandon once and for all the Larrañaga operating method and the cut and fill system was implemented in the mine.

Ore feeding hopper

Located a few metres from the San Teodoro shaft. Initially, around 1874, the hutches loaded with ore coming up from the extraction shafts were dragged by animals to the distillation area. Later, at the beginning of the 20th century, electric locomotives were used to transport the ore to the processing palisade.



001 013 TOWER ABOVE
THE SAN TEODORO SHAFT

Mercury store

In 1939, the Board of Directors of the Mines at Almadén considered the need to build a new quicksilver warehouse as, due to the increased production, the existing warehouse was insufficient to store production. Construction work began on the building in May, 1941, but they soon came to a stop due to a lack of materials and the danger that there might be a landslide at the tips. A new design for the building, dated June 30th, 1942, was drawn up.

This building has now been rehabilitated and houses the Mercury Museum.

Workshop buildings

These are four rectangular buildings located in the Cerco de San Teodoro process area, built between 1923 and 1925 to house the various workshops needed on the mining site (carpentry, smithy, fitting, etc.) for both the mine itself and the metal processing area. They are currently undergoing rehabilitation.

Compressor building

Located in the Cerco de San Teodoro area, it was built in a late neo-classical style, around 1925, at the same time as the workshop buildings, in order to supply all the compressed air the mine needed.

The compressed air gradually became less important in the mine after 1977, when the drilling machinery and the internal transport system became electric or diesel-powered.

This building has now been rehabilitated and as the Mine Interpretation Centre.

001 014 MERCURY MUSEUM
(OLD MERCURY STORE)



Shrine to the Virgin of Miners

Located in the Cerco de San Teodoro area, it was built in the 1940s for the new image of Our Lady of the Mine, as the previous figure had been destroyed in the Civil War.

It is supported by the wall of the cellar and is entirely in brick. The shrine itself has a frame with a brick equilateral arch, with the back also in brick, pushed back into the wall of the building. Pilasters on either side of the shrine provide a frame; horizontal mouldings create a frieze together and a central pediment with a triangular base, crowned by an arch with perimeter coving. On either side of this pediment are two pinnacles crowning the pilasters.

Saint Theodore's Cellar (Bodegón de San Teodoro)

The store known as the *Bodegón de San Teodoro* (Saint Theodore's Cellar) is where gunpowder was stored for use at the mine and was dug out of solid rock. This store only contained the explosives needed for the day's planned work, as the general magazine was located outside the town to avoid accidents. In 1980, the Mining Act also forced the removal of the daily store to another site further away from the town.

The layout contains a main area, an entrance and three rectangular wings emerging from the entrance. It is dug out entirely from the rock, with barrel vaults. The external façade in rubblework and dressed brick. The internal divisions are in undressed brick.



001 015 SHRINE
TO THE VIRGEN OF MINERS

001 016 ČERMAK-ŠPIREK FURNACES. CHIMNEY



Old laboratory building

A square, single-storey building with a central skylight. The man façade has a central opening for an entrance and two windows on each side. Located in the Cerco de Buitrones working area, it was built at the beginning of the 20th Century to accommodate the former chemical laboratory of the Mining Establishment. The bearing walls are in undressed rubblework. Its windows are finished in a flattened arch, with frames, corners and cornice in brick. Wooden joinery with iron bars on the windows. This building has been rehabilitated recently.

Works office building

Located in the Cerco de Buitrones working area, opposite the former laboratory building It was built during the reign of King Charles IV, i.e. at the end of the 18th or the beginning of the 19th century. As it was close to the gate into the Cerco de Buitrones (the Puerta de Carlos IV), the lower floor of the building was given over to the teller's office to monitor the shifts worked by the furnace operators. It also served to accommodate the offices of the metallurgy department. In the 1980s it was remodeled to install the offices of the civil engineering department, but it was abandoned again around 1990.

San Joaquín shaft, tower, skip - extraction hopper support and old engine room

San Joaquín shaft

Located in the Cerco de Buitrones area. In 1960, this shaft was used to bring in filling material and it had a cylindrical-drum extraction machine with two cages capable of holding two hutches each. In the 1970s, the price of mercury fell dramatically and considerable mechanization was necessary to lower costs. To this end the depth of the mine was increased and a modern extraction system was installed, the last link in the vertical transport systems in the mines at Almadén. From 1975 on and until it was decommissioned, this was the master shaft and the main route for extracting ore, drainage and the access of personnel.

Tower above the San Joaquín shaft

Located above the San Joaquín shaft in the Cerco de Buitrones processing area, it is a metallic structure supported on four pillars anchored to respective concrete blocks.

Support for skip and extraction hopper

The San Joaquín shaft initially had a double cage with capacity for two hutches each. Subsequently, when production had to be notably increased, an extraction skip was installed as the most modern element in the vertical transport systems in the mines at Almadén.

Former machine room for the San Joaquín shaft

Located in the Cerco de Buitrones, it was built in 1954 for the winch of the San Joaquín shaft. It was later abandoned as the shaft was made deeper in 1975 and the current tower was added.

Čermak-Špirek furnaces (1906)

Installed in 1906, these are located in the Cerco de Buitrones. They were devoted to the processing of small sized ore known as *bacisco* (briquettes). The only element remaining is the 24.25 meter tall brick chimney, 12.9 x 14.5 m at the base.

Historic mining internal area

This corresponds to the underground elements, all of which are of high his-

toric value, as they are the main witnesses to the mine's evolution over the centuries.

Entranceway to the Mina del Pozo (16th century)

The entranceway to the Mina del Pozo shaft was opened at the beginning of the 16th century and was a horizontal tunnel giving access to the mine of the same name. It had a slight outward slope allowing drainage by the effects of gravity. It was connected to the entranceway of the Contramina through the Caña Real gallery.

The exploitation method used was the method known as picking, which left large holes open and required a lot of timber for support. For this reason, together with the use of esparto cords soaked in oil for illumination, there were frequent fires and lots of cave-ins. This method was used at Almadén until 1784.

This access was used to extract the ore and to drain the mine, although it was soon necessary to dig deeper shafts beside the tunnel to continue draining.

Around 1543, the ore was taken out through the winch at La Grúa (the San Aquilino shaft). This shaft was also used for the access of personnel, so this opening was used for drainage.

Towards 1599, it was connected to another tunnel called the Contramina, which facilitated access by miners and the extraction of the ore as well as allowing an improvement in the internal communications.

From 1563 to 1600, the first period under the Függer family, there was moderate development, with no fires or cave-ins and production increased.

001 017 INSCRIPTION IN *LA CRUJIA*,1664



From 1600 to 1645, the second period under the control of the Függer family was considered to be a notable boom. The design of the operations was becoming more complicated and it was necessary to open up numerous shafts for drainage with whims bringing up water to the entranceway.

From 1645 on, the operations at the mines were once more directly run by the Consejo de Hacienda (the Exchequer Council) and, after a few periods of normality, the ore began to run out and drainage became ever more complicated, so the situation was chaotic by the end of the 17th century. Coinciding with the discovery of the Mina de la Hoya and the Mina del Castillo, the Mina del Pozo was abandoned around 1701, when it had reached a depth of about 140 metres.

The original gaol used a building adjacent to the Mina del Pozo mine to house between 30 and 80 forced labourers, as well as a similar number of slaves. The first prison building would be put up only years later. In 1644, Mateo Naguelio built a tunnel communicating the Gaol with the Mina del Pozo, in an attempt to prevent escapes, as the prisoners went from the mine to the prison without ever going outside. This tunnel was called the *crujía* (gangway), due to its similarity to the gangway of the galley ships connecting the bows to the stern. (SAUCEDO, María del Rosario, 2006).

The entranceway to the Mina del Pozo continued to be used for drainage, ventilation and personnel access until the beginning of the 20th century.

It is a horizontal tunnel about one hundred and fifty metres long and with varying cross-sections. The tunnel can be divided into two stretches: the first, about a hundred metres long, is cut through footwall shales and mostly has a brick vault, with its walls lined with rubblework.

The tunnel's second stretch is excavated in quartzites without any kind of support or lining.

It has now been refurbished and is used as an emergency exit for visitors inside the Mining Park.

Entranceway to the Mina del Castillo (18th century).

This tunnel was opened at the beginning of the 18th century after the discov-



001 018 ENTRANCEWAY TO THE MINA DEL CASTILLO

ery of the Mina del Castillo around 1699, while the Superintendent of the mines was Mr. Miguel de Unda y Garibay. This mine was richer than Mina del Pozo and it was initially not very deep, allowing it to be drained by gravity. As the mine became deeper, it became necessary to create numerous shafts alongside the tunnel to extract water, first with whims and sacks, hoisted by hand, and later with the help of pumped stages; all of these activities were among the most unpleasant at the time.

The entranceway was used to drain off water and transport the ore, by means of wooden trolleys with cast iron protection and wheels, making them extremely heavy. The hutches or trolleys were pushed by forced labourers and they followed a guideline housed in a wooden channel along the length of the tunnel, thus avoiding the hutch from bumping into the sides.

Gunpowder began to be used at Almadén around this time, although the regulations governing its use were not enacted until 1735.

Around 1754, the Mina del Castillo reached a depth of 118 metres and the water in it had to be drained off through shafts at the foot of the tunnel.

In 1755, there was a major fire that took more than two years to extinguish. The use of wood was expressly banned for the timbering of shafts and tunnels from this time on, making it necessary to line the walls with rubblework.

At the end of the 18th century, the excessive depth of the mine required the installation of ore extraction and drainage systems outside this tunnel, through the San Teodoro shaft that had previously been used basically for the Mina de la Hoya mine.

From this time on, the tunnel was used for personnel access, ventilation and drainage and continued like this until the beginning of the 19th century, when it ceased to be used.

The tunnel is about 230 metres long, completely lined with rubblework walls and with a brick barrel vault, except for two small sections that are cut in rock. The cross-sections are variable and range from 2.1 x 2.25 metres at the beginning of the entranceway to narrower stretches of 1.05 x 1.8 m towards the end.

From this tunnel it is possible to access directly the old descent to the Mina del Castillo from Retamar castle, located in the heart of Almadén, as well as the Forced Labour Tunnel.

001 019 ENTRANCEWAY TO THE MINA DEL CASTILLO. BRICK BARREL VAULT



La Contramina entranceway (17th century)

The "Mina de Huerta del Rey" seems to refer to the entranceway of the Contramina.It existed before 1696, next to the Mina del Pozo, and it was apparently abandoned in 1701. At the moment, an entranceway or access shaft can be seen. The southern wall is cut into the bedrock, whereas the northern and eastern walls have containment linings basically built using medium and large sized rubblework, held together by mortar. The entrance to the mine is on the eastern wall. Under the containment wall mentioned there is a rectangular shrine included in a panel of rubble, brick and mortar. The inside of the shrine was plastered and its top shows the mark of a timber beam now disappeared; this was the space for the image of the shaft's patron saint.

San Andrés shaft (18th century)

Initially, the drainage of the Mina del Castillo was effected directly by gravity through the entranceway but, as it went deeper it was necessary to used additional shafts.

A whim was installed in the San Andrés shaft for the manual extraction of water in large leather bags called *zacas*. This very gruelling and unrewarding work was basically performed by prisoners.

When the San Andrés shaft reached its maximum depth below its basin, the water had to be extracted through a nine-pump unit. Each pump required two men to work it and the shifts changed four times a day.

From this shaft, the ore was also extracted using platforms that were raised using a winch (malacate) located next to the shaft. Once it was out of the mine, it was placed on trolleys pulled by the forced labourers, who transported it across the entranceway. This method was costly and so plans were made to install a whim in the San Miguel shaft to service the Mina del Castillo.

From 1800 on, both the extraction of ore and drainage were effected from the San Teodoro shaft, servicing the Mina de la Hoya, and the San Miguel shaft, which serviced the Mina del Castillo.

The San Andrés shaft is rectangular with a cross-section of 3 x 1.6 metres, located at the foot of the entranceway to the Mina del Castillo, with a depth of approximately 87 metres and up to 100 if the shaft's basin is included. It is not lined and is cut through quartzite and slate. Landings have been installed throughout the shaft to allow the use of metal ladders as well as suction pumps.

Baritel and malacate (winch) of San Andrés

As the Mina del Castillo was getting deeper, towards the beginning of the 18th century, a whim was installed to bring out the ore through the San Andrés shaft. This installation comprised a vertical winch anchored in the gap cut out for the purpose, with a rope tied round it. The drum was driven by mules and the cables passed over some pulleys to hold up the platforms with the ore.

It took eight mules pulling together to move the winch and the teams were changed every three hours. The operation was slow and costly but about 40 tonnes could be hoisted up in twelve hours.

At the end of the 18th century, drainage and extraction tasks were more and more difficult and the atmosphere in the area was harmful because of the mercury vapours. For this reason, a whim was set up next to the edge of the San Teodoro shaft and a steam engine was also installed to operate the drainage system. As a

result, the San Andrés winch ceased to be used.

The baritel is an opening cut into the rock and lined with rubblework, measuring 903.6 m^2 in cross-section and 139.31 metres in the round, with a maximum height of 13 metres, roofed over with a brick and stone vault to provide housing for the whim installed for the extraction of the ore from the Mina del Castillo.

The wall next to the shaft still has holes through which the cables were passed so that, operated by the whim, the ore extracted from the deepest areas could be raised to the surface, at the foot of the entranceway. At the exit towards the tunnel leading to the Castro hoist, it is possible to see a curious geological formation known as a "rippermark".

Apart from its historical value, the San Andrés baritel is impressive for its shape and volume, thanks to the size of the cupola and the brickwork of its walls.

Forced Labour Tunnel (18th century)

Prisoners sentenced to hard labor were traditionally used in the Mines at Almadén. The use of prisoners was first used in the time of the Függer, as a lot of labour was needed, but it was in the second half of the 18th century when their use increased.

After the fire of 1755, several buildings were put up, including the Royal Forced Labour Prison (located on the land now occupied by the School of Mining and Industrial Engineering of Almaden), and numerous prisoners were brought to Almadén. To avoid the transit of prisoners through the town and possible escapes, a tunnel was built for them to access the first level of the mine directly.

They were given the worst jobs and their working conditions were occasionally a source of considerable problems, so in 1800 the Goal was closed.

This tunnel is approximately 700 metres long with a cross-section of 1.75 x 1.05 m and is totally lined in rubblework. It linked the old prison in Almadén with the first level of the Mina del Castillo and provided access for the prisoners carrying out the worst tasks, such as draining off water using huge sacks and dragging the trolleys around.



001 020 BARITEL AND MALACATE OF SAN ANDRÉS

001 021 LEVEL 1 LANDING
IN THE SAN AQUILINO SHAFT. SHRINE



Caña Gitana (18th century)

This tunnel inside the mine already appears with this name of Caña Gitana on Larrañaga's plan dated 1792, and it probably corresponds to the period after the 1755 fire, when new workfaces were opened up to reach the old exploitations.

It passes next to the San Teodoro shaft at the first level and heads towards the Mina del Castillo. Initially, it goes through an area of quartzites for its first 20 metres. From there, the tunnel turns northwards and continues with an upward slope through footwall shales.

The tunnel reaches the Mina del Castillo close to the San Andrés baritel, lined with rubblework. Its total length is about 140 metres.

Tunnel to San Aquilino

The breast and stope method began to be used after 1784 and was introduced by the German engineer Hoppensak. It used little timber, which was very important after the fire in 1755. It involved resisting the pressure on the side walls using stanchions (props), on top of which a wooden layer with openings was placed so that the ore could be dropped down to the loading and transport area. The height was usually 1.5 to 2 m and the width varied depending on height of the vein of ore.

The breast and stope method was used until 1803, when Diego de Larrañaga designed a specific method for the mines at Almadén.

This tunnel links the San Teodoro shaft to that of San Aquilino. It is approximately 100 metres long and the cross-section varies around 4 m^2. It would initially have been entirely in rock, but it now appears with an 18th century section lined in rubblework and brick vaults. From this tunnel, there are others dug for the exploration and exploitation of other minerals. It is possible to view a breast and stope workface with part of the mineralization.

Level 1
Landing in the San Aquilino shaft

This landing comprises:

Shaft guides

Until 1755, the use of timber beams was frequent for reinforcements, guide rails, etc., but after the fire that left the mines unable to produce anything for almost two years, timber began to be abandoned in most of these uses and so rubblework became the most common system for supporting the walls with metal guide rails in the shafts.

These guide rails have been refurbished as far as the first level so far: they are wooden guide rails down through the shaft to allow the passage of the cage. It was built in *buscapí* wood and is from the beginning of the 20th century (1907).

Cage

Elevator with a metal structure used to transport the hutches with the ore, other materials and for access by the personnel. It was initially a double-storey cage and was cut down to a single deck in the 1940s. It is 2.14 metres high.

Shrine and tool room

These installations may possibly be from the 18th century, because it was after 1700 when gunpowder began to be used at Almadén and 1735 saw the enactment of the Mining Regulations approved by King Philip V, setting out the procedures that had to be used to carry out the drilling and the techniques for the safe removal of the ore using gunpowder explosives.

Next to the first-level landing in the San Aquilino shaft, there is a tunnel heading east for about 25 metres,

cut through the pyroclastic rock. The tunnel ends at a fault area.

In this extension, only a few metres from the landing platform, there is a shrine located above a tunnel wall in the form of a niche with vaulted arches to house a figure of the Virgin Mary or the corresponding saint. It is made in solid undressed brick and sits on a pedestal in the form of square prism built in the same way.

A bare 10 metres away there is a small room of about 12 m^2 in the same kind of construction and with a window, used as a tool store; inside here was a tiny powder store in which small amounts of explosives could be kept.

All of this area has now been rehabilitated and there is a display in this room with tools similar to the historic ones.

Tunnel for transporting ore

This tunnel is 355 metres long and has a cross-section of 3.10 x 4.30 m., completely lined in concrete and with electrical wiring inside. It runs inside the Cerco de San Teodoro working area between the shaft of the same name and the Cerco de Buitrones. It was used to transport ore from the hopper installed on the surface next to the shaft to the feeding hoppers for the metal working processes in the Cerco de Buitrones.

In the 18th century, this ore was transported on the surface in carts dragged by animals and at the beginning of the 20th century a locomotive also hauled the ore across the surface to the dumper.

This area has now been refurbished and a suitable mine train has been installed for the transportation of passengers, so that once visitors have finished the tour inside the Mining Park, they can be taken internally to the Cerco de Buitrones area.

There are also refurbished crushing machine and a conveyor belt in this tunnel.

001 022 LEVEL 1 LANDING IN THE SAN AQUILINO SHAFT. TOOL ROOM



Sections of the road

The route between Almadén and Seville was already well established by the middle of the 16th century. When the carts left the Cerco de Buitrones through the *Puerta de Carros* (the Cart Gate), they had to overcome a slope in the terrain to get onto the main road. This short section was cobbled and reinforced by a small stone buttress. In addition, there are remains of another cobbled road linking the *Puerta de Carlos IV* (the King Charles IV Gate) to the Puerta de Carros around the outside of the palisade. A little further on, the quicksilver route coincides with what is now the N-502 trunk road.

001 023 THE ROAD ALONG THE CERCO





001 024 FIRST SECTION OF THE ROAD

001 025 VIEW OF THE BUFFER ZONE
FROM THE FIRST SECTION OF THE ROAD



Almadén's historic town centre

In its morphology, the town of Almadén expresses the evolution of its history always tied to the mine. The first layout is approximately hub and developed around the Castillo de Retamar so it clearly expresses the distribution of narrow, winding streets corresponding to an Arab settlement on a hill. The town subsequently spread down by the palisade of the Cerco de Buitrones and the San Teodoro shaft until, in the 18th century, there began a linear spread that, always starting from the core of the mine, shows the layout's spatial subordination to this focus. This becomes evident when observing the overlapping of the streets pattern with the marks of the traditional paths from the town to the mine. The new residential area, however, has a morphology that differs from the previous one's grid.



001 026 ALMADÉNS HISTORIC TOWN CENTRE



001 027 STREET SHOWING ANCIENT LAYOUT



001 028 TRADITIONAL HOUSE

The historic town centre preserves the original layout intact and exceptional homogeneity in terms of its morphology. It is of value in its own right, as it has remained practically unaltered and it is possible to appreciate, apart from the acknowledged monuments and the urban layout, examples of housing types from different times.

The most interesting point is that the historic centre is located on an area of the mine itself, so it is obvious that it constitutes an important, inseparable part of the mine. Some tunnels even extend out of the historic town centre, such as the one that emerges in a children's playground.

The rest of the town of Almadén, apart from what has been referred to here as the historic town centre, includes several of the most important monuments: the Saint Raphael Miners' Hospital, the Bullring, the remains of the Royal Forced Labour Gaol and exits from mine tunnels. The urban layout, in its 18th century extension, is also of value. (ROJAS, Angela, 2006)

Castillo de Retamar (14th century)

Bearing witness to the Arab domination is the Fortress Castle built for the defence of the treasure in its mines and known at the time as "Hins-Almadén" or Fort of the Mine. It occupies a rocky elevation at the highest point on the hills the town of Almadén stands on. What is now visible are the highly modified and reduced remains of a mediaeval castle that has suffered numerous episodes of rebuilding prior to its most recent use as a bell tower, among other less evident uses. It was strengthened and extended in 1467 by López de Padilla, the Warden for the Order of Calatrava.

All that is left of the castle is a block with a more or less rectangular design that may have belonged to a keep, with one wall remaining that might reach about 15 metres in height, and the marks, on the south side of that wall, of two large, parallel strips about 2.5 m wide that held up a brick barrel vault.

The dominant building technique was well-made rubblework in stone and mortar, although there are also sections combining bricks and some elements used masonry stone.

Above the west-facing façade, basically in the central part and attached to it by two decorative curved walls of stone and brick rubblework, there rises a much later bell tower built in rubblework using stone and mortar and also brick rubblework. It is quadrangular in shape, with two floors, covings by way of pilasters and decorative cornices on the corners and the surfaces in contact with the walls, openings and blocks.



001 029 CASTILLO DE RETAMAR

Buildings in the surroundings that are linked with the mines:

Chapel of Saint Michael (1645)

This chapel, known as the Ermita de San Miguel, has also been referred to as Saint Bastian (perhaps Saint Sebastian?). It apparently dates from the 17th century (1645) and was built by Mateo Naguelio. Its purpose was to provide spiritual services for the convicts in the old Forced Labour Gaol. The construction of the new prison and the new church devoted to Saint Sebastian, behind the San Aquilino shaft in the 18th century, meant it was no longer used.



001 030 CHAPEL OF SAINT MICHAEL

It has a single vaulted nave, with a brick arch on supports and roughcast brick walls. Entry is by means of a side door through a courtyard that was originally covered. Remnants of the original roof still remain.

On its frontage, it has a semicircular arch, currently filled in, framed between two decorative pilasters at the ends of the façade, and on the inside the arch appears converted into a foiled arch. This would have been the way in to a kind of monumental porch prior to the notable entrance to the temple, located on its western façade. The entrance is completely in brick and involves a passageway covered by a semicircular arch with an embossed keystone, flanked by two pairs of decorative columns back-to-back on plinths, crowned by entablature with a frieze and a cornice holding up a pediment split by a segmental arch. The central space in the pediment is occupied by a shrine that rises above the height of the pediment, flanked by its own decorative columns back-to-back and crowned by a semicircular arch that probably held up a triangular pediment that has since disappeared, immediately below the building's cornice. An image of the saint would have been placed in this shrine. The existence of the west porch in front of the chapel has favoured the good conservation of its entrance.

It has a single nave divided lengthwise into three areas by pillars on which fan vaults rest; the head of the church is separated from the other two parts by a large semicircular arch.

San Miguel shaft and building (18th century)

This shaft has existed since the beginning of the 18th century, with the exploitation of the Mina del Castillo, and it was used for the extraction of ore and the delivery of materials, so it had a kind of press comprising a horizontal cylinder around which the cable holding the two suspended platforms was wound. The always increasing speed with which it descended was adjusted by means of a handbrake operated by a workman.

Towards 1803, the shaft was made deeper and at the beginning of the 20th century it was equipped with a wooden tower and an ore and drainage extraction mechanism.

After 1955, as it was located within the town, it was only used as a ventilation shaft. In 1966, it was again

made deeper, down to level 19, as was the San Teodoro shaft, so its current depth is 500 metres. Since this shaft's construction, the air entering through the San Teodoro shaft has a natural tendency to emerge through this one, so in summer, when the ventilation circuit is inverted, mining activities have traditionally been halted or at least diminished.

On the surface, the entrance to the shaft is within a vaulted chamber lined with rubblework. The structure comprises three volumes and a courtyard providing access to the shaft, now sealed off.

The first two-storey volume where the mine's ventilation system is located, is blocked off, except for the southern face which has a glazed wall. The roof is pitched with flat tiles. In the second area, a lower volume with Arab-style tiles on the ridge roof, the northern façade has two doors in wood, and the southern one a door giving onto a courtyard and windows. The western side has no opening with stone corners and pinnacles. The third block, entirely in concrete with no openings, houses the connection with the shaft. They all have brick walls roughcast on the outside.

House of the Mine Superintendent

Remains of a large property standing in one of the main squares in Almadén, the Plaza Ruiz de Alda, today Donantes de Sangre, in the highest part of town. The ruins are distributed over an irregular area, although they seem to indicate the former structure of a home on the southern side and a large open space to the north, used as a courtyard. The ruins of the perimeter walls remain on the northern and north-western sides, as do the remains of the lower floor of the main entrance and the rear doorway opening on to the common land off Avenida Norte in Almadén and providing access to the northern courtyard.

Only the first floor of the main entrance is preserved, the part corresponding to the access door, flanked by four paired pilasters on coffered plinths. The architrave is decorated with a series of metopes and triglyphs with regula and gola. Above this, the only element still preserved is a single cornice. At the base of the jambs of the access door, it is possible to see two reliefs with a fleur de lis amid ferns. The old structure has



001 031 HOUSE OF THE MINE SUPERINTENDENT

been included in a small wall made from rubblework and frontages in brick.

The northern access has a single door opening onto the common land off Avenida Norte in Almadén. This access communicated directly with the House's northern courtyard. It is simple rubblework reinforced with brick. The access (probably for carriages) is through a segmental arch in solid brick and is crowned by a triangular pediment flanked by two small pinnacles in brick topped by two square bricks placed in a triangular formation.

New Church of Saint Sebastian (18th century)

This is in the Plaza de Ruiz Alda, today Donantes de Sangre, in the centre of the town's old district and dates from the second half of the 18th century. It is a small church, originally in the shape of a Latin cross, considerably rebuilt on the inside and on its western side, to which several other buildings have been added.

It was built using stone rubblework, with a few walls and other elements in rubblework with brick (such as the twin lacing courses on the side façades), and masonry stonework on corners and monumental elements. It has a half hip tiled roof.

The eastern façade is very noteworthy, with the monumental entrance at the foot of the temple. It is highly stylized, with numerous stone blocks on the side corners and the rest combining rubblework and small bricks. The entrance and the opening above it have been made on a slightly more forward plane, in the same materials.

The door is flanked by brick pillars holding up a semicircular arch on mouldings, also made from brick. Above this, worked in masonry blocks, there is a classical decorative entablature with architrave, frieze and cornice with a decorative flattened arch; above the latter there are some pinnacles that coincide with the extension of the pillars. An earlier entrance, now bricked up or modified by this one, is visible in a flattened arch on the façade, above the new arch, and also in pillars on the inside of the arch.

The upper part of the east façade is crowned by a large overhanging moulded cornice. Between the cor-



001 032 NEW CHURCH OF SAINT SEBASTIAN

nice and the doorway there is a one-metre wide brick gap.

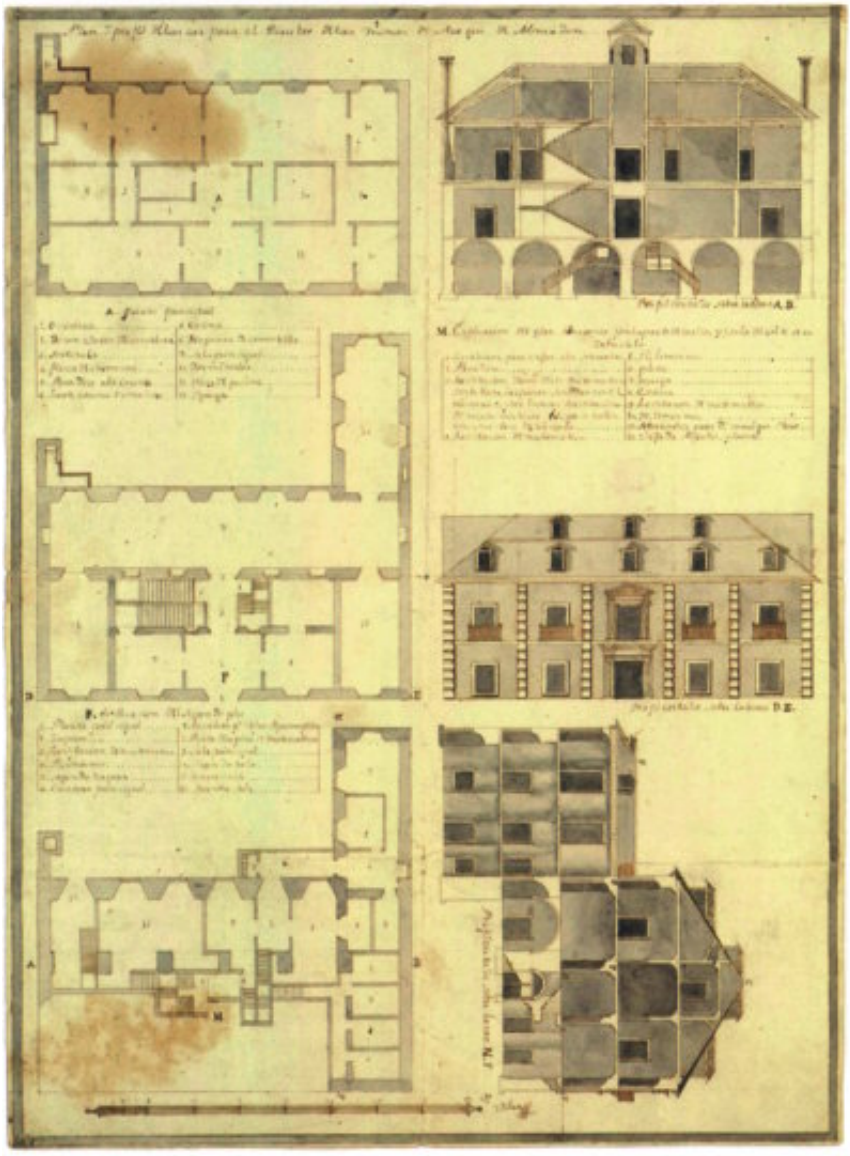
The west façade cannot be seen well as there are contemporary structures abutting to it and it overlooks the slope caused by the installations of the Old Mine. The presence of a three-storey brick spire, superimposed to house the old bell tower, is outstanding. The lowest part has three openings crowned by semicircular arches, with various mouldings. The intermediate level has a similar, larger opening, and remains of now destroyed pinnacles on either side. The top floor is a panel crowned by a kind of gola. The bells have not been preserved, but it is possible to see numerous beams and beam holes.

Mining Academy building (1785)

The institution was founded pursuant to a Royal Order in 1777, and its first Principal was the Director of the mines, Enrique Cristóbal Störr.The construction of the definitive building was completed in 1785. Although there is no precise documentation as to the author of the plans, from the references consulted, it seems it can be inferred that Engineer Enrique Cristóbal Störr himself drew up the design for its construction. The project was entrusted to Master Builder Antonio del Villar, who started work on it before the end of 1782 (FUENTES CHACÓN, Emilio, Luis Mansilla , et. alt., 2003).

001 033 MINING ACADEMY BUILDING





001 034 MINING ACADEMY BUILDING. PLANS AND DRAWINGS, 18th. CENTURY

The Academy Building is a large asset of great architectural presence. It stands in a plot of land of about 1,500 square metres, with something of a slope; the construction adapts this by means of basements and partial semi-basements to the rear. The total surface area occupied by the building is 550 square metres, with over 900 square metres left free of any construction for the courtyard, garden and orchard.

The main part of the building is a solid parallelepiped in two storeys and two more floors in the eaves, with a rectangular floor plan and a façade on one of the long sides giving onto the Calle Mayor de San Juan. A smaller extension abutted to the first block, displaced to the rear to form an L-shaped structure, was previously intended as a dormitory for students and is equipped with balconies overlooking the commons and the land surrounding the town.

Overall, it is possible to observe the spatial and building characteristics typical of its time and of this mountain region: the spacious manor house has a main staircase in the centre of the main building to ensure vertical circulation and link the numerous rooms and facilities it is divided into. Although the different rooms (classrooms, ancillary services, bedrooms and kitchen) were originally of different sizes and almost all were well lit and ventilated, with spacious openings, the passing of the years has led to a need for greater fragmentation by means of many internal walls that have altered its layout.

As for the building technique and materials, the Academy shows off the traditional system of bearing walls: a box of solid walls holds up the weight of the roof, pierced by means of balconies and window spaces. The structure of the bearing walls makes use of masonry stone and rubblework in quartzite, embedded with lime mortar or clay, as corresponds to the lower levels (cellars and basements), with smaller sizes of stone as the building grows upwards. Then it is combined with solid clay bricks, other lighter bricks called *ladrillo de tejar* (capping bricks) in the area, and at certain points with bricks made from pressed slag. There is also a combination of rubblework combined with courses of *ladrillo de tejar*. The visible faces of these materials are prepared and dressed as part of a homogeneous façade.

One outstanding element is undoubtedly the main façade of the Academy Building towards the Calle Mayor de San Juan, which embodies the greatest artistic interest of the property. The façade presents two bodies with masonry stone in good condition, with bossage elements. On the lower floor, the doorway is flanked by two columns on plinths that abut to the rear on separate pilasters only lightly marked. The body of the column ends in a barely indicated gorgering followed by the Tuscan capital with a curved abacus and quadrangular echinus. Above the entrance, a granite slab indicates the

use of the building *(Mining Technical Engineering School)*.

The second storey corresponds to the upper floor. It is very similar to the lower one, with two marked differences. The door is replaced by a balcony and, above the columns and pilasters, there is a series of metopes and triglyphs, with regula and gola, and a marked cornice. Above this last element appears the third body of the main access. This last part is merely decorative as it involves the pediment covering all of the building. It is a pediment with a curved finish and a small window with a balcony in its tympanum, flanked by two pilasters crowned by separate free-standing vases. The top central area is decorated with a crest between two rolls, currently very deteriorated by erosion. It is only possible to distinguish slightly two columns with two castles and two lions rampant distributed alternately in the field.

Material, implementation and design illustrate the representative function the building has and, therefore, the importance given to the purpose of the building by the authorities who paid for it.

Within the ambitious project of the school, the façade is the most significant element of the dignity attaching to the mining profession at the time. Without a doubt, this façade is one of the main reasons why Pascual Madoz referred to the Academy, in his *Diccionario,* as one of the best buildings in the town, the second in quality after the now demolished Royal Forced Labour Gaol.

The original design by Störr was subjected to the modifications contributed by Villar, who increased the ornamental qualities and their impact. The rustic granite trim would no longer be limited to the corner chains and pilasters as in the original, but would adorn all of the openings, combining with the alternating courses of brick and rows of rubblework. As for the windows, their regularity and arrangement with respect to the axis of central symmetry would be maintained, with large windows on the ground floor and narrow balconies on the main floor, giving a mixtilinear profile. The ironwork on the windows and balconies is of some interest, replicating the designs typical of the region.

In the central area, the grooved pilasters give way to free-standing columns with moulded capitals supporting single architraves. This central strip is completed by a body flanked by small pillars and pommels, corresponding to the floor under the eaves with smaller balconies. It contains the crest, framed between two volutes culminating in a bas relief crown.

This axis of symmetry is the correlate, on the façade, of the Academy's traffic axis: the door provides access to the lobby, which communicates with the main staircase and the balcony illuminates prelude to the staircase on the first floor.

The material used is costly and difficult to work with, but it certainly adds nobility to the construction. Neoclassical (rustic chains, pilasters, pediment) elements give away the great importance assigned to the pediment, crowned (although not originally designed as such) by a large slab for the coat of arms, making it similar to any palace of its day.

In summary, this teaching centre is being considered equivalent to the aristocratic residences of its time, without falling into excessive decoration. It is indeed a palace for engineers, that leaves its clearest imprint on the representative value of the main façade.

In conclusion, it is an emblematic building, not only for its historic significance but for its architectural values, which combine the enlightened ideas of the time with popular architecture.

It was the first mining school in Spain and the fourth in the world. Many important figures in science either studied or taught here, such as Fausto Elhuyar, who discovered Wolfram and Andrés Manuel del Río, who discovered Vanadium, the only two Spaniards who discovered elements of Mendeleev's Periodic Table.

House of the Inquisitor (17th century)

A property of imposing size on one of the most important streets in Almadén, the Calle Mayor de San Juan, in the upper part of the town. The house has a mainly rectangular floor plan on a single floor and with a loft, with one peculiar characteristic: the curving façade that adapts to the topography of Almadén's road layout.

A simple façade combining two elements, a lower part of greater height, with three large, rectangular windows with iron grilles decorated with grooving and tonguing and an upper corbel. The upper floor is lower in height and has two small windows, also with metal grilles but in this case at the same level as the wooden frame. Their arrangement do not coincide with the openings on the ground floor. All of the join-



001 035 HOUSE OF THE INQUISITOR

ery is in wood, the lower windows are glazed while the upper ones only have shutters.

The entrance is in two parts, the lower in stone (granite) and the upper in brick, each of different height. The lower body conserves a large double door with a service postern in wood studded with large iron rivets in the form of many-petalled flowers. This access is highlighted by a double ledge of granite with a sunken intermediate area. Above the door there is a large crest with a totally eroded field, but the figures on the achievement (a palm tree, a sword, *orbis mundi* with a cross) refer inevitably to the signs representing the Spanish Inquisition. To these must be added another four figures located on the achievement flanking the crest's field: two guard dogs holding a parchment in their jaws and two birds, possibly doves.

The upper body of the entrance has a large staggered cornice above the access door, and above this is a small grilled window flanked by two pilasters. All of the elements have been worked in brick and, curiously, each brick has been painted red with their pointing and tilts in grey. The ridge roof is finished with Arab-style tiles.

High-value elements outside the historic town centre and the limits of the site proposed, but within the buffer zone.

The mining city of Almadén
SUMOZAS GARCÍA PARDO, Rafael, 2006

Dating back to ancient Roman times, the town of Almadén has a historic center that grew by adapting to the topography and landscape of the site. However, its patterns of growth were transformed by the presence of mining activity. Coinciding with the change in mining techniques experienced by the Mines of Almadén in the 18th century, it can be seen that these affected both its urban layout and its industrial, civil and religious architecture. For example, after extinguishing the fire that affected the mine in 1755, the German engineers took advantage of the workers laid off from the mines to construct buildings such as the bullring, and the miners' hospital.

The pace of urban expansion was always closely tied to mining activity. The peak of Almadén mining in terms of technological development and urban expansion, the 18th century, would later serve as a model for other Spanish regions and America.This was the golden age of Almadén mining, as it was not only the period of its maximum splendor, but also when it would undergo a radical change in its appearance from a mining town known only for its mining value to an area linked to the mine where the urban structure specific to the mining settlement of Almadén would be developed.

With regard to the urban morphology, the irregular layout of the old town center contrasts sharply with the regular, geometric, orthogonal arrangement of blocks that arose in the 18th century during the peak of mining activity, which was also the time when the School of Mines of Almadén was created.

Urban development at Almadén clearly shows the contrast between two types of urban layouts, the historic center in the northern part of the town and the new blocks built in the southern part in the 18th century. An important conclusion is precisely that mining activity did affect the urban morphology, its impact being most visible in the bulk of the enclosure for the metallurgy furnaces on the western end, the geometry of the bullring building, and the dividing line between the old center and the new district of the 18th century. On lower and slightly flatter ground, the geometry of the prison with its four patios is also notable, and that of the hospital, which serves as the visual end piece to one of its streets.

There is also a marked contrast in the geometry and size of the land plots.The blocks in the old center are formed by a collection of narrow, irregular-shaped buildings that give the block its shape, while in new sectors that emerged over the course of the 18th century, the plots are longer with less frontage and arise from the subdivision of a larger rectangular-shaped block that was defined previously. This also provides evidence of the relationship between mining activity and urban development.

With regard to their architecture, the new buildings constructed in the 18th century, such as the Academy of Mines and some churches, occupy diverse points in the city. The use of bilateral symmetry with clearly baroque elements is notable in all of them, as well as the use of a neoclassic style in the Academy of Mines in an attempt to break away from the predominant baroque and give it an appearance more in keeping with the spirit of 18th century European engineering.

The work carried out by miners and engineers contributed to shaping the urban appearance of the town with with emblematic and singular buildings, demonstrating the complete technical training possessed by professionals of that time and their skillful use of materials, spaces and forms of use.

Archaeological remains of the Royal Forced Labour Gaol (1754)

For over two hundred and fifty years, between the middle of the 16th century and the end of the 18th, almost two thousand men were sent to redeem their guilt in the mines at Almadén. In 1799, the courts were ordered not to send any more convicts to Almadén (PRIOR CABANILLAS, Julián Antonio, 2003).

The Royal Forced Labour Gaol was built in 1754 to be used for ordinary prisoners but particularly those sentenced to hard labour, gypsies and slaves working in the mines. These were accompanied by criminals of various kinds.

The supervision and general design were entrusted to Silvestre Abarca, a military engineer who quickly raised this two-storey building organized around a central courtyard; the ground floor contained the rooms designated for the prison personnel,



001 036 ARCHAEOLOGICAL REMAINS OF THE ROYAL FORCED LABOUR GAOL

and the upper floor held cells and guard bedrooms. There were also a chapel, a nursing ward, a kitchen and a warehouse, among other services. According to the plans still preserved this was an impressive building, designed with great detail and with application of the principles of Renaissance composition. The building was demolished in 1969 in order to build on this plot the new Almadén Polytechnic University School (today School of Mining and Industrial Engineering of Almaden)

At the present time, only parts of the building's basement are preserved, as they have been successfully recovered and integrated into the building. Intended for classrooms, departments, offices and a museum, it has now been refurbished to complete the amenities of the School of Mining and Industrial Engineering of Almaden. A carefully designed project has allowed both the punishment cells and the minehead tower brought from the Diogenes mine (Alcudia Valley) to be perfectly combined in this new construction to create a very impressive display of industrial archaeology. The remains include a central corridor with cells on either side, with the original walls up to a height



001 037 SAINT RAPHAEL ROYAL MINERS' HOSPITAL

of two metres. They are entirely in stone both on the walls and the floor. There is also a water collection gutter around the perimeter adjacent to the open country.

The entranceway to the forced labourers tunnel, not yet accessible, is located under the courtyard of the School of Mining and Industrial Engineering of Almaden, covered over by a slab with the ceramic flooring of the courtyard on top.

Saint Raphael
Royal Miners' Hospital (1773)

The Saint Raphael Royal Miners' Hospital is one of the most outstanding 18th century civil buildings in Almadén. Towards the middle of that century the increase in mercury production from the Mines at Almadén led to a commensurate rise in the number of workers, whether seasonal, or forced labour, and therefore a larger number of patients. Superintendent Francisco Javier de Villegas decided to create a new hospital and to raise funds the new Bullring was built with housing included. The construction works began during the reign of King Ferdinand VII in 1755 and finished in 1773, under King Charles III, but the hospital only came into operation in March, 1774.

It is located in the Plaza del Doctor Rodríguez Lope de Haro, at the southern tip of the town centre. It is a building of considerable size with an L-shaped distribution and a courtyard to the rear. The building technique is, in general, rubblework with brick reinforcements, especially in windows and openings, and the walls are all dressed and whitewashed except for the main entrance. The composition in the distribution of openings aims above all at achieving regularity and symmetry.

The main façade is separated into two wings by the main entrance set in the centre. Each of these wings is divided into three floors; a semi-basement with grilles on its small windows, a first floor with quadrangular windows also behind iron grilles and a second floor with balconies held up by corbels with a staggered profile. Next to the eaves in the topmost area, there are small lattice work openings in brick to provide ventilation into the under-roof storage space. The main entrance, completely executed in undressed brick, comprises two floors crowned by a slender bell tower complete with bell and weathervane. Access is by means of a stone staircase culminating in a door with a lintel flanked by two pilasters on a small plinth. Above these there is a stone cornice that adapts to the cross-section of the lower elements and serves as the separation from the upper floor. Here there is a balcony thrust forward with a simple wrought iron balustrade flanked by two stone pinnacles on a brick plinth. On either side of the upper area of the central opening, there are two emblems with inscriptions commemorating the start and end of the building works. Above the lintel these elements are distributed in rising order but following the same axis: a royal crest in limestone, in the field of which two castles alternate with animal figures; it is surrounded by the chain of the Order of the Golden Fleece and it is crowned by a now disappeared royal diadem and plant decorations on the achievement; above this a shrine with a far from slender figure of Saint Raphael and, finally, a round oculus.

The western façade contains elements similar to those on the main one but with the characteristic of a two-storey gallery built in brick and with two segmental arches on single columns for each floor offering an important source of illumination for the inner corridors. The southern façade giving onto the rear courtyard is in three sections with two storeys in each. To the west, there is a solid body with five rectangular windows on each floor, all symmetrically placed. In the centre there is an over-

hanging gallery similar to that on the west façade but with a first floor in solid brick and a second with three openings of segmental arch on columns that correspond with the inside of the stairwell. Finally, the eastern block has an arcade on the first floor by way of arches supporting a wide terrace on the second floor where the patients could enjoy the sunshine (one of the recommended therapies for mercury poisoning). The inner courtyard is distributed on two floors separated by a large flared staircase built completely in brick.

The inside, now adapted to the functions of a museum and the archive for the Mines at Almadén, uses the same building technique as was used on the inside of the mines after the great fire of 1755: frontages in rubblework with layers of brick to even up, all dressed and whitewashed, brick barrel vaults or linteled roofs with beams and interior vaults, brick floors arranged in fishbone fashion and linteled openings or segmental arches in brick.

Bullring (1757)

Built between 1755 and 1757, this is the second oldest bullring in Spain. This is the reason why it was built in a format no longer used, namely polygonal bullrings. In this case, the ground plan is hexagonal in shape as an evolution of the square or rectangular format, in an attempt to eliminate corners in the ring.

From the outset, it was designed as a bullring at the same time as it would provide 24 homes and its construction,

001 038 THE HEXAGONAL BULL RING



according to the concept developed by Superintendent Francisco Javier de Villegas, was to generate, through the use of the bullring and the rental of accommodation to seasonal workers, the finances needed for the Saint Raphael Royal Miners' Hospital.

It is a block providing accommodation grouped together in a hexagonal building with a central space used and now recovered for use as a bullring. Taken together, the building has six structural elements each one of which makes up one side of the hexagon. They are all similar, two-storeyed, with the lower floor extending out a little more than the upper floor, which has uneven ridge roofs. As the slope onto the inside of the bullring is shorter than the other and they are attached to the slope of the next roof along, they give a false appearance of being a hipped roof. Three of the bodies are crowned by four large pyramid-shaped brick chimneys grouped together in two pairs.

The entrance is slightly in front of the building. The door is crowned by a segmental arch. Above it, on the second floor there is a large rectangular opening with a metal balcony. The entrance is pushed out from the line of the façade so it is roofed over by means of a half-hip solution, and it is connected to the rest of the façade by means of separate panes or curved golas. The rooftops have overhanging eaves with metallic support elements. The walls are in rubblework in brick and stone. The rest of the façade of the north-eastern block is currently whitewashed, although it is possible to distinguish the stone rubblework and particularly the brickwork. It has two more or less sym-

001 039 THE HEXAGONAL BULL RING. DETAIL





001 040 VIEW OF THE BUFFER ZONE FROM THE MINE

metrical panels with respect to the axis of the main door.

The south-eastern block, opposite the main part of the building, shows similar building characteristics. It contains the bull-gate, similar to the gate on the main section, included in the building without any monumental preamble, although with a slightly more forward arch. The rest of the façade has small doors and windows distributed more or less symmetrically.

The inside of the building is occupied by the hexagonal-shaped bullring and presents wooden infrastructures. The north-western block has on the inside a kind of monumental presidential balcony in rubblework and brick, with three sections. The lower section has moulded decorative pilasters framing an opening crowned by a segmental arch. The middle section is identical, with a metal balcony.

The upper section is a moulded triangular pediment, which rises up above the inner slope of the main roof, crowned by a ridge roof. Between this entrance and the outside one there is a block with a segmental arch preceding the exit to the portico. The other façades with large doorways have a matching door on the inside, with similar characteristics, leading onto the portico but not reflected on the bullring side. All of the blocks have a two-storey portico preceding the bullring. The lower floor is made up of pillars with a hexagonal cross-section holding up segmental arches. The upper floor has architraves, with straight feet and wooden beams. On the internal façades the building reveals numerous doors and small windows following an architectural pattern similar to that of the outside.

The bullring can be said to be a truly innovative socio-economic creation in its day as it groups together in its artistic structure the architecture of a bullring, residences and a venue for social meetings (MUÑOZ SUMOZAS, Agustín, 1997)

Buffer zone

The buffer zone proposal is based on the criterion of protecting the site and because it for the most part corresponds to a territory that is already legally protected, it is an additional mechanism for guaranteeing conservation.

The buffer zone is a territory in the municipality of Almadén, delimited on the north by elevations and rural lanes and, east of the mines, by the limits of the town itself.

The buffer zone on the west and south coincides at its limits with those of the Special Bird Protection Zone (ZEPA). This territory also contains a certain number of archaeological sites which are also protected under the Property of Cultural Interest (BIC) category. These are sites located in the *Sierra de Cordoneros* and *Sierra de la Virgen del Castillo* mountain ranges.

The zone presents a very important heritage of locations with schematic rupestrian painting, exceptional in terms of quantity as well as for the quality and diversity of its representations. In the majority of cases, they are schematic paintings with flat ink and continuous strokes – although there are some examples of incise decoration – the chromatic range of which is restricted to various tones of red and less frequently, black. The subject matter is diverse and difficult to interpret; the majority of the figures may be perfectly well identified as humans (anthropomorphs) or animals (zoomorphs), while others have special characteristics and are interpreted as idols. The rest of the motifs, which are geometrical, have more ambiguous meanings (dots, lines, blades, angles, zigzag designs, snake-like designs and ramiform, tectiform, pectiform and circular designs). There are also representative scenes, such as some images of the Sierra de Cordoneros mountain range. They

are from the Chalcolithic and early-mid Bronze Age periods. There are several bi- or tri-triangular designs that may represent feminine idols or anthromorphs. (CABALLERO KLINK, Alfonso, 1980. Quoted HEVIA GÓMEZ, Patricia and Germán Esteban Borrajo, 2006)

001 041 VIEW OF ALMADÉN FROM THE BUFFER ZONE





001 042 POT FROM A XABECA KILN

2. a. 1. 1. Relevant examples of moveable heritage. Mine machinery and equipment

Pot from a xabeca kiln

The first mercury furnaces well described in the mines at Almadén received the name of *Xabeca* or *Jáveca,* an Arabic term meaning fishing net and also a flute or whistle. The term may derive from the perforated barrel vault covering the kiln, into the gaps in which three rows of these pots were placed, as any perforated surface used to accommodate the ore was also called a net.

The *xabeca* kilns were used in Almadén until the 1570s but there are now no archaeological remains of these except for a few pots, although there are good descriptions of them.

The clearest drawing of a *xabeca* kiln appears in the classic work on metallurgy by Álvaro Alonso Barba. Its operation is explained in an anonymous text from 1543:

"Once the rock is extracted from the shaft, it is taken to the Corral del Rey [King's Yard], where it is to be heated. All around the sides of this yard are kilns called xábecas *very different from ordinary ovens as they have a door at a height of about one* estado *[the height of a man] and the vault is not like a chapel but rounded and long like an unused tile.*

High up in the vault, it has 18 holes in three rows or lines and in each of these holes a pot is placed with its narrow part to the bottom like a melting pot and at the top the broad mouth, so that it looks like a pitcher cut in half. Once the rock is brought to the yard with the xábecas, *[it is crushed] with iron rods until all the pieces are more or less the size of walnuts.*

After this, it is wrapped in a black ash that is kept a little damp so that it sticks to the rock; and this is named tight packing. Next they are put in the pots placed in the holes on the xábecas *and they are all filled until there is no more than three fingers of space, and this is filled with very fine sieved ash and it is all packed down very well. After this, they cover the pots with some deep lids like soup bowls, placed upside down so that there is an empty space left between the ash and the lid. Then they use mud to seal each pot to its lid, and the circumference of the hole through which the pot's stem is inserted into the* xabeca."

At the start of the 16th century, they were heating about five sets of *xábecas* a day, each one with capacity for about 400 *libras* of ore (a Castilian *libra* or pound was equivalent to 460 grammes). In total, about 200 *libras* of quicksilver were produced per day, so the mean yield of the ore was in the order of 10%. The *xabeca* kilns were used at Almadén until approximately 1570.

The pots were containers of about 30 centimetres in height and 220 centimetres wide; the mouth was 15 centimetres in diameter and through this the crushed ore bound with ash was inserted. The cinnabar was packed tight and, as the pots were sealed to prevent the mercury form being lost as vapour, it was not possible to obtain the oxygen needed to roast the cinnabar and release the mercury. This function was filled by the alkalis in the ash, as these desulphurized the cinnabar inside the sealed pots. Once the pots were filled and sealed, they were placed on the three rows of holes, with all of the seals well covered with mud.

A fire was then lit under the kiln, from sunset until ten in the morning of the next day; once they had cooled, the pots were opened to extract the quicksilver. The procedure was reasonable so long as large-scale production was not required.

In the second half of the 16th century, the widespread use of the

new amalgamation procedures made it necessary to increase the production of mercury in Almadén, so a series of measures were adopted, including the replacement of the *xabeca* kilns by new reverberatory furnaces. This substitution must have taken place between 1573 and 1582.

The introduction of these new furnaces by the German experts, although it allowed mercury production to increase considerably, also had very harmful effects on the health of the workforce. As had happened in America regarding the use of natives in the mines, the Crown was torn in Almadén between two incompatible desires: on the one hand, it was trying to achieve reasonable working conditions for the workers and forced labourers working in the mines; on the other, it was seeking to obtain as much mercury as possible to send to New Spain and Peru, where it was absolutely essential.

The new reverberatory furnaces worsened the employment situation in Almadén, the point where, in view of the alarming news reaching the Court, it was decided in 1593 to send an "inspector" to the mines, none other than the writer Mateo Alemán. He drew up a Secret Report reflecting the statements of witnesses, including one unequivocally pointing out that the new metallurgical processes took place in huge reverberatory furnaces and that it was necessary to go inside while it was saturated with mercury vapour to extract the pots while they were still hot.

The time had come to extract the greatest possible return from the mine, but there were not enough workers to ensure a satisfactory level of production. In 1559, Ambrosio Rótulo, the Függer family's administrator in Almadén, had mooted the use of a squad of thirty galley slaves in the mine, a proposal to which the Crown agreed in 1566.

The hardest jobs at the mine that were reserved for galley slaves and those sentenced to forced labour were the drainage of the mine, done manually by hauling up large leather sacks of water, and the cleaning of the *buitrones* furnaces, that were cleaned before they cooled down in order to speed up the process.

Buitrones furnaces are made of bricks and clay with a hemispherical cupola. About two metres above the ground level there is platform inside the furnace formed by iron bars and tiles, in the gaps between which the pots with the ore are placed. These pots are cylindrical and about 60 centimetres long, with between 200 and 300 pots fitting in each furnace.

Once the furnace has been brought up to heat and cooled down again, the mercury is obtained by breaking the pots and cleaning the walls of the furnace. At the beginning of the 17th century, there were about 30 *buitrones* or reverberatory furnaces in Almadén, placed in pairs with a party wall of brick and baked clay so that it could withstand the heat.

Pipe (*aludel*) from the Bustamante furnace

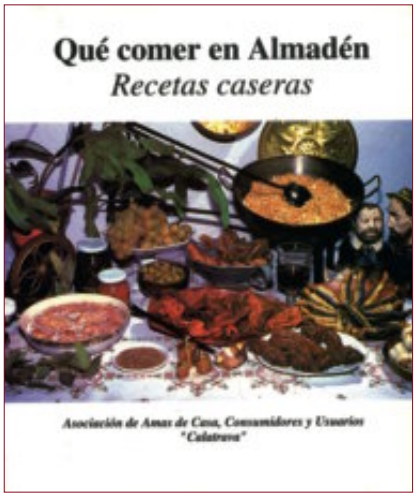
The *aludeles* or pipes are baked clay containers shaped so as to be fitted into one another to create something like a pipeline. They were connected to the outlets from the furnaces and led the mercury down to the other end that poured it into the expansion chambers.



001 044 *ALUDEL* FROM THE BUSTAMANTE FURNACE



001 045 MINERS FROM ALMADÉN, FIRST HALF OF 20TH CENTURY (MAYASA)



001 046 RECIPES FROM ALMADÉN

2.a.1.2. Ethnographic characteristics of Almadén. The culture of mining

Montes Oviedo, Luis Miguel
2007

Analysis of the ethnographic aspects of the town of Almadén reveals a great variety of themes because of the influences that it has received over the course of its history, as a result of its geographical situation as the confluence of various regions in Spain and of the development of a society around a mining basin, in particular, mercury mining. We can specify various themes, such as mining, countryside, gastronomy, music, festivals, traditions and rites and beliefs.

Almadén has an ethnographic legacy inherited from various cultures: the Romans, the Visigoths, the Muslim invasion period and most importantly of all, the centuries elapsing between the Christian reconquest of the territory and the present day, in which the various contributions to mining, to architectonic techniques and gastronomy may be highlighted, as well as the Almadenian vocabulary. Although the majority are Spanish words originated from the Latin, several expressions have been conserved from the Muslim era: alfanjía, (short wooden beam used in chimneys), xabeca (furnace), alarife (bricklayer), almijara (warehouse), etc.

Following the discovery of America and its links with Almadén as a result of the transportation of mercury, there was an exchange between cultures with direct contributions from American mining and related sphere.

The arrival of the Függer bankers from Germany introduced lace-making, as was also the case in Almagro, and there are even some indications of aspects of Central-European physiognomy due to the immigration of workers to Almadén. The introduction of enforced labourers from all parts of Spain also made Almadén a meeting-point for cultures and customs.

In the 18th century (the century of Enlightenment), which marked the end of enforced labour, in 1799, the Mining Academy was opened and there was an increase in the cultural and educational level in a working-class society. The construction reflects a canon of cultured architecture.

The mercury and people of Almadén crossed borders, as may be seen in the spectacular mercury fountain by Alexander Calder, commissioned by the Spanish Republican government for the 1937 World Exhibition in Paris. The artwork is a memorial to the siege of Almadén by Franco's troops. The fountain is now at the Joan Miró Museum in Barcelona. The sculptures of the busts of the miners and their wives, immortalised by the Spanish sculptor Julio Antonio in the early 20th century, extended through art the universality of Almadén to the most remote confines.

In the case of Almadén, as a completely industrial city from the outset, agriculture and livestock farming were overlapped by mining. Its inhabitants felt the need to go to the countryside to pursue recreational and leisure activities (Holy Week, Resurrection Sunday, All Saints' Day, etc.). Moreover, a minority used to go to the country for healing, because of the need to "detox" after their work inside the mine. This was made possible because of the natural surroundings of Almadén, which also offered a wide variety of elements that were used in popular medicine, although the remedies extracted from the rural environment, which are based on centenary traditions, were gradually abandoned as a consequence of the adoption of scientific remedies from veterinary science and modern medicine.

The dietary habits have historically been characterised by their austerity and closeness to nature. The home-grown fruit and vegetables and the products provided by the domestic animals in the traditional killings have evolved into a typical Almadenian gastronomy that has influenced typical cuisine in La Mancha, Extremadura and especially in Andalusia, given the variety of spices used (Arab influence).

As regards the issue of Almadenian folklore, one component stands out, i.e. music in various aspects: the Municipal Music Band, the Miners' Choir and the Carnival. The Municipal Music Band, which was founded in 1885, has continued to exist uninterrupted since then. The Miners' Choir has undergone a certain degree of evolution, but it has been a choir of male voices singing mining songs since the 19th century. This choir

al-Maden, MEANS *The Mine*

The word "azogue"[1] , which was used by Paracelsus and by which mercury was known in the metallurgical sector in the America of Viceroyalty times, is derived from the noun **zabaq,** which according to some authors was arabised from the Persian,

زئـــبق

It may also be written with the article, **az-zabaq**

الـــزئـــبق

The Spanish word "azogue" comes from an Andalusian form with no article, **záwuq**

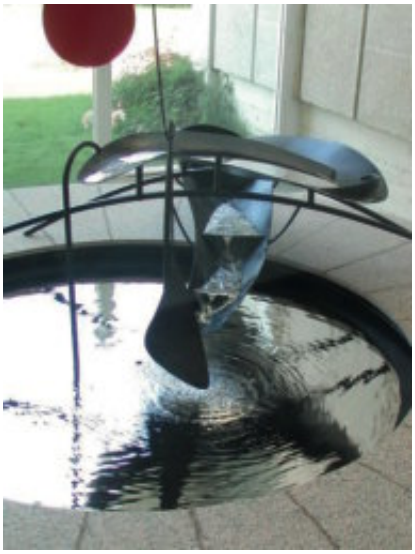
زاووق

or, with the article, **az-záwuq**

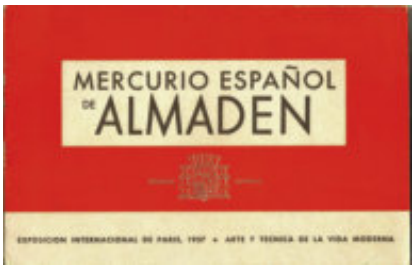
الـزووق

[1] My thanks to Mr. Rafael Valencia, PhD, Professor of Arabic at the University of Seville, who has provided me with the translation and spelling of this word. MANUEL CASTILLO MARTOS, Notes. 2006

001 047 ALMADÉN MEANS "THE MINE"



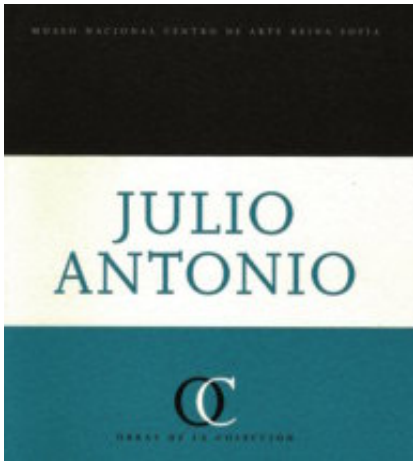
001 048 MERCURY FOUNTAIN BY ALEXANDER CALDER. (JOAN MIRÓ MUSEUM, BARCELONA)



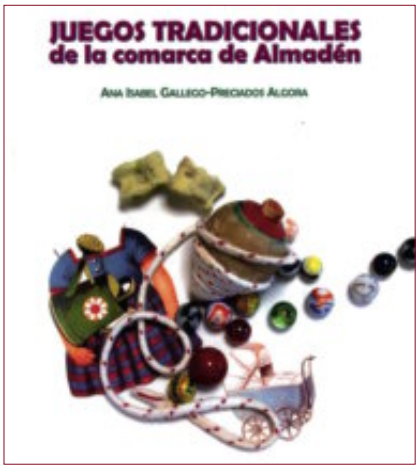
001 049 1937 WORLD EXHIBITION IN PARIS. CATALOGUE



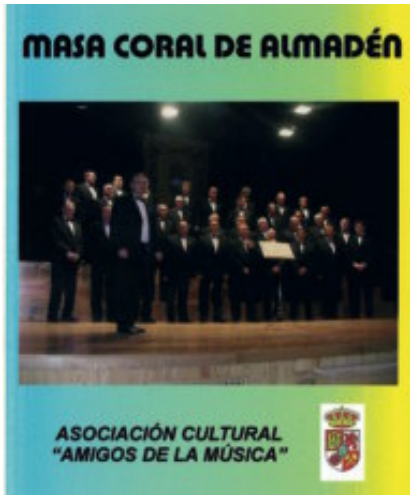
001 050 BUST BY JULIO ANTONIO



001 051 JULIO ANTONIO. CATALOGUE NATIONAL MUSEUM REINA SOFÍA



001 052 TRADITIONAL GAMES FROM ALMADÉN



001 053 THE MINERS' CHOIR

reached its summit with the annual celebration of a Choir Meeting in Almadén, organised for the first time in 1988, along with two other local groups, all of which are derived from this mining music tradition.

The music in the Carnival in Almadén is reflected by street bands and student groups, in the annual creation of musical works with their respective lyrics containing the traditional "review", referring to events that have occurred in the town society during the year. One interesting theme is the current Almadén Anthem; this musical work was created as a passacaglia in carnival in the decade of the 1940s and the lyrics were added later on.

Nowadays, the Almadén Carnival is considered to be interregional and is in the process of being declared a Festival of Regional Tourist Interest because of its great personality and duration, as it goes beyond Ash Wednesday and enters the Lenten period (Piñata Saturday and Sunday).

One of the mostly deeply-rooted traditions in Almadén which is also influenced by music is encapsulated in the local expression *"hacer la vaca"*. This refers to a group of friends who meet for an aperitif or for *"tapas"*, accompanied by the music that is performed by the attendants themselves and those that join them. This expression originated at the Royal Enforced Labour Prison (Real Cárcel de Forzados) in Almadén and the life of the prisoners working in the mine. At twelve noon, the time the Angelus was prayed, they stopped their work at what was known as the *"Hora del Vacar"* (Breaktime), to eat the small amount of food they were allowed.

The majority of the festivals in the town of Almadén have a strong religious meaning and therefore it should be remembered that many are specifically linked to issues of popular religiosity, with a folkloric content. As well as the brotherhoods and guilds that participate in the Holy Week processions and which venerate their various religious images, there are also the feast-days of the patron saints, which are observed with respect and commemoration by the people. The following should be highlighted for their uniqueness:

- St. Anton's Day, 16th January
- St. Brigid's Day, 31st January
- Crosses of May, 3rd May
- Fairs and Festivals in honour of the patron saint San Pantaleón, 27th July.
- Our Lady of the Star, patron of Almadén, 15th August.
- Celebrations in honour of Our Lady of the Mine, 8th September.
- Celebrations in honour of Our Father Jesus the Nazarene, 14th September.
- All Saints' Day, 1st November.
- Celebration in honour of Saint Cecilia, patron saint of music, 22nd November.
- Saint Barbara, patron saint of mining, 4th December.

Another folkloric theme that is in danger of extinction because of the growing industrialisation and the consequent abandonment of the oral tradition – the essential vehicle for transferring these cultural manifestations – is the superstitions and beliefs. The events that take place during the life cycle are subject to peculiar (traditional) treatment by the people of Almadén. From the early stages of life, with birth and baptism, the customs are present and they accompany the people until the moment of death. In all of these manifestations, the superstitious aspect should be given particular importance, as it is the motivation that leads to the development of many customs. At baptisms, the *quintos* (no longer in existence), at the weddings and funerals, various traditions from time immemorial are eagerly maintained by the people, combining all kinds of traditional manifestations (songs, beliefs, culinary customs, mourning, leisure activities).

(002) 2.a.2. IDRIJA

The Idrijan lands are positioned at the crossroads of two mighty mountain chains - the Dinaric mountain range and the Alps. This is what gives it its main natural features. The land is dotted with fissures and is made up of diverse rock formations, ranging from carbon conglomerates (oldest) to sediments (youngest), which are still being built up on the riverbeds and on the slopes of surrounding hills. The most dominant rock types are extensively karstified lime and Dolomite rock dating back to the Mesozoic period. The most important geological feature in the area is the extensive mercury ore deposits.

Ore mining in Idrija began after native mercury was discovered in 1490. Centuries of exploitation have resulted in mine tunnels spanning 700 kilometres and reaching 420 metres below the surface. Mining, ore extraction, mine water pumping, transport and ore processing methods developed in parallel. Mine specifics and the characteristics of the terrain resulted in the use of drift mining with backfilling from the bottom upwards. This method was used for over 300 years. It was later replaced by sublevel mining with reinforced backfilling. Innovations from the centuries of mining activities at the Idrija mine include the introduction of rock drills, the water-powered kamšt water pump and the steam-powered Kley pump, which have been preserved and make for the only example of such devices in the world today. Many other types of machinery and equipment have also been preserved. This technology gives us an insight into the technological development at the mine and is in many instances the only example of equipment of its kind to be preserved anywhere in the world.

The town of Idrija has kept a lifeline to the mine, resulting in a number of buildings in its old town closely linked to mining being preserved to this very day. These include the Gewerkenegg Castle, built as the mine's administrative building and mercury depot – now a museum; the first Slovenian secondary school for natural sciences; a number of miners' houses; churches; squares and other buildings of interest.

The area around the town and the mine is covered by woodland, which extends high to the plateaus and used to represent an important resource for the mine's development (wood for smelting, supports for the tunnels). The creeks that flow into the Idrijca river and Idrijca itself acted as important sources of energy for the mine, both for propelling water wheels and for transporting wood (klavže).

The area nominated for classification as a world heritage site encompasses:

- the roads in Idrija, which linked the mine and the facilities to process the ore with the warehouse and the starting point of the trade route,
- beginnings of various trade routes which were used for mercury from Idrija in various periods.
- the area of the mine: ore deposit, shafts, tunnels, entrances, administrative and other buildings, smelting plant, water pumps, machinery and equipment;
- the old town of Idrija, with its mining history as manifested by its buildings, including: the Miner's Theatre, warehouse, Town Hall, old town square, Secondary School for Natural Sciences, Gewerkenegg Castle, miners' houses, etc.;
- the water barriers (klavže) located on the Idrijca, Belca and Kanomljica creeks in the nearby woods;
- the area surrounding the mine and the town as a buffer zone.





002 008a
002 008b
IDRIJA FLAG AND COAT OF ARMS

Core Zone

The protected Idrija old town is the core zone, being the location for the majority of monuments connected to the town's history of mercury mining. It developed just above the mine. So the development of the mine influenced the development of the town and its urban structure. Cultural monuments in Idrija, be it of national or local importance, are almost all related to the discovery of mercury and its mining stretching over the 500-year history of the mine. Today there are still about 8 km of the galleries in 3 upper levels.

The main cultural monument, the Idrija old town, is home to important sites. In fact, only two sites of historic importance (the technical monuments covering the smelting plant and the Kamšt water pump) stand outside of the broader town centre.

002 009 MESTNI TRG,
MAIN SQUARE IN IDRIJA.



The following heritage units and areas are part of the component of the nominated property. (NM = Monument of National Importance; LM = Monument of Local Importance):

Core Zone 1:

HRN	Name	LM	NM
182	Idrija – old town		NM
183	Idrija – castle		NM
184	Idrija – miner's house at Bazoviška 4		NM
185	Idrija – Mercury Mine	LM	
186	Idrija – Mine's Theatre		NM
3691	Idrija – Church of the Holy Trinity	LM	
4814	Idrija – house at Kosovelova 8	LM	
4816	Idrija – house at Ulica zmage 1	LM	
4817	Idrija – house at Ulica Vinka Mohoriča 1	LM	
4819	Idrija – Mine's Warehouse		NM
4822	Idrija – Francis's Shaft		NM
4826	Idrija – Anthony's Main Road		NM
4827	Idrija – School of Lace-Making	LM	
4829	Idrija – Secondary School of Natural Sciences	LM	
13815	Idrija – miners' block of flats on Freyerjeva ulica		
17640	Idrija – vault of the Church of St. Barbara	LM	
20296	Idrija – school on Prelovčeva ulica		
27519	Mercury route	LM	

Core Zone 2:

HRN	Name	LM	NM
4825	Idrija – Čermak-Špirek's furnace no. 2	LM	
7460	Idrija – Smelting Plant		NM

Core Zone 3:

HRN	Name	LM	NM
187	Idrija – Kamšt water pump (with Rake water channel and Kobila dam)		NM
3134	Idrija – Joseph's Shaft		NM
15223	Idrija – Dob's avenue of trees along the Rake water channel		

The klavže water barriers were built in the narrow channels of the creeks that converge and then flow through Idrija to serve an important purpose - the floating of wood for use of the Mercury Mine Idrija. Due to the bounded conditions that had to be considered in their building their buffer zone is so small that it is not taken in account as a separate feature. The area of the property encompasses only the space filled by water trapped behind the barrier (the contour line of the water surface in a full reservoir behind the water barrier).

The following immovable cultural monuments are situated a fair way outside the broader Idrija old town territory but are connected to the town's mining history as an essential feature - both historically and spatially - of the nominated component of the serial property:

Core Zone 4:

HRN	Name (Synonym)	LM	NM
506	Gorenja Kanomlja - Kanomlja or Ovčjak Water Barrier	LM	NM

Core Zone 5:

HRN	Name (Synonym)	LM	NM
189	Vojsko – Idrijca Water Barrier	LM	NM

Core Zone 6:

HRN	Name (Synonym)	LM	NM
593	Idrijska Bela – Putrih's Water Barrier on the Belca creek	LM	NM

Core Zone 7:

HRN	Name (Synonym)	LM	NM
12	Idrijska Bela – Belca Water Barrier on the Belca creek (or Brus's Water Barrier)		NM

Buffer Zone

The borders of the Buffer Zone were determined on the basis of a balanced analysis of various views on the quality of the man-made and natural features. The activities of the mine, development of the town and success of mercury trade were throughout the centuries (15th – 20th) directly dependent on the surrounding environment. The extensive estates within the Idrija dominion provided for the wood required for the mine's operations.

Today the Buffer Zone is symbolically understood to be made up of the broader area stretching to the »horizon«, which includes the land historically falling under Idrijan jurisdiction, which was the main economic backbone of the town. The contrast between the valley, which was subject to centuries of sensible urban development, and the slopes of the surrounding hills is achieved by use of labelling of the natural ambient. The Buffer Zone provided the required materials, tangible and intangible, for the cultural monuments and historical sites in the town, which in turn propagated the town's development. Being a great visual contrast to the town itself, the Buffer Zone complements the experience of visitors to the town and their understanding of the town's rich heritage.

002 010
IDRIJA IS LOCATED IN A DEEP BASIN AND SURROUNDED BY HILLS



Heritage units in the Buffer Zone:

HRN	Name	LM	NM
4823	Idrija – The engine room of the Inzaghi Shaft	LM	
4828	Idrija – Forestry School	LM	
13793	Idrija – house at Carl Jakoba 5		
13810	Idrija – miners' blocks of flats on Gradnikova ulica and Tomšičeva ulica		
13811	Idrija – miners' blocks of flats on Partizanska ulica		
13812	Idrija – miners' blocks of flats on Rudarska ulica		
13813	Idrija – miners' blocks of flats on Arkova 34-40		
13814	Idrija – house at Prešernova 20		
13816	Idrija – block of flats at Prešernova 6		
20772	Idrija – house at Arkova 22		
20773	Idrija – house at Ulica Otona Župančiča 36		
20774	Idrija – house at Rudarska 37		
20775	Idrija – house at Kacinova 20		
20776	Idrija – house at Gregorčičeva 37		

ASSETS

The mercury road

The path of the mercury road within the town of Idrija begins in the mine and ends at the warehouse.

The mercury road began underneath Idrija where miners excavated the ore, which was then transported through the shafts to the surface and was then sent to the separation, crusher and smelting plants. Mercury was produced from the ore in the smelting plant and was then placed in suitable containers and stored in the warehouses for sales and transport.

Mercury was taken from the smelter located under the hill which houses the St. Anton church, through the Rožna ulica street to St. Barbara's church, now no longer standing but marked by a plaque, and from there on to the castle. The metal was stored in the castle and its flasks were numbered. Mercury was received at the castle and then taken on the Kosovelova ulica street, past Anthony's Main Road (on the right bank of the Nikova stream) to the stream's confluence with the Idrijca river. After crossing the Idrijca, the merchants could then turn left or right, depending on which route they wanted to use.



002 051
TRANSPORT ROUTES OF MERCURY IN THE TOWN OF IDRIJA.

The Idrijan part of the roads for transportation of mercury begins in the warehouse, located in the fortified and well-protected Gewerkenegg Castle. The hauliers started their way through the town in the castle and crossed the Idrijca river below the Rake, near the location of the current elementary school.

The hauliers had numerous options to take the mercury from Idrija to Trieste or Venice. When trade was still officially controlled by Venetians (until 1509), mercury and cinnabar was transported through the town of Tolmin and the Friuli region to Venezia. The route hugged the Idrijca river until its confluence with the Soča river at the village of Most na Soči. There it joined a major medieval trading route between the Hungarian lands and Venice that ran alongside the Soča river to St. Maur, Cividale and then on to Venice. The other route meanwhile led from Most na Soči to Kobarid and Cividale and then on to Venice. However, with the arrival of the Habsburgs, the route was abolished.

The Habsburgs occupied the Tolmin area in 1509 and banned the use of the route between Venice and the Hungarian lands. This meant that all of Idrija mercury and cinnabar had to be transported to Trieste across Gorizia and Duino, even though the roads were less penetrable than the previous ones. The hauliers could opt for the route across Podroteja to Črni Vrh and from there on to Vipava, Razdrto, Senožeče and Trieste; another took them through the Vipava valley to Sveti Križ, where it joined

002 049
TRANSPORT ROUTES OF IDRIJA MERCURY.







002 052 + 002 013
CHAPEL IN ŽIBRŠE ALONGSIDE A TRANSPORT ROUTE WITH A STONE SLAB WITH ENGRAVED LATIN SIGN THAT MARKS THE HALFWAY POINT ON THE MERCURY ROUTE BETWEEN IDRIJA AND VRHNIKA.

the Karst route towards Trieste; while a third, slightly longer route, crossed the Jelični vrh to Dole and Medvedje Brdo, from then to Ceste and Zaplana and Vrhnika where the hauliers joined the Karst trading route to Trieste, via Logatec.

The hauliers often complained about poorly maintained roads, which is why the Inner Austrian court chamber demanded from its regional lords to force their subjects to regularly maintain road links in the area. However, it took until the 18th century before the road to Vrhnika and there on to Logatec was able to allow carts on it. The road to Logatec, via Črni Vrh, was meanwhile built only in the mid-19th century.

The land route towards Amsterdam meanwhile went in another direction. The route went through Dole, Žiri, Poljane, Škofja Loka, Kranj, Ljubelj and to Carinthia's Klagenfurt, where a warehouse was erected for mercury and cinnabar. It then continued on to Salzburg and on to Bavaria where it forked into two different routes to Amsterdam.

During the validity of the trading contracts between Idrija and Spain, in the 18th century, Idrija mercury was only sold through the port of Trieste. It was then taken on ships to Sevilla and Cádiz, before arriving at its final destination in America.

The trading routes remained the same throughout the centuries and were only changed by having sections added. Some shortcuts were constructed and several sections upgraded and modernised to facilitate the transport. Some sections were dropped during the centuries, while others gained in importance.

The Mercury Ore Deposit

The Idrija mercury ore deposit runs along the northwest-southeast trajectory, covering an area 1,500 metres in



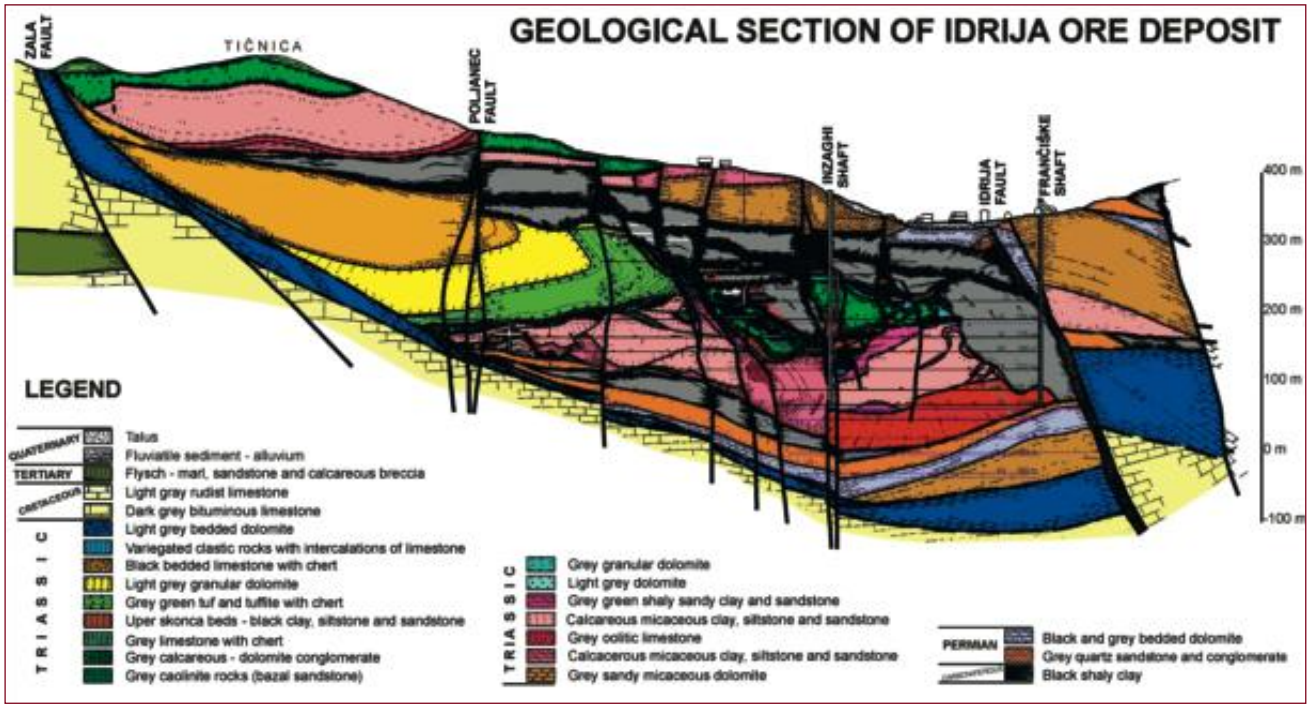
002 014
THE MAJORITY OF THE TUNNELS IN THE MINE ARE SUPPORTED BY WOODEN BEAMS.

length and 300-600 metres in width, as well as a depth of 420 metres. The town of Idrija was built on top of the ore deposit over the five centuries of mining operations. (ČAR, J., 2007)

Over the last 250 years, the mining operations encompassed the entire site of mercury ore deposit. Prior to the halting of mining operations, the mine had 15 levels (at a depth of 383.1 metres under the surface).

The Idrija ore deposit comes second in size after Spain's Almadén. However, the deposit is not only big in size among mercury mines. It is of global importance and significant because of the circumstances in which it was formed. Its exceptionally rich and unusual ores, geochemical and mineral composites and the uncommon transformation processes make for its current state. Today's composition seems at first glance to be an incomprehensible and unsolvable geological chaos.

This explains the importance of the explorations by geologists, who managed to reconstruct the creation and the development of the mine throughout is geological history. The first geological data on the Idrija ore deposit was collected in the mid-18th



century. The analyses of the ore deposit in the "modern" sense were carried out in the past 130 years.

After the Middle Triassic tectonics abated, the ore-bearing rocks were believed to have been covered by some 5,500 metres of younger rocks of the Upper Triassic, Jurassic, Cretaceous and Palaeocene and Eocene. The Alps mountain range meanwhile began forming in Oligocene and early Miocene, as the smaller Adriatic plate started pushing against the European plate. This caused extensive changes in Slovenia, gradually resulting in the geological situation that is present today. The Idrija Middle Triassic Tectonic Trench was also included in the changes and so was, of course, the ore deposit.

Geological events are written in the rocks in the form of their mineral and chemical composition, their internal structure and texture, their position in geological strata and the changes in the vertical and lateral directions, relations of various rocks among themselves and the contacts between them.

The Idrija Middle Triassic Tectonic Trench is the only such structure in the area of the Southern Alps, the history of which has been completely reconstructed.

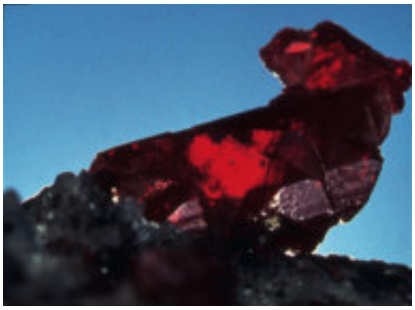
The Idrija ore deposit is rightfully admired around the world because of its rich and interesting cinnabar ores (HgS). The Idrija cinnabar ores were formed in two ways, an unusual occurrence for mercury ore deposits.

The first method of forming saw the ore-bearing fluids trickling across the trenches and fractures through the older rocks of the Idrija ore deposit - the Carboniferous Permian, Scythian and Anisian rocks. If not enough sulphur was present, native mercury was excreted instead (shales impregnated with mercury droplets). The ores formed in such a way are called epigenetic cinnabar ores. They are normal and well documented in other mercury deposits in the world.

Idrija's uniqueness meanwhile lies in its syngenetic or sedimental cinnabar ores, found nowhere else. Their formation was caused by the outpour-

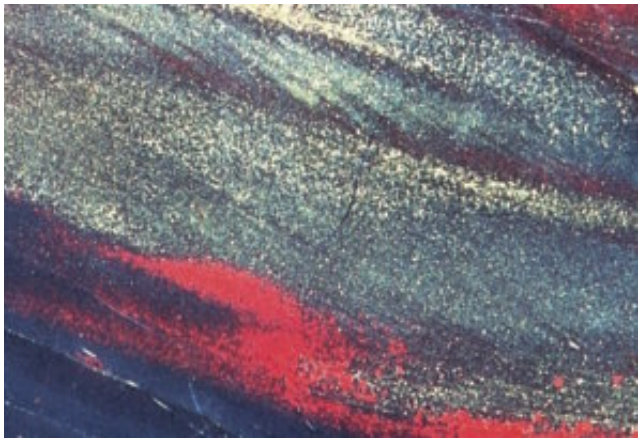
002 061
GEOLOGICAL CROSS-SECTION OF IDRIJA ORE DEPOSIT.

002 062
CRYSTAL OF CINNABAR.

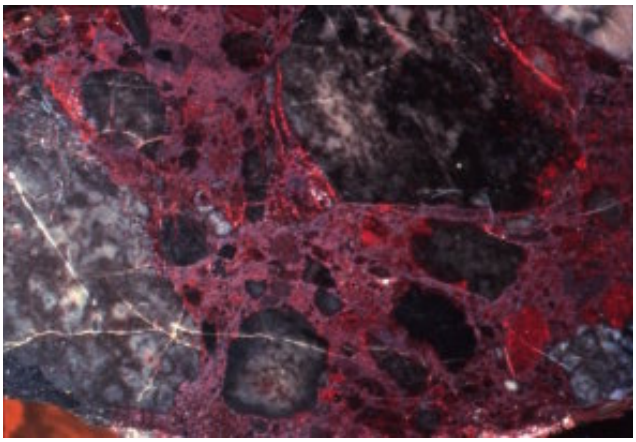




002 063
NATIVE MERCURY



002 064
SYNGENETIC SEDIMENTAL CINNABAR
ORE



002 065
EPIGENETIC CINNABAR ORE,
CONGLOMERATE



002 066
LAYERED ORE IN THE SKONCA LAYERS



002 067
JEKLENKA (STEEL ORE), THE RICHEST CINNABAR ORE

ing of the thermal waters, enriched by mercury and sulphur, or directly with the cinnabar gel, into the then existing swamp where various marsh sedimentary rocks have also been formed, known as Skonca layers.

In short, epigenetic cinnabar ores were formed by supplementing older rocks, filling up of faults and cracks, while syngenetic are sedimental as they were formed at the same time as the rocks that they are located in. Some 158 ore deposits of various sizes and richness (areas of ore-bearing rocks) were formed as part of the creation of the Idrija Middle Triassic tectonic trench.

The mining names for the rich Idrija cinnabar ores were mainly given according to their colour, internal structure and the percentage of mercury, but less by their composition. The richest ores have names such as jeklenka (steel ore), opekovka (brick ore), jetrenka (liver ore), while ores, characteristic for the Idrija ore deposit, are the karoli (coral) ore, , various types of sediment ores and the shale ore with a large percentage of native mercury.

The miners and metallurgy experts decided for the following divisions in relation to the percentage of mercury in the ore: Jeklenka (very rich in mercury), rich ore and the poor ore, or so called bašperh.

The Formation of Idrija's Ore Deposit as it Exists Today

The transformation of the Triassic structure of the ore deposit into the one we know today cannot be explained in simple terms, as it resulted from numerous and complicated events, also linked to the transformation of the entire area of Southern Alps. The pushing of the Adriatic plate under the European caused folds in several rock strata, creating an extensive fold. The part of the Earth's crust, where the Idrija Middle Triassic Tectonic Trench with mercury ore deposit was located was first concave in shape and later transformed into a vertical fold. Folding resulted in the fractures which caused parts of the



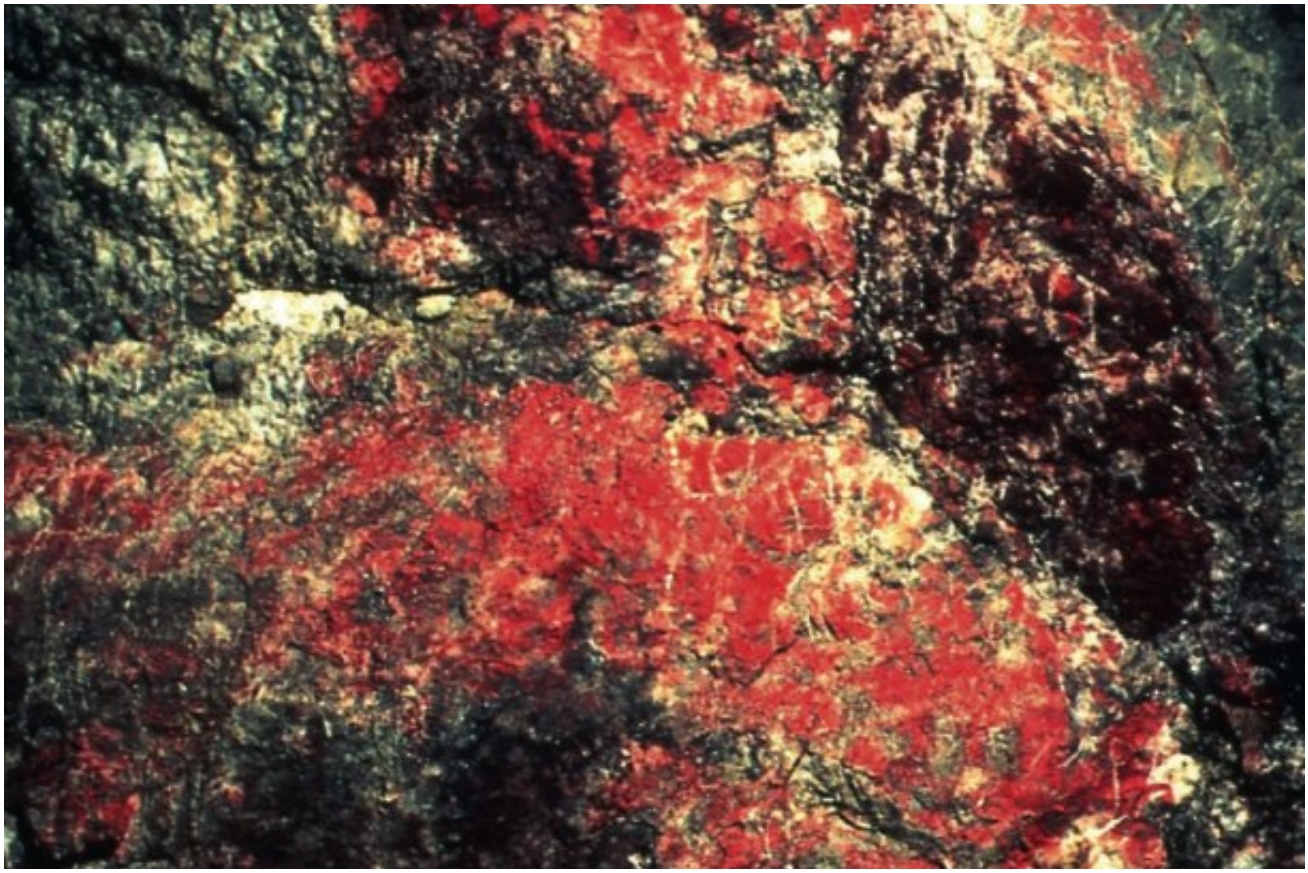
002 068
OPEKOVKA (BRICK ORE), A RICH CINNABAR ORE

ore deposit to move in a south-westerly direction. The continuing pressures caused the structure of the ore deposit to continue leaning towards the South. The old fractures ceased being active and new ones were created that caused individual parts of the deposit to shift northwards. The final transformation of the large fold with the Idrija ore deposit at its upper part, created folding lines, extensive nearly horizontal tectonic contacts alongside which the deposit was pushed some 35 kilometres towards the SE, where it remains until today. Another extensive system of fractures was created several million years ago, including the regional Idrija and Zala faults that cut the already greatly transformed Idrija ore deposit into individual chunks and moved them towards the SE and also vertically. The final result of the above mentioned events is the uniquely chaotic structure of the ore deposit.

THE MINE AND ASSOCIATED BUILDINGS

The Idrija Mercury Mine (1490)

According to legend, mercury was discovered by a tub maker who was soaking a wooden vessel in a stream and captured droplets of the metal. Initial mining efforts were not very successful. It took years before the miners stumbled upon plentiful lodes, which prompted a flurry of ownership changes. Soon the mine was acquired by the Habsburgs from Vienna, for whom the mine was an important source of income for years. Apart from the mine itself, Idrija was also home to processing facilities for obtaining pure mercury. Special smelting furnaces of various types were used for turning the mercury ore into metal (quicksilver).



002 069 BAŠPERH, ORE WITH A LOW CONTENT OF MERCURY



002 015 TUB MAKER FINDS MERCURY. PAINTING, OIL ON CANVAS, JANKO TROŠT, 1953.

The mine was for centuries owned and run by the state. Generous funding and extensive know-how was poured into research and modernisation of the mine in order to maximise production. The mine would be the training grounds for numerous scientists of international renown. This ensured that the mine was at the cutting edge of mining technology and engineering in general in Europe, as well as of health, forestry, botany and other sciences.

The part of the mine, still open, manifests the various methods used over the centuries to extract the mercury ore, as well as methods of building supports and the engineering feats, the hoist technology and groundwater pumping systems. Other features include the underground chapel, the Attems's inclined shaft, and a number of natural and technical attractions unique to this special mine. Another standout feature is the presence of mercury in native form.

The gradual closure of the mine – the world's second biggest mercury mine - begun in 1988, following nearly half a millennium of mercury mining. The programme to shutdown the Idrija mine was focused on protecting the town's centre and the exceptional cultural heritage, located directly above the mine. Reinforcing works were carried out to protect the buildings above the abandoned ore deposit. Groundwater was used to fill the lower parts of the mine. The upper sections of the deposit, where unique cinnabar ores are located in situ, are meanwhile preserved through maintaining the level of water below the IVth gallery and are accessible to visitors.

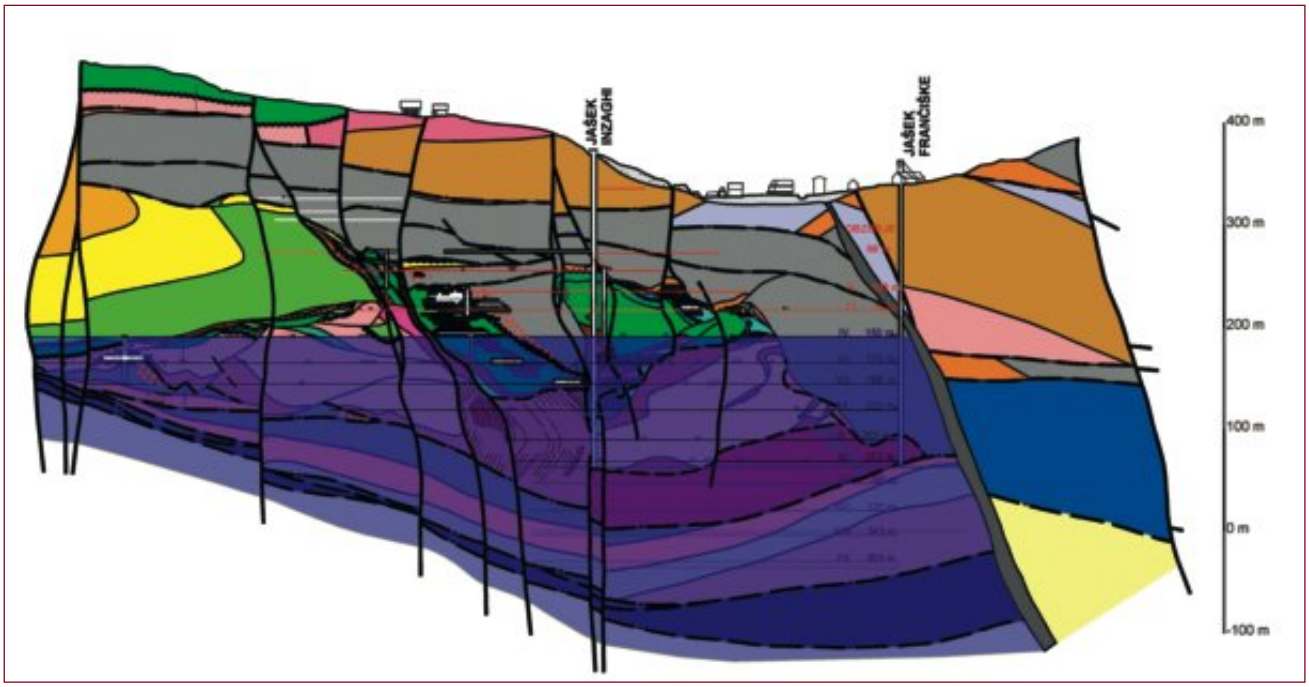
The area in Idrija is home to various sites where machines and other equipment featuring in the production of mercury and having great importance for the mine and the area as a whole have been kept. Many of them represent cutting-edge technological achievements, even great inventions, of the time. Today many of them are considered globally as being among a few or even the only preserved examples of their kind. While some were obtained through the trade and cooperation that existed with Spain, others, usually those belonging to the later periods, were products of the long mining tradition and were linked to the benefits of the trading of mercury route for mine's development and status. (BAJŽELJ, U., 2007)

Anthony's Main Road (1500)

Anthony's Main road, began to be dug in the year 1500, was named after Saint Anthony of Padua, the patron saint against mining accidents. Initially supported by wood props, the tunnel was given tube-shaped walls made of lime blocks and pozzolana mortar in 1766. The 300-metre tunnel was used by miners for nearly half a millennium to enter and exit the mine.

The Chapel of the Holy Trinity was erected at the end of Anthony's Main Road in the late 18th century. Several years later an altar was added to the chapel featuring a relief depicting the Holy Trinity and the statues of St. Barbara and St. Achatius, the patron saints of the Idrijan miners. The

002 016
THE PLANNED FLOODING OF THE LOWER PARTS OF THE ORE DEPOSIT.





002 017
UNDERGROUND CHAPEL OF THE HOLY TRINITY FROM THE MID-18TH CENTURY.

miners passed through the chapel to reach the stairs of Attems's (inclined) Shaft, which descended 200 metres deep into the mine.

Anthony's Main Road encompassing: the headway, Anthony's tunnel, the underground Chapel of the Holy Trinity, gallery I/20, the St. Achatius Gallery and Attems's (inclined) Shaft.

Joseph's Shaft (1786)

The second upswing in Idrijan mining operations took place in the second half of the 18th century. In 1786, construction began on Joseph's Shaft, named after Emperor Joseph II. The shaft was expanded in the middle of the 19th century. It has two parallel hoists working in opposite directions.

A steam engine was installed in the shaft in 1873. This was the first engine of its kind used in a mine and one of the first steam engines for pumping water in Austro-Hungary and was installed in 1890.

This was the single most important shaft for moving material and miners in the mine's history. It connected 15 levels.

The area of the Joseph's Shaft encompassed: shaft, main building with changing rooms, the hoist tower (over which the steel cables from the engine were strung), the hoist with engines, the loading station of the cargo cable car and the forger's shop.

Francis's Shaft (1792)

Construction of this shaft, which is still in use today, began in 1792, at the time large contracts were signed on the delivery of mercury to Spain.

It is one of the oldest facilities in the mine and one of the most impor-



002 018 AREA SURROUNDING JOSEPH'S SHAFT AROUND 1910

002 019
AREA SURROUNDING FRANCIS'S SHAFT AFTER 1910



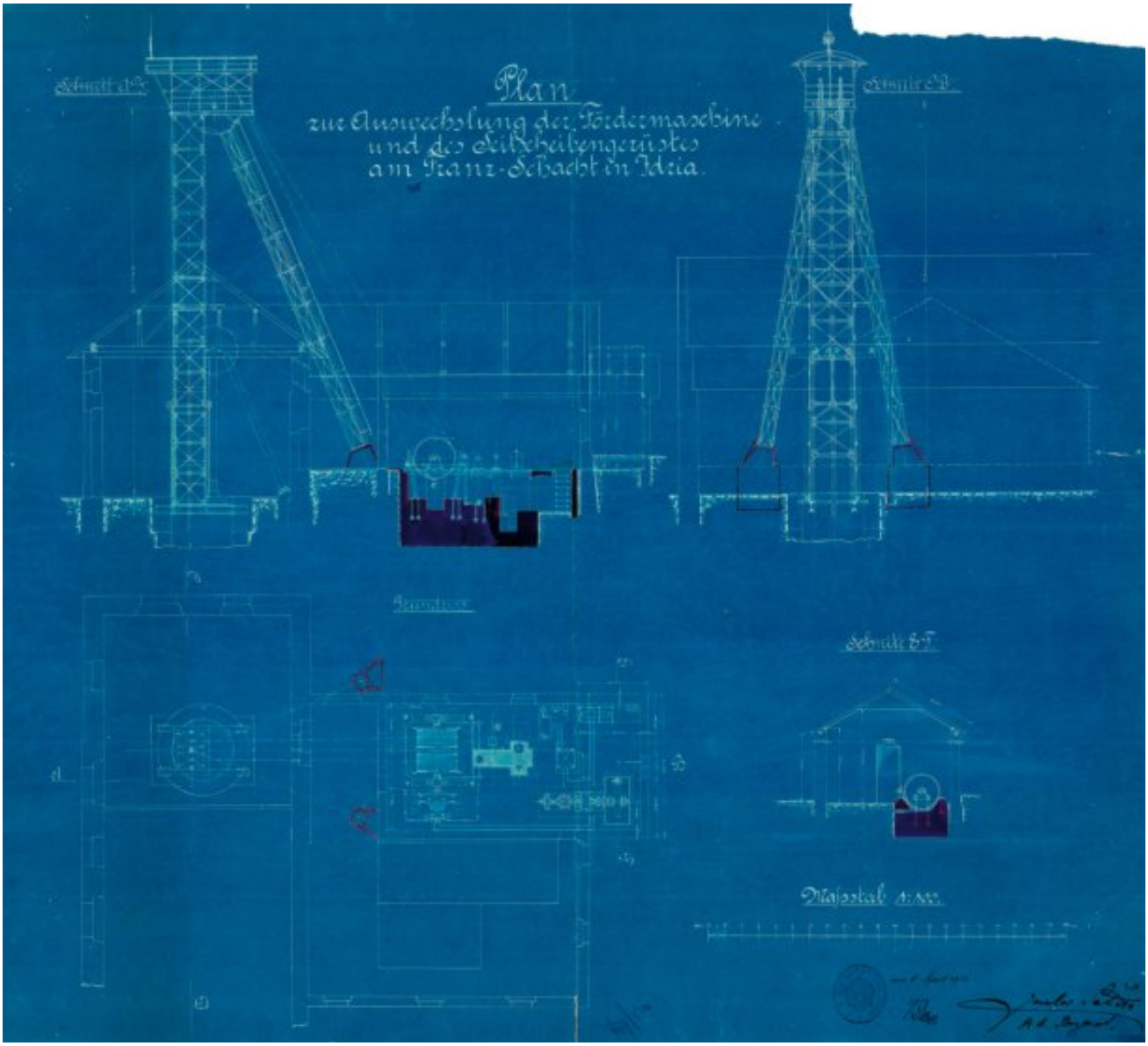
tant shafts for mine operations and ore transport. It was initially called »Franzisci Schacht«, after Emperor Franz II. The shaft is 272 metres deep.

The hoist in this shaft represents the only preserved and working direct current electrical engine of its kind. The engine was installed in 1911.

The eastern side of the main building houses a collection of various engines and equipment from the end of the 19th century that now belong to the Idrija Municipal Museum.

The engine room of the Inzaghi Shaft (1890, 1892)

Between 1764 and 1791 the mine was managed by Count Franz Johann von Inzaghi, who held the highest academic and honorary titles of the time. In 1764 digging began on a shaft that would bear his name. In 1890 the shaft building was completed featuring a boiler room and an engine room. The hoist that was used to bring to the surface the extracted ore and to transport people and equipment in and out of the mine was installed between 1890 and 1892. The engine room housed the hoist with



002 020
BLUEPRINT OF THE TOWER AND THE HOIST FOR FRANCIS'S SHAFT 1911.

safety devices and the engine. During the extensive overhaul of the Mercury Mine Idrija following 1950, the engine room and the support tower with the winding wheels were moved to the current locations, while the steam engine was replaced by an electrical one. The engine room was restored in 2005 along with the engine of the hoist. Today it serves as the Tourist Information Centre.

Roasting

Mercury trade routes also resulted in the transfer of the most modern technologies in acquiring the metal. These methods include the Aludel ovens for smelting the mercury ore, developed in Huancavelica in Peru. The ovens made their way to the Spanish Almadén mercury mine, where they were known as Bustamante furnaces, and then in 1751 to Idrija, where they were called the Spanish furnaces. (ERŽEN, U., 2007; KAVČIČ, I., 1998)

Mercury ore was processed into mercury at different locations, at the beginning located in the vicinity of the entrances to the mine and later in various locations in the vicinity of Idrija due to the high demand

for wood. Over 20 such places have been documented and studied so far (Pront, Lenštat, Pšenk etc).

The first real covered smelter was built in 1641 on the left bank of the Idrijca river under St. Anthony hill (Prejnuta). It was 45 metres long and 11 metres wide and was succeeded in 1746 by a new smelter, 100 metres in length and 14 metres wide, built at the same location. Roasting at this location was carried out in various ovens until 1880, when a new smelting mill was erected on the right bank of the Idrijca river. The move to the new location created more room for the smelting plant, allowed the damming of the Idrijca river and use of hydro power, made it easier to transport firewood and facilitate the removal of the remains of roasting. The move was also necessitated by the antiquated nature of the old smelting plant.

The smelting mill remained at the location until the end of the mine's operations in 1995 and was then protected in 1997 as a monument of technical heritage and in 2001 as a monument of national importance.

A high and constant temperature (some 800°C), an adequate quantity of air and successful catching of mercury vapour are required for the production of mercury. The improvements throughout history tried to achieve the goal.

However, the early smelters knew no theory regarding the production of mercury, as natural sciences were but poorly developed in the period. It was their innovative spirit, desire to learn and improvisation abilities that led to a number of inventions that raised them among the world's best.

The beginnings of mercury production were very simple. Ore containing native mercury was simply washed out under running water through ever finer sieves from iron or copper wires.

A method of smelting ore on heaps was in use until 1508, a procedure similar to the way that charcoal can still be produced today. Heaps were substituted with kilns. The procedure that was used until 1656 was described in detail by the renowned mining expert Georgius Agricola in his 1556 work »De re metallica«.

However, Idrija began falling behind Spain's Almadén mine in terms of smelting technology, prompting the court chamber in Graz to invite innovators from other countries.



002 076
THE NEW SMELTING PLANT ON PREJNUTA
IN 1746, DEPICTED BY JOŽEF MRAK

The results of the efforts by the invited mining experts, pharmacists and alchemist were soon visible as Hans Steinmann introduced the first furnaces and Konrad Widerholt von Widenhofen (a doctor) replaced the ceramic retorts with cast iron ones.

The period between 1508-1656 also saw Idrija become the world's leading producer of mercury for those periods of time that coincided with the problems in Spain's Almadén mine.

The furnaces were additionally enhanced during the time of manager J. F. Stampfer, who in 1715 replaced cast iron retorts with forged ones and made modifications to the entire furnace.

The mine's director Anton Hauptman had new furnaces installed in 1751. The »Spanish furnaces« were developed in Peru's Huancavelica mine and arrived in Idrija via Almadén, a proof of the links and exchange between the mines. The furnaces were known in Almadén as the Bustamante furnaces.

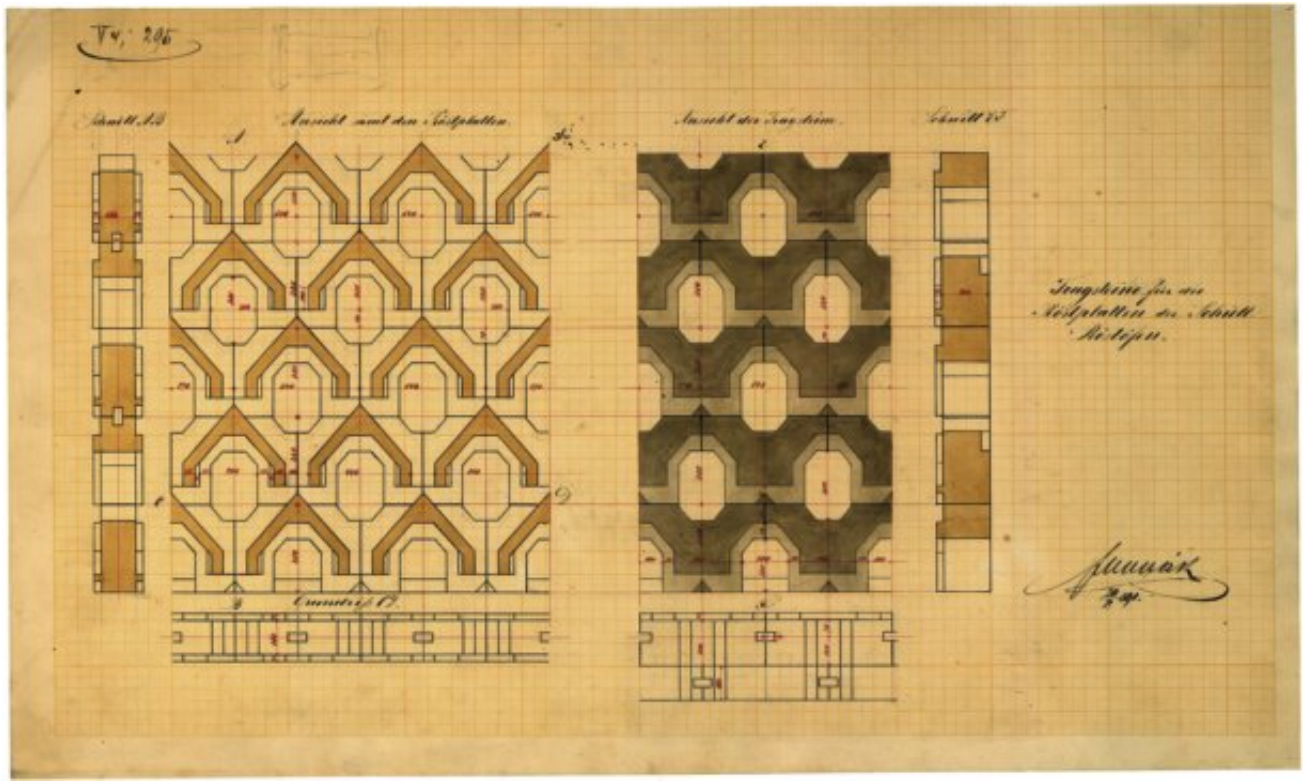
The increasing market demand for mercury and the large supply contracts with Spain prompted the management to seek new ways of smelting the ore. Court councillor Josef von Leithner, living in Idrija at the time, designed and installed in 1787 new vertical flame furnaces called Leithner furnaces in his honour. These furnaces remained in operation until 1860 and were also used in Almadén.

Six vertical furnaces were reconstructed in 1825. Two had their chambers joined into Francis's furnace and the remaining four into Leopold's furnace.

The next invention in the field of smelting came in 1842, when mine manager Martin Glowatsky constructed a new type of furnace, called "fortšauferica". These furnaces required the workers to use shovels to turn the ore, a very difficult and hazardous process.

The smelting plant was moved to the right bank of the Idrijca between 1870 and 1880. At the end of the move, 21 various furnaces operated in the area. The most important modernisation in the construction of the new smelting mill was the new joint smoke stack and a chimney at the top.

What followed was a period of great improvement and inventions. Numerous respected experts came from the excellent school in the vicinity of Prague at the time, with Joseph Čermak, Vincenc Špirek and Adolf Exeli the most important in terms of Idrija's history. The three engineers arrived in Idrija after completing their education and managed to radically improve the smelting procedures. The trio also made Idrija the world's leading know-how and innovation centre in ore smelting.



002 078 SCHEME OF THE INTERIOR OF THE ČERMAK-ŠPIREK'S REVERBERATORY FURNACE (1891)

The peak of smelting technology in Idrija was reached with the installation of original Čermak-Špirek's furnaces. One of these furnaces has been preserved and is believed by industrial archaeologists to be the only of its kind left in the world. The furnace is important because it is a product of local know-how and a technological marvel in its time.

In 1878 Idrija mine employees Josip Čermak, a mining councillor, and Vincenc Špirek, a smelting expert, designed and constructed an improved version of the shaft furnace. Its technical characteristics made the Cermak-Špirek's furnace the most advanced smelting furnace of its time.

The Čermak-Špirek reverberatory furnace (1886) was in use, with slight modifications, until 1974 and at its development presented the pinnacle of mercury ore roasting. The fame of the Idrija furnaces spread all the way to Spain, bringing experts from the Almadén mine to look at how they worked. They later built the same furnaces for use in the Spanish mine. The quality of the Čermak -Špirek design can be seen in the fact that it operated for nearly 100 years. The Čermak-Špirek furnace in Idrija is the only furnace of such design that has been preserved.

The last upgrade of the smelting mill took place in 1961, when a modern rotary furnace of the SAIMA Company was installed. Engineered by G. I. Gould, the Idrija rotary furnace is the largest preserved furnace of the kind in the world.

While three rotary furnaces were in operation between 1965 and 1977, the fourth and the fifth were never installed, due to the crisis on the mercury market. After production was restored in 1984, only the no. 3 furnace was operating. It was shut down for good in 1995, when the last 8 tonnes of mercury were produced.

The Klavže – water barriers

Wood was an essential resource for the mine's activities. In order to ensure safety in the mine, the tunnels had to be supported with wood beams. The mining equipment and tools were made from wood, as was the hoist. Wood was also used as fuel in heap smelting of mercury ore. (ZELENC, A., 2007)

The mine's administrators opted for felling of trees along the Idrijca, Belca and Zala, later also along the Kanomljica creeks. A special rake mechanism was built in the Idrijca



002 079
ROTARY FURNACE AT THE FINAL ORE SMELTING IN 1995



002 025 WOOD STACKS BEHIND THE KANOMLJA KLAVŽE WATER BARRIER, READY TO BE FLOATED – AROUND 1900

stream in Idrija. Wood obtained along the banks of the creeks was floated on the water, which carried it to Idrija, where it was caught in the rake. The wood was then lifted from the river and taken to the Lenštat depot, which supplied the mine and the smelting plant.

The mine's administrators also established a special forestry management service that was put in charge of felling and reforestation. This was one of the first examples of forest management in the Slovenian lands.

The predicament was overcome in the early 17th century with the construction of dams made of wood, stone and soil. The dams had a special opening that was closed with a large door. The dams were closed to allow water to build up. Around a quarter of a million cubic metres of water accumulated behind each barrier. When enough water accumulated and enough wood had been floated, the door was opened to allow the water to carry the wood to Idrija (up to 30 km away).

The first klavže were built predominantly of wood. The frames lasted for around 50 years before rotting caused them to fall apart. In order to reduce costs associated with their building, the mine decided in the late 18th century to construct all klavže using stone. Jožef Mrak led the efforts to build stone klavže. His construc-



002 026 THE LAKE BEHIND THE KANOMLJA KLAVŽE WATER BARRIER, 2006



002 027 THE PUTRIH'S KLAVŽE WATER BARRIER, 2004

tions were so solid that they still exist today.

The klavže were in use all until 1926.

Water Barrier on the Idrijca river (1772)

The biggest of all the preserved klavže is that on the Idrijca river. It was built in 1772 and had walls of average breadth of 10.8 metres. The breadth at the base was 18 metres. The dam spans 41.4 metres and is about 15 metres high. The structure has two openings of size 3.8 by 5.6 metres through which water flowed when the barriers were lifted. In the second half of the 1980s Soške elektrarne electric company below the klavže water barrier built a dam for the accumulation lake; it is used for its small hydro power plant. Due to the high water level in the accumulaton lake the klavže water barrier is endangered and in need of reconstruction. The Konservation plan was ready in september 2009.



002 028 WATER BARRIER ON THE IDRIJCA RIVER, EARLY 20TH CENTURY.



002 029
WATER BARRIER ON THE IDRIJCA RIVER, 2004.



002 030
BRUS'S KLAVŽE WATER BARRIER ON THE BELCA CREEK, EARLY 20TH CENTURY

002 031
BRUS'S KLAVŽE WATER BARRIER ON THE BELCA CREEK 2004

Brus's Water Barrier on the Belca creek (1779)

This dam was significantly smaller than that on the Idrijca river, but built according to the same principle. It was constructed in 1779. The dam measurs 8.9 metres in height and 7.5 metres in breadth at the base and is 34.8 metres long. Brus's klavže on the Belca creek has been restored.

Putrih's Water Barrier on the Belca creek (1779)

It is quite peculiar that two klavže had been built in series on the same stream. The second was built higher up in the woods and after Brus's klavže. Following the erection of Brus's klavže, it became evident that another dam should be built higher up to feed wood to the dam downstream.

The same technique was used in building this klavže as with the two previous constructions. The mechanisms built in were also the same. Putrih's klavže measured 8.5 metres in breadth and were 44 metres long.

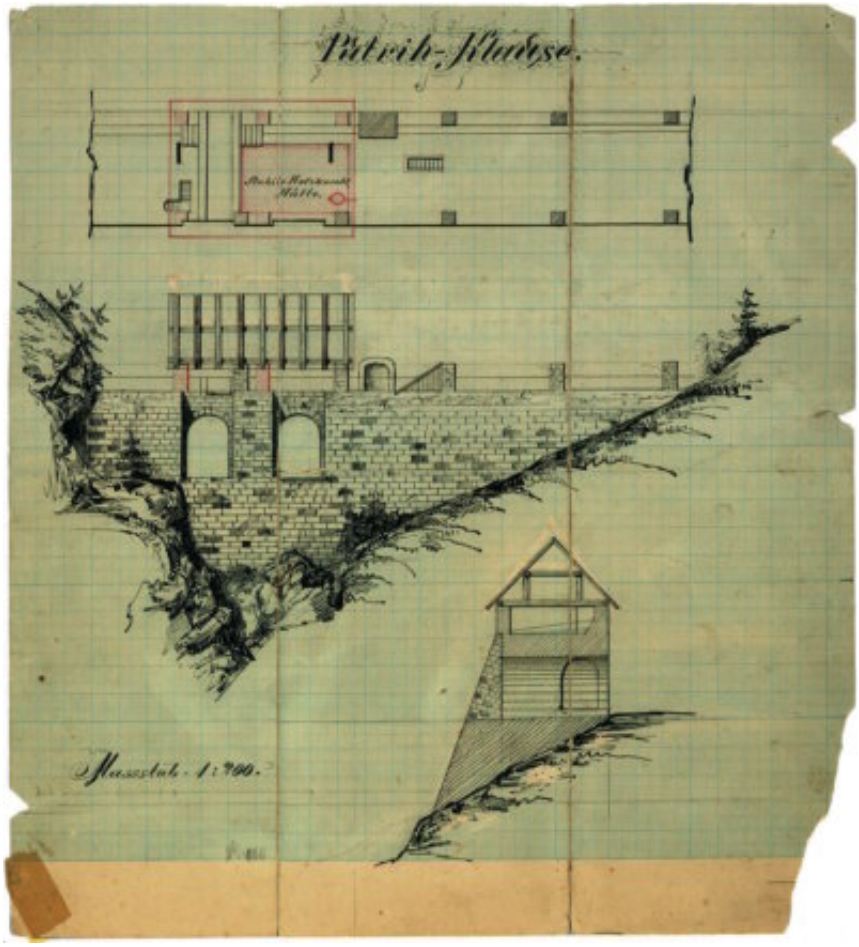
One of the most unique features of Putrih's klavže is its position high upon a rock, from where the water cascaded into a pool below, forming a 12.6-metre waterfall.

The Kanomlja or Ovčjak Water Barrier (1812)

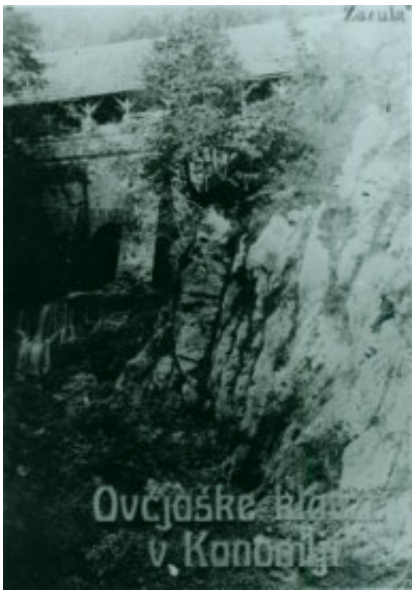
The klavže built in Kanomlja on the Ovčjak creek in 1812 was the last example of this structure in the Idrija area. The Kanomlja klavže was built by the French during Napoleon's occupation, using techniques from the past. It was identical to the klavže built earlier.

The main wall was 10.2 metres thick, 14 metres high and 32.6 metres long. This klavže was in use until 1926. The klavže fell apart as the water eroded the inner walls.





002 032
THE PLAN OF PUTRIH'S WATER BARRIER ON THE BELCA CREEK



002 033
OVČJAK OR KANOMLJA KLAVŽE WATER BARRIER WAS BUILT BY THE FRENCH IN 1812



002 034
OVČJAK OR KANOMLJA KLAVŽE WATER BARRIER, 2006

The Ministry of Culture restored them in 2005 with the help of the Soške elektrarne electricity power company. The company now uses it as a dam for the accumulation lake used for its small hydro power plant. The dam has been completely restored, including the wood barrier mechanism that was used to blocking and opening the door, making it the only working example of the mechanism.

The Rake – water channel and the Kobila dam

The Kobila dam and 3.5-kilometre water channel named Rake bringing water to Idrija are one of the most important energy structures used for the purpose of the Idrija mine. The Kobila dam was initially built of wood augmented with stones and soil to retain water. The decay of the wood meant that the dam was later turned into a stone structure and subsecuently reinforced with concrete. The Kobila dam and the accompanying barrier are still in use today, regulating water flow in the Idrijca river. The dam and the aqueduct are said to have been built in the early days of the mine, in e 16th century. They were a key asset all until the invention of the stream engine. A number of water wheels (kamšt) were powered by the water flowing along the water channels, allowing the transport of loads and the pumping of water from the mine. Period of droughts were a major problem, since a lack of water forced the mining operations to be brought to a halt. The importance of the Kobila dam and the water channel Rake was diminished only with the onset of new technology.

The infrastructure is used today to power a modern hydro power plant at Lenštat, the site of the old depot. It is also a popular hiking spot.

The Kamšt water pump

As production grew so did the need to dig deeper to obtain quality ore. This caused new problems. With a number of streams flowing above the mine, breaches of water into the mine became common. The water accumulated in the lowest parts of the mine, usually the shafts.

To ensure normal operations, the groundwater had to be continuously pumped from the shaft. In the beginning, when the mine was shallow, the water was extracted using hand powered pumps.

Specal water pumprs were designed in Europe in 13th and 14th centuries that used the current of water to turn wheels whose power was in turn used to pump water to the surface. These giant pumprs were called kamšt. The name is derived from the german word Wasserkunst, meaning water art or water science. The inventor of the kamšt is not known – what is known is that it is a 13th century invention from Central Europe.

Several water pumprs were in operation in Idrija. They were built on several locations and all of them functioned by the same principle.

The newest Kamšt water pump built in Idrija and still preserved dates back to 1790. It was used to pump water from the mine all until 1948, when a flood caused it to be replaced by newer methods of pumping water from the mine. Using a special mast structure it pumped water from a depth of up to 280 metres. It has been preserved to this very day and is considered one of the most important technical monuments in Slovenia.

The device with a massive wooden wheel with a diameter of 13.6 metres is among the biggest preserved systems of its kind in the world.

PUBLIC BUILDINGS

Gewerkenegg castle (1533)

The castle was built on the slopes overlooking the town. It was built between 1522 and 1533 to house the administration of the mercury mine on the site if what used to be the Chapel of St. Achatius. It was also used as secure storage facility (warehouse) for precious metals and cinnabar. The castle complex served for centuries as the central point of mercury trade, with merchants from around the world coming to buy the silver-coloured liquid metal. The castle complex also contained offices, a court, schools, housing facilities and even prisons. The administrators of the mine lived and worked here all unitl 1940.

The rectangular castle perimeter stretches across a small gorge that provided natural protection to the castle from the south and west. The castle is an excellent example of massive Renaissance architecture. The perimeter of the castle compley is characterised by round corner towers and a central tower with a clock and a figure of the god Mercury, which turned in the direction of the wind. The castle underwent a thorough Baroque remodelling in the middle of the 18th century. It was given a new arcade bailey, while colourful frescoes were painted onto its walls. The interior of the castle was fiven a French-styled makeover at the beginning of the 19th century.

002 129
THE RESTORED BUILDING OF IDRIJA'S CASTLE, GEWERKENEGG.



Following the departure of the administrators od the mine, the castle was used for various purposes and began to be neglected. Only with the arrival od the Idrija Town Museum and the Idrija Music School did the castle get new, responsible caretakers. The castle's renovation gave the museum suitable space to put up permanent exhibitions. In 1997, the museum was bestowed the prestigious Micheletti Prize for "The Best European Museum of Industrial and Technical Heritage" for its presentation of the 500-year history of the mercury mine and the town of Idrija.



002 041
MINE'S WAREHOUSE

Mine's warehouse (1764)

A large, single-storey building that would go on to be used as a silo was built on the St. Achatius square in the old town centre of Idrija in 1764. The silo was used to store wheat and other food that would be used to pay the miners. It is one of the oldest examples of Baroque architecture in Slovenia. The façade of the building looking on to the St. Achatius square and St. Barbara street were embellished with distinctive rustic decor. The two walls were joined by an arched vestibule that still houses an opening in the ceiling through which miners were distributed rations all until 1912. The building tells an important story about the life of miners and their families in the 18th -, 19th - and early 20th -century Idrija. Its sheer size makes it a major feature of the Idrija old town.

Plaques dedicated to important people in Idrija's history (Jožef Mrak, Marko Vincenc Lipold, Baltasar Hacquet, Franc Anton Steinberg, Ivanka Ferjančič, Henrik Freyer) were put up on the façade of the warehouse as part of the town's 500th anniversary celebrations.

Mine's Theatre (1769)

Built in 1769, the Idrija Mine's Theatre is the oldest theatre building made of stone in Slovenia. The building testifies to the rich and diverse cultural heritage of Idrija, which includes theatre production. A report by mine councillor Benner from 1815 says that the »theatre was built and equipped by administrators and miners with the help of private donors – having a noble purpose of giving a person the opportunity to learn good manners and become civilised".

002 042
PLAN OF THE MINE'S THEATRE

The building has Baroque round shape and a Classicist entrance hall. The interior was wooden. It had an 8 by 11 metre stage, a main entrance and a special entrance for changing rooms and the stage, as well as two flights of stairs leading to the first floor. The theatre building had 17 boxes, standing room and an orchestra pit. The theatre was renovated on a number of occasions (1872, 1952, 1970 and 1987), but retained its external look, including its relief façade and high arched windows to this very day.

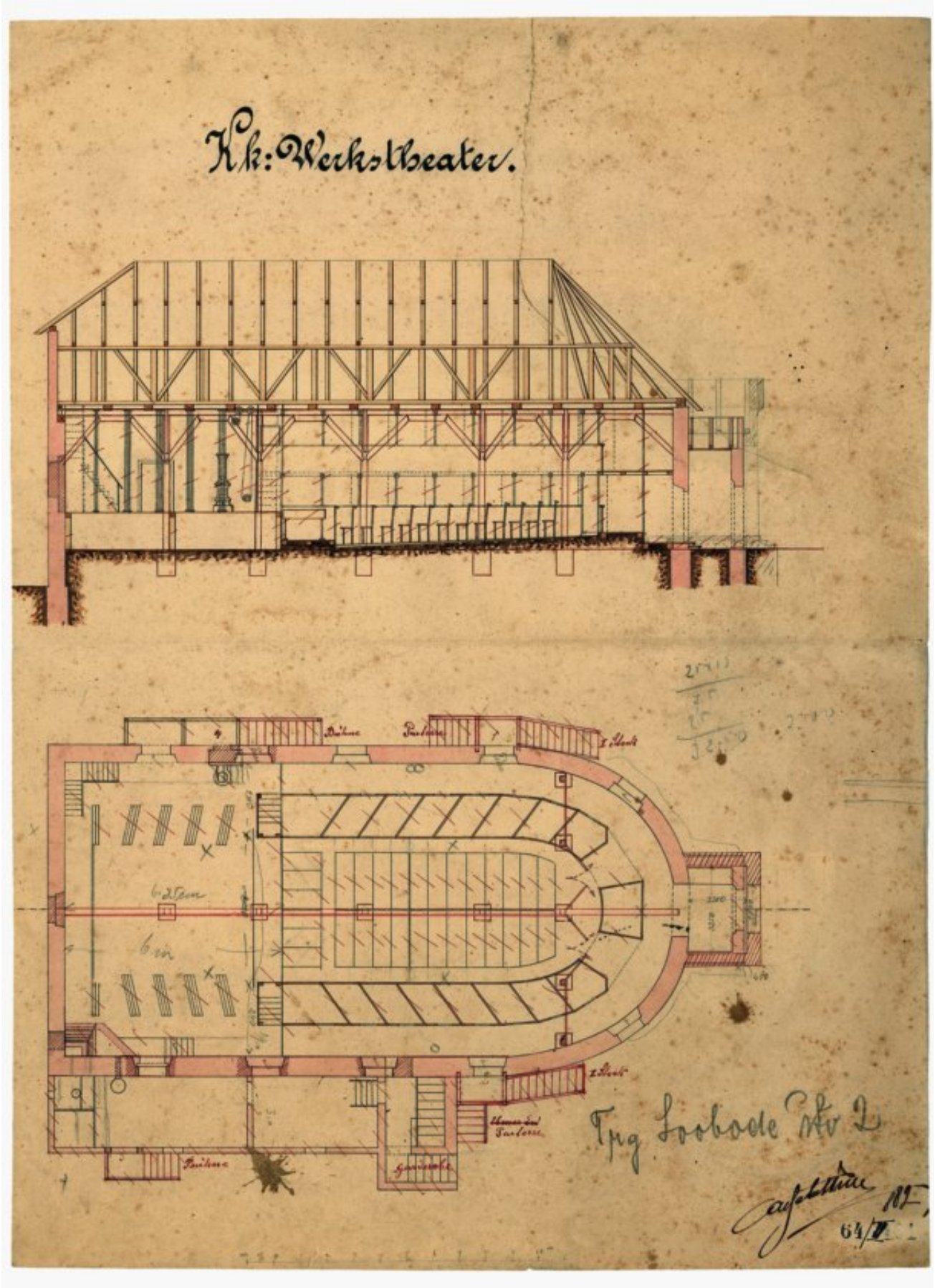
Secondary School of Natural Sciences (1903)

The building housing the Secondary School of Natural Sciences in Idrija was built in 1903 according to the blueprints by Ljubljana-based architect Karl Holinski. The school building was constructed with municipality funds. The entryway is embellished with an adorned portal and two Classicist pilasters, an architrave and a vault containing the bust of Slovenian mathematician Jurij Vega, after whom the school is named.

In 1991, Slovenian painters Rudi Skočir and Nande Rupnik drew a mural (sgrafito) in the entrance hall of the school. Having undergone much-needed renovation work in 2006, the building still serves as a secondary school.

Town Hall (1898)

The Town Hall building was constructed in 1898 according to the


Kk: Werkstheater.

plans by German-born architects Clemens M. Kattner and Gustav Adolf König. The building features richly-decorated main and side façades that define the look of the old town.

The building is a mixture of styles, ranging from the Renaissance Revival, Gothic Revival and Classicist, although the building as a whole reflects the Secessionist style dominant at the turn of the 20th century.. The stone portraits of architects Kattner and König stand above either side of the stairway leading to the entryway. In between the portraits is the Pirnat memorial plaque. The building is still used by the town administration and mayoralty.

A memorial note has been placed on the entrance hall wall, which is also adorned with a mural by painter Nande Rupnik done according to by plans by the late Ivan Seljak-Čopič. In 1992 the conference hall was decorated with a mural. Painters Nande Rupnik and Rudi Skočir dedicated it to the achievements of the Idrijan mine and its miners.

Church of the Holy Trinity (1500)

The church stands on the spot where legend says native mercury was first discovered in Idrija in 1490 by a tub-maker who came to fetch water from the spring. The first, wooden church was erected ten years later, as attested by a document issued in Udine on 22 August 1500.. In the second half of the 16th century, Protestant priests temporarily took charge of the church. The Protestant priests wielded great influence in Idrija. With the completion of the St. Barbara Church, which served as the parish church, the Church of

002 043
FAÇADE OF THE IDRIJA SECONDARY SCHOOL OF NATURAL SCIENCES, 1903



the Holy Trinity lost importance. However, Ljubljana Bishop Alojzij Wolf, a native of Idrija, called for it to be preserved.

Miner's house, located at Bazoviška 4 (18th century)

The house was built at the end of the 18th century and was subsequently refurbished in the 19th century. The building has a high gable, three floors, a basement and a mansard.

The house is made mostly of wood, with the exception of the ground floor, which is made of stone. The support structure is made of wood, as are the floors and stairways. The steep roof is covered with shingles. Steep stone steps lead to the entrance to the house, placed in the side façade. The stone portal has a Baroque frame. The building is positioned among vegetable gardens. It is of great importance because of the story it tells of the miners' lives in Idrija.

Fountain with miner statue (1868)

A grey alloy fountain with a small statue of a miner at the top stands in the centre of Idrija. The fountain was made by the once-famous foundry and smelter at Dvor, owned by the Auerspergs, a family of princes, in what is now south-east Slovenia.



002 044
"HIŠA", THE CENTRAL LIVING ROOM IN AN IDRIJA MINER'S HOUSE, MIDDLE OF 20TH CENTURY



002 045
FOUNTAIN WITH MINER'S STATUE FROM 1868

2.a.2.1. Relevant examples of moveable heritage. Mine machinery and equipment

Steam piston engine

Kley's pump (1893)

The main drawback of the Kamšt water pump was its great dependence on a steady water supply. The wheels ground to a halt during the summer drought and the winter freeze. This prevented it from pumping water out of the mine, causing mining operations to be halted altogether for spells at a time. To overcome this problem the management of the mine decided to install a steam water pump in Francis's Shaft.

The machine manufactured by Czech factory E. Skoda Pilsen was installed in 1893. The technology was somewhat unusual in that it involved Kley's pumping technology, using a two-cylinder steam-powered top-mounted engine to power the pumps that were positioned at the bottom of the shaft. The design of the machine mirrored that widely in use in England in the 19th century. The unique feature of the Kley's pump was its inverted beam system. In English pumps, the beam was positioned above the engine, but in Idrija it was positioned between the cylinders of the engine and the pump. Another unique feature was a flywheel with a diameter of nearly 8 metres that was used to overcome dead centres in the piston. The engine was regulated using a cataract, which had at the time largely been replaced by newer regulation technologies. This was one of the last examples of this complicated regulation system in the world. The engine was powered by wet steam from the nearby boiler plant, which also produced steam to power the hoist operating in Francis's Shaft.

The engine was in use until the mid-20th century, when it was replaced by simpler, cheaper and more efficient centrifugal pumps.

Records suggest the Kley's pump used in Idrija is the only machine of its kind still preserved anywhere in the world. Similar machines used for pumping water have been preserved at the Kew Bridge Steam Museum in London, Great Britain, but these



002 141
KLEY'S WATER PUMP IN THE HEADFRAME OF FRANCIS'S SHAFT WAS DRIVEN BY STEAM.

do not contain the rotary parts. The Crossness Sewage Pumping Station near London also has similar pumps, although the beams there are located above the steam engines.

Other piston engines

Two steam engines in the Francis's Shaft

The bigger of the two is a one-cylinder horizontally-mounted reversible steam piston engine built by the Graz-based J. Körösi factory in 1882. The engine operated in the ore sorting plant even after the Second World War. The engine was powered by dry saturated steam at 5.07 bars of pressure produced in the boiler. The engine drove the axel used to power the sorting conveyor by four v-shaped belts. The extension of the piston was connected to the piston pump that served as the condenser. The engine with a power rating of 20 bhp, a piston diameter of 290 mm, piston displacement of 580 mm and a flywheel of 2760 mm was regulated with the Rieder system.

The smaller engine is also a one-cylinder horizontally-mounted reversible steam piston engine. It was built in 1893 by the factory Fürst Salm`sche Maschinenfabrik Blansko. It was installed in the mercury ore processing plant on the right bank of the Idrijca river. The same facility also housed the Francis water turbine and an electric generator, while the adjacent building housed the boiler with a steam accumulator. The boiler produced dry saturated steam that propelled the steam piston engine, which was the auxiliary engine to the Francis water turbine (the first of its kind in Idrija). The engine transmitted its power through three belts that in turn powered various devices for extraction of cinnabar, as well as the light generator. The piston extension was connected to the piston pump that was used as a supply pump or condenser. The steam engine was regulated by the Rieder system. It had a power rating of 25 bhp, a piston with a diameter of 320 mm, piston displacement of 530 mm and a flywheel measuring 2060 mm in diameter. The steam engine was involved in the early electrification of the Mercury Mine Idrija. The engine was moved from the cinnabar factory to the smelting plant in 1909.

The steam engine propelling the hoist in Francis's Shaft is on display on the eastern side of the building. The mine had bought the compound steam piston engine with horizontally-mounted cylinders in 1890 from the Breitfeld, Daněk & Co. Prague factory. The engine was installed between 1890 and 1892. It had a power rating of 55.93 kW (75 bhp). The diameter of the high-pressure cylinder was 360 mm; the low-pressure cylinder was 550 mm in diameter. The piston displacement was 650 mm. The Rieder system provided the steam regulation, while it also used a Gooch valve gear, which had been common in steam locomotives. The valves propelled the crankshaft that was fitted with a cog-wheel with 47 teeth that was coupled with a bigger cog-wheel with 188 teeth (4-stage gear). The bigger cog-wheel was in turn connected to the shaft of the winding

002 142
THE HOIST, MANUFACTURED BY THE BREITFELD, DANĚK & CO. FACTORY FROM PRAGUE , 1890. THE STEAM-POWERED HOIST IS PICTURED IN THE JOSEPH'S SHAFT



drums. Fitted with alloy crown teeth, the cog-wheels were technologically advanced for the time. They are very rare today. The diameter of the winding drums was 3000 mm. The engine used a shoe-brake and a depth indicator that told the operator the position of the cage in the shaft using two screws. The screws were controlled directly from the driveshaft. The cage reached a top speed of 6 m/s, making it capable of carrying 125 tonnes of ore in 8 hours.

The hoist steam engine used in Joseph's Shaft is the only one of its kind in Slovenia and the world.

Steam boiler

Records show that the mine in Idrija operated a number of steam boilers. The only preserved boiler from the mine is a boiler produced by the E. Skoda Pilsen factory in 1882. It produced dry saturated steam at 5.07 bars of pressure and had a heating area of 24 m². The boiler was installed in the sorting plant , where it provided steam to the J. Körösi engine (1882). Its large size, high costs and low yield quickly made it redundant - most were taken out of service in the 1930s and 40s. The preserved boiler from the Idrija mine represents a unique example of technical heritage that is not thought to exist elsewhere in Slovenia or the world.

Compressors

The headframe of Francis's Shaft houses three compressors.

The oldest is a vertical two-stage water-cooled compressor made by Grazer Waggon – Maschinenfabriks A.G. Graz in 1909. It was stationed in the mine's power station, which was opened in 1909 and gradually expanded. The power plant initially had a water turbine and an auxiliary diesel engine. The compressor was used to start the diesel engine. The compressor was likely taken out of service together with the diesel engine, in 1950.

In 1914, the mine's administrators decided to purchase and install a compressor station on the 2nd gallery (183 metres below ground) of the north-west pit. The compressor station powered 15 drilling machines, of which 14 were being used on levels II - IV and one on level VII. The compressor was housed together with an electrical engine and air collector in one of the rooms of the compressor station.

The vertical two-cylinder two-stage compressor was built in 1917 by Breitfeld, Daněk & Co. of Prague. It was installed in the mine a year later. Its technical specifications were: maximum pressure of 8.1 bars, actual pressure of 7.09 bar, an air intake capacity of 12 m³/min, an air collector of 12 m³, 250 revolutions/minute, a differential piston of diameter 360/450 mm, a piston displacement of 320 mm. The compressor is important because it is the first that was not powered by steam. It was installed as part of the mine's switch to compressed-air drilling equipment.

The third preserved compressor was bought during Italian rule. It was a one-cylinder compressor made by Societa Anonima Italiana of Milan in 1928. The compressor was powered by a 26.1 kW (35 bhp) diesel engine.

The mine compressor station houses the following compressors:

- a horizontal two-cylinder two-stage compressor with an air collector made by S. A. Franco Tosi of Legnano in 1926 (technical specifications: pressure of 7.09 bar, air intake capacity of 30 m3/min, 153 revolutions/minute, low-pressure cylinder with a diameter of 525 mm, high-pressure cylinder with diameter of 325 mm and a piston displacement of 500 mm, powered by a three-

stage electrical engine with a power rating of 161.8 kW (220 bhp), 2,500 V;

- a horizontal two-cylinder two-stage rotary compressor made by the Chicago Pneumatic Tool Company in 1949 (technical specifications: pressure of 7.09 bar, air intake capacity of 18.5 m^3/min; 375 revolutions/minute, low-pressure cylinder with a diameter of 394 mm, high-pressure cylinder with a diameter of 254 mm and a piston displacement of 254 mm; it was powered by an electrical engine made by El. Machinery Minneapolis, USA, with a power rating of 110.32 kW (150 bhp), 380/220 V, 184/319 A, 375 revolutions/minute;

- three ER8 type compressors made by Atlas Copco of Stockholm, Sweden in the early 1960s with a maximum pressure of 8.92 bar.

Feed pumps

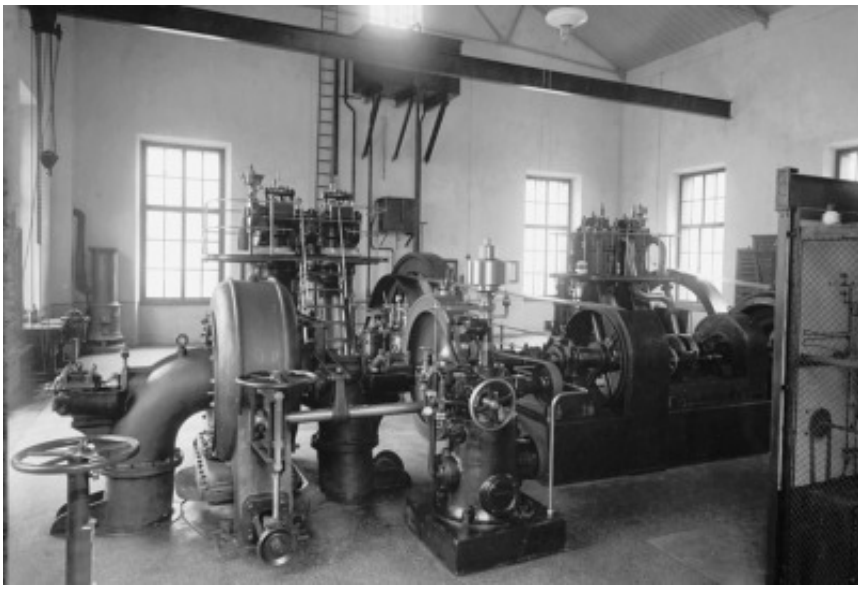
The feed pumps were auxiliary devices for the boiler. There is no record of their technical specifications or the producer. Judging by the make, the pumps were made around 1890. They are the only ones of their kind preserved in Slovenia. The feed pumps were driven by a piston engine powered by compressed air that was connected with a piston pump by a rigid oscillating belt. The compressed air caused the driveshaft to spin and power the piston pump. The pumps had a carriage that was connected with a bar to the eccentric cam on the main shaft to regulate the piston engine. The shaft was fitted with a flywheel to steady the rotation.

One of the pumps was retrofitted to work on compressed air.

Water turbine

The year 1893 is widely considered to be the beginning of the electrification of the mine in Idrija. At that time the cinnabar mill was first illuminated with eight arc-lamps. The Francis water turbine was used to provide power to the 25 kW dynamo and the conveyor belt in the cinnabar mill. It was in operation until 1930 and has been preserved.

The Francis water turbine worked using a simple mechanism with an upright shaft and was made to be fitted into an open water tunnel. The tunnel was moon-shaped on one



002 143
THE MINE'S POWER PLANT WITH ITS DIESEL ENGINE AND WATER TURBINE IN 1915

side, while water flowed from the other side through a channel regulated with a barrier that could regulate water flow to the turbine. The part with the barrier no longer exists. The other main parts include: the casing housing 24 blades, a shaft with 22 rotor blades and a tube (not preserved) draining water from the rotor blades. The turbine was manufactured in 1891 by Kolben & Co of Prague-Vysocan. The turbine spun at 90 revolutions/minute and had a power of output of between 12.53 kW (16.8 bhp) and 22.37 kW (30 bhp), depending on the water flow, which ranged from 600 to 1200 litres per second of fall from a height of 2.08-2.4 metres.

Diesel engine

The afore-mentioned diesel engine had been installed in the second mine power station, which went into service in 1909. Because of the unsteady water levels, the power station was designed to work both on water and thermal energy, which is why diesel engines were gradually installed. The power station was built in several stages. In the first stage, a water turbine and a diesel engine was installed. In 1915, a second diesel engine (two-cylinder four-stroke) was fitted, acting as an auxiliary generator.

It was made by Leobersdorfer Maschinenfabriks Aktien-Gesellschaft in 1915 and had a power rating of 73.55 kW (100 bhp). It worked at 195 revolutions/minute. It was taken out of service in 1950.

Pumps

The management of the mine was aware of the importance of installing pumps to extract water from the mine. In fact, this is generally one of the most important aspects of a mine's operations.

The Idrija mine acquired two pump stations fitted with two pumps each in 1922 to draw water from the main stope on the XIth level. The pump station on display today is one of the two used for this purpose. The six-stage centrifugal pumps were manufactured in 1922 by S. A. Ercole Marelli & Co. of Milan. They operated at 1,440 revolutions per minute and could draw 1,200 litres of water per minute over a maximum height of 275 metres. They were powered by a three-stage electrical engine with a power rating of 9.32 kW (125 bhp), 2,500 V, 50 Hz.

The main parts of the pump include: the casing with an intake and pressure nozzle, a driveshaft with rotors and a clutch. Pump no. 2 has an intake nozzle on the bottom through which water from the pool passed. The water then passed through the pressure nozzle into the intake nozzle of pump no. 1 and then onto the pressure nozzle and pipe into the Idrijca river.

The pump station was moved from the XIth level (65m above sea level) to the XIVth level (6.5 metres below sea level) in 1958. Meanwhile, the Marelli pump was taken out of service due to its age and damage caused from blasting.

Two-speed winch(1870-1890)

A special hand-drawn pulley was bought to move heavy loads in the mine. Judging by its features, the pulley was likely made by the Ljubljana-based Tönies factory sometime between 1870 and 1890.

It is the only machine of its kind preserved in Slovenia.

Portable winch

The pulley was made at the end of the 19th century and was described in technical documentation dating back to the late 19th and early 20th centuries. The pulley could be used for

moving trolleys across levels to the shaft, while its main use was for lifting material out of prospecting drifts.

Prospecting drill (20th century)

The drilling machine was one of the newest pieces of equipment in the mine. It was manufactured by Sullivan Machinery Co. Chicago, Illinois in the mid-1950s.

Tramcars

Tramcars riding on tracks for taking ore to processing plants started to be used in the early years of the mine. Based on a simple system, they were used both underground and on the surface. The ore was initially transported using leather bags. However, it was not long (15th century) before the first wooden tramcars, modelled on those used in Saxony and Transylvanian mines, were introduced. The technology was brought to Idrija by travelling miners. This part of the mine's history has not been explored in great detail, although records undoubtedly show that tramcars were used early on in the mine's existence.

A unique feature of the tracks in the Idrija mine is their reduced width.

Mines in Austro-Hungary used tracks with a gauge of two Vienna feet (equivalent to 630 mm). This was also the width that was later used by the Trboveljska premogokopna družba mining company in mines around Slovenia and Istria, as well as the tracks for the train used to carry tourists in the Postojna Cave.

However, the extremely narrow tunnels at the top levels of the Idrija mine meant that the mine opted for tracks of 1.5 Vienna feet (equivalent to 475 mm) in width. Only a few mines in the world used this width – in Slovenia, the only other one was the Mežica Lead Mine. The mines in Idrija and Mežica used the width for their tracks all until their closure.

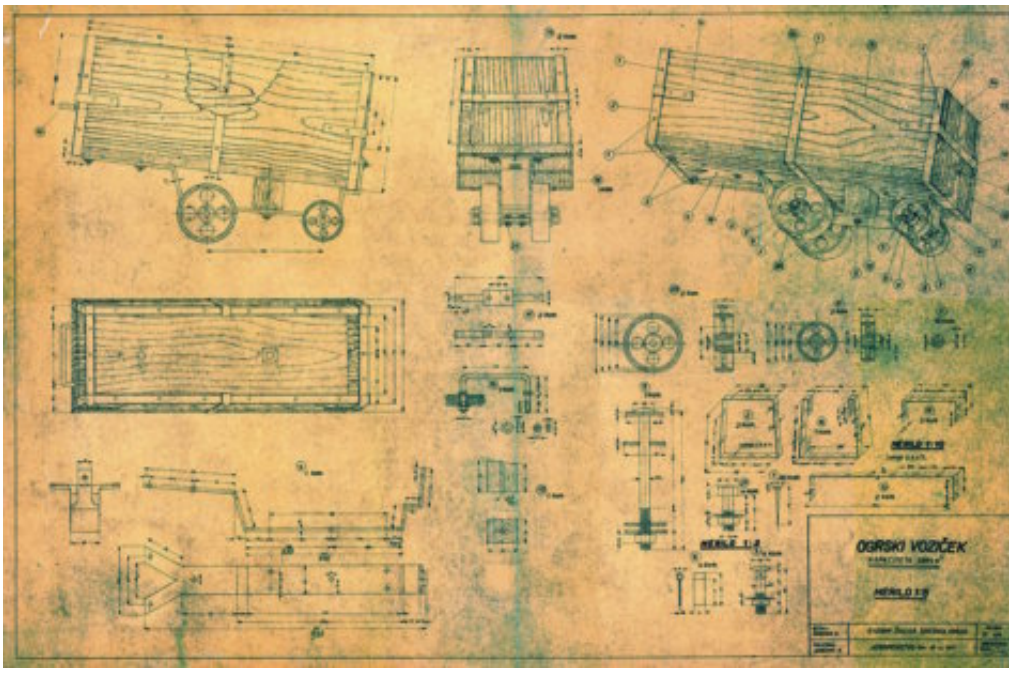
Austro-Hungary started to build railroads at the turn of the 19th century, while their construction reached a peak in 1870. Initially, rail width was not regulated and chaos reigned. This forced the authorities to act by prescribing rail-width standards. The recommended width of local, light, industrial and road rails was one metre. This was the standard used for the rail line connecting the separating mill to the smelting plant, allowing large capacities of ore transport.

Most of the preserved mine cars from Idrija have been kept at the cable car station near Joseph's Shaft.

The »trugca« mine cart

These carts, which got their name because of their shape (they looked like a coffin - or »truga« in Slovenian), are not considered to be rail cars. They were essentially a tub on wheels with a guide pin and have been referred to in literature by their German name »Spurnagelhund". They made their first appearance in mines in the 15th century - perhaps even before. This kind of cart originated in central Europe.

002 144
CLOSE-UP OF THE "TRUGCA" ORE TRANSPORT MINE CART



The rails for these carts consisted of two parallel wooden boards divided by about 5 cm. The cart glided on the surface of the 10 by 12 cm boards. The pin protruding from the bottom of the cart was positioned in the space between the boards, ensuring that the cart remained on the beams. The English referred to them as tramways. The word was later used for all kinds of railways and gave its name to the modern tram.

The wooden wagon ways were replaced by iron rails, which were much more sturdy and durable, in around 1850. In places where the iron rails had not been laid yet, the miners used the old carts that had been stripped of the guide pin. Such carts were used across very short distances.

The Spurnagelhund carts can be found in all major museums around Europe, including several museums in Slovenia.

Small electric locomotive (1902)

Steam engines never caught on in mines, mostly because of the smoke (but also because of the danger posed by the open fire), which is why mines rushed to introduce electrical locomotives. Idrija was no exception. Electrical locomotives entered into service in Idrija as soon as the technology had been proven safe and reliable. The introduction of electrical locomotives was another first for a mine that was renowned for using cutting-edge technology in all processes, from separation to smelting.

002 145
SMALL ELECTRIC LOCOMOTIVE SIEMENS&HALSKE WIEN FOR TRANSPORTING ORE FROM JOSEPH'S SHAFT TO THE ORE SEPARATION IN THE BAŠERIJA BUILDING.



In 1902, the mine ordered two electrical locomotives from Vienna-based Siemens&Halske. One of these has been preserved. The engine was powered by a direct current at 400 V and represents a typical example of railway technology of the time. The locomotive had a power rating of only 5 bhp and operated at speeds of between 5 and 10 km/h. It was used to transport ore from Joseph's Shaft to the sorting plant in Bašerija. The locomotive ran on narrow-gauge rails of 475 mm in width.

A small number of similar locomotives dating back to the period of early railway technology have been preserved and can be found in a number of mining and railways museum around Europe.

Large electric locomotive (1902)

Apart from the two narrow-gauge locomotives, the Idrija mine also bought two wide-gauge locomotives to run on the rails of 1 m in width. These locomotives were used on the line connecting the separating mill and the smelting plant. The line here consisted of three rails to accommodate both for the wide and narrow gauge wagons. The locomotives were fitted with coupling mechanisms for both types of wagons.

The bigger locomotives were very similar in concept to the smaller ones used in the mine. Like the tramways of the time, they were powered by direct electrical current. The power rating of the only preserved locomotive is 15 bhp (11.2 kW). It could reach a speed of 10 km/h.

The biaxial locomotive had steering on both ends to allow the driver to command it in the direction of the movement. This made it unique, since it was the only rail vehicle aside from the trams in service in Ljubljana at the time to employ two-directional technology (the steam engines had to be turned at specially-fitted stations).

An unusual but very effective rheostat was fitted in a lying position in this locomotive, allowing two-directional movement.

Only a few locomotives of this kind have been preserved around the world. Most of the ones that have been preserved were made for narrow-gauge rails. A known example of the same locomotive has been preserved in Eisenerz, Austria.

Petrol locomotive (1916)

Despite being cheap and efficient, electrical locomotives were used for a very limited period. The mine's administrators were reserved about extensive electrification of the transport infrastructure. The two lines outside the mine itself sufficed and no electrical rail technology was introduced inside the mine. It seems as if the main reason for this was the extremely small tunnels: expanding them to make them suitable for electrical rail infrastructure would have

002 146
DEUTZ MANNHEIM PETROL LOCOMOTIVE FOR TRANSPORT OF SMELTING REMAINS, EARLY 20TH CENTURY



been extremely costly. It was subsequently decided that the old methods of transporting ore inside the mine would be retained.

Meanwhile, the administrators decided to purchase petrol-powered locomotives for use on non-electrified lines on the surface. Two one-cylinder locomotives were bought in 1912 and another one in 1916. They were manufactured by Deutz of Mannheim, at the time the leading German maker of internal combustion engines, and were at the cutting edge of locomotive technology of the time. Being the first locomotives to use internal combustion engines, their design was heavily influenced by steam engines. They were equipped with massive flywheels at each end of the engine. This coupled with the one-cylinder engine made them difficult to start and use.

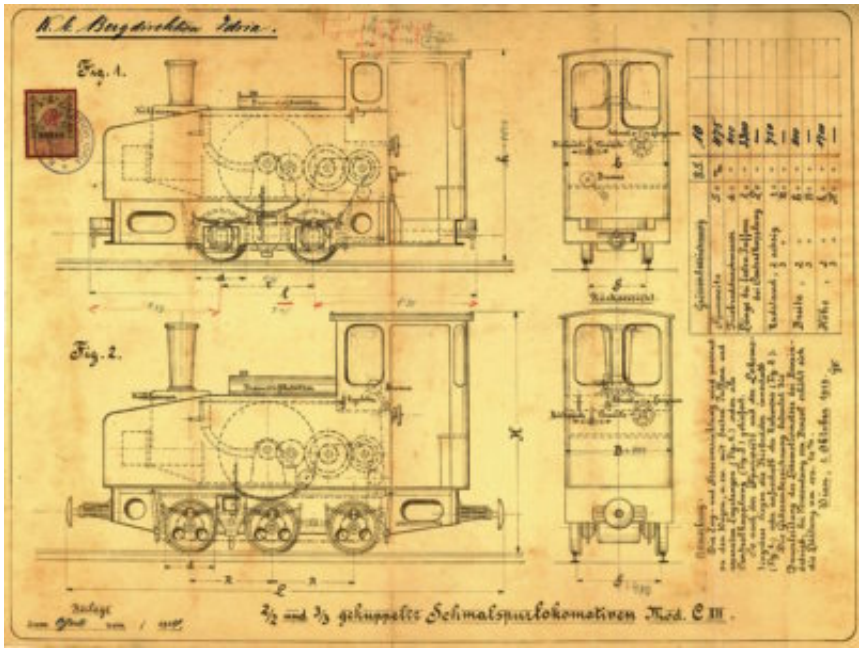
The engine was cooled by water in the covering of the engine that would boil and make steam that was released through a chimney. The chimney was also used to add water for cooling. These locomotives were in service for around 40 years, which is widely considered a record for this type of vehicle.

The Deutz factory manufactured thousands of the same and similar locomotives to those used in Idrija. Only a few examples of the oldest models have been preserved. Those that still exist today are mostly in the ownership of German museums and private collectors.

Diesel locomotive (1960)

At the outset of the 1960s, the mine bought narrow gauge diesel locomotives from the Jenbach factory, which had a strong presence on the market of the former Yugoslavia. The JW 20 locomotives were powered by a two-cylinder diesel engine with an output of 20 bhp (approx. 15 kW) and a gear transmission. Several such locomotives were in use in Idrija, but only one has been preserved to this day.

Jenbach diesel locomotives were used around Europe, but they were most dominant in Austria. Many of them have been preserved and are held by private collectors as well as museums, including the FIM museum in Freiland, Flascherlzug railway in Stainz, the Graz Mining Museum and others.



002 147
PETROL LOCOMOTIVE DESIGN, 1914

Wood carts – »hunts«
(mid-19th century)

Hundreds of "hunts", small wooden carts, were used for carrying ore from the mine to the separation plant. While the cart was wooden, its undercarriage was made of iron. The exact origin of the hunt is unknown, although it was definitely in use when the classic rails were laid in the mine in the mid-19th century. It was used for at least the next 100 years.

Records suggest most of the hunts were made locally to meet the mine's needs. The hunts made after the Second World War had an all-iron body that could be lifted on one side to empty the contents (similarly to the dump trucks of today).

Three hunts have been preserved

The modernisation of mines that followed the Second World War meant that only a few wooden hunts were preserved in the world. Those that have been preserved are stored in museums, including some in Slovenia.

Iron cart – »hund«
(late 19th century)

Production of all-iron carts began in the late 19th century. They were exactly the same as their predecessors only that the entire cart was made of iron. Their unique feature was a swing door at the front that allowed the emptying of its contents. They were used primarily for carrying ore to the

002 148
MINE CART WITH IRON UNDERCARRIAGE AND A WOODEN CRATE, AFTER 1945



Čermak-Špirek furnaces for smelting. They were made of steel in order not to be damaged by the extreme heat produced by the furnace. They were replaced after the Second World War by carts called "korejci".

The iron cart in Idrija is the only one of its kind preserved in Slovenia.

Self-emptying cart (19th century)

In the mid-19th century, prior to the launch of electric locomotives, the mine's administrators commissioned the construction of a wide-gauge (1 metre) railway that would be used by large cars. The cars were essentially a large wooden crate that was mounted like a swing so it could be tipped to empty its contents at the back. The back panel of the crate swung open to allow for full unloading.

The cars were made almost completely of wood (even the braking system was wooden), with the exception of the wheels, which were made of iron. It seems that this kind of car was unique to Slovenia - in use primarily in Idrija.

At the outset, the cars were drawn one-by-one by horse. The onset of electric locomotives meant that a number of cars could be assembled and pulled to and from the smelting plant together.

Processing tools

The first level of Francis's Shaft contains a collection of tools used in the Mercury Mine Idrija. All of the tools have been restored and are in good condition.

Giant lathe (1870)

The giant lathe was used to shape large metal objects with symmetry around an axis of rotation. The lathe was manufactured by the well-known Carl Pfaff factory in Vienna in 1870. It can be used to shape objects of up to 4 metres in length. The giant lathe was made according to standard designs using a variable ratio gear train to enable the speeds of the main lead-screw to be adjusted. The machine was retrofitted in 1954 with an electrical engine. It is the biggest lathe of its kind preserved in Slovenia.

Pneumatic forge (1878)

The pneumatic forge was bought in 1878 from the Richard Herz tool fac-



002 149
THE "KOREJC" MINE CART FOR ORE TRANSPORT AFTER 1954

tory in Vienna. It was used only in the forge. It was initially powered over a transmission belt, but in 1955 it was retrofitted with an electrical engine. It is the only pneumatic forge of its kind preserved in Slovenia.

Slotting machine (1870)

The slotting machine, used for making vertical grooves, was manufactured by the Carl Pfaff factory in Vienna in 1870. It was used all until the mine's closure. It is the only machine of its kind preserved in Slovenia.

Metalworking planer (1870)

The metalworking planer was used for generating flat surfaces. It was made for the mine by the Carl Pfaff factory from Vienna in 1870. It is the only machine of its kind preserved in Slovenia.

Bandsaw (1900)

The mine bought a bandsaw to cut wood for various purposes. The saw was manufactured at the beginning of the 20th century by the well-known G. Tönnies factory from Ljubljana. A similar saw has been preserved at the woodworking company Smreka from Gornji Grad, Slovenia.

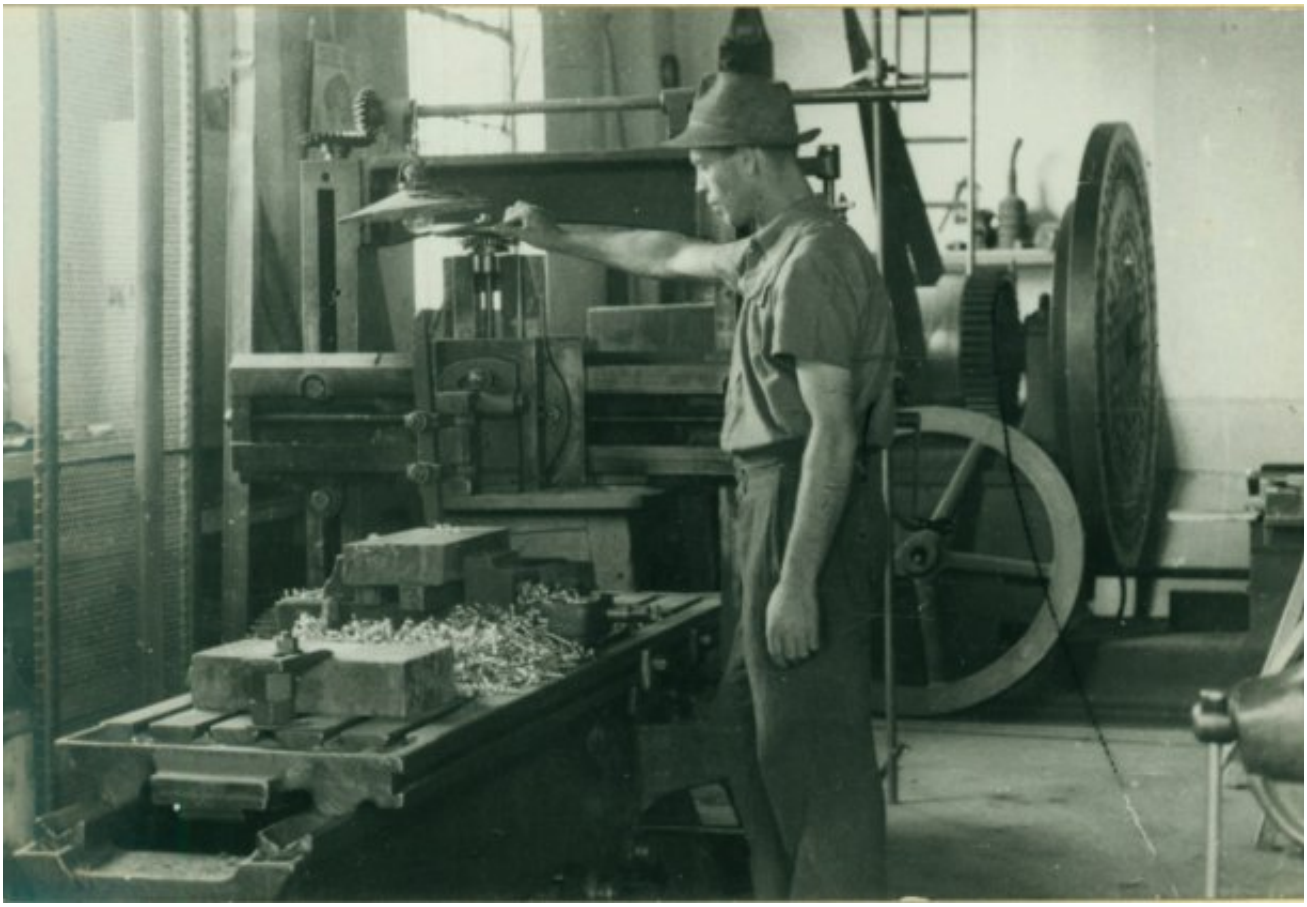
Drill press (1880)

The machine was better known by the name "Bohrwerk". It was made by the Czech company Stanek&Reska from Prague in around 1880. It is the only machine of its kind preserved in Slovenia.

Threading machine (late 19th century)

Records suggest that machine was made in Idrija, although the exact

002 150
METALWORKING PLANER BY THE VIENNA MACHINE FACTORY CARL PFAFF FOR GENERATING FLAT SURFACES OF METAL PRODUCTS



date of manufacture is unknown. It is the only machine of its kind preserved in Slovenia.

Mine drills

Machine drilling in the mine began in 1874. The mine drill preserved in the museum was made by Siemens&Halske of Wien in the late 19th century.

Drills by various manufacturers, ranging from the early models running on compressed air to those in use when the mine was closed, are displayed as part of the permanent exhibition housed at the Gewerkenegg Castle and the museum depot.

Mine telephone

Mine telephones were installed in the gallery, at the opening of the shaft.

The museum has four mine telephones. One is on display in Francis's Shaft. It was manufactured by American company Kellog of Chicago in around 1950. One of the preserved phones was made by Funke Huster, while the other two were manufactured by Siemens&Halske of Vienna, including one that is part of the permanent exhibition at the Gewerkenegg Castle.

Mine lamps

The permanent exhibition at the Gewerkenegg Castle and the museum depot houses mine lamps ranging from the early oil lamps, Carbide lamps (from around 1912), petrol safety lamps - Davy lamps and battery-powered lamps (from 1964).

Fire pump (1872)

Throughout the centuries, Idrija was an extremely modern town that was at the forefront of cutting-edge technology use. One of the examples of this is in the early establishment of a fire defence system. From this period a classic two-cylinder manual fire pump has been preserved. The pump was fixed to a carriage that was drawn by horses. Its undercarriage contained a large water tank. The pump was powered by up to four fire-fighters at a time. It was manufactured in Vienna in 1872 by fire-fighting equipment manufacturer W.M. Knaust under the serial number 10316. Similar pumps have also been preserved elsewhere in Europe.

Forest wagon way – Lauf (rebuilt)

The mine built in 1820 a simple wooden forest wagon way for carrying wood from remote parts of the forest to the rivers, where it was floated with the help of the klavže.

The forest railway was built by a forestry superintendent by the name of Jettmar, who based it on the wagon way in the mine that used carts with guide pins (Spurnagelhunt). The first forest wagon way had a gauge of only 342 mm, which soon proved to be inefficient in carrying large loads.

Superintendent Jettmar in turn modified his wagon way in 1850. The expanded railway was given the German name Lauf (meaning to run) in the absence of a Slovenian name for a railway. It had a rail gauge of 625 mm. The new wagons used on the forest wagon way were similar to rack-wagons used by Slovenian farmers. Like the rack-wagons, the forest wagons were also built of wood, but were modified to have a fixed axel that did not allow sideways movement.

The tracks were made of wooden boards covered with steel sheets to make them more durable. The rails were fixed to wooden trestles that were fixed to the ground. The

space between the rails contained sleepers on which workers would walk as they pushed the wagon called "regljač« (croaker - a reference to the croaking noise the wagon made as it moved) uphill. When the wagon was full, the workers would jump on top of the load and drive the wagon to the river using a special hand-brake.

The Lauf wagon way was abandoned under Italian rule, after the end of the World War I. The Italians banned in 1922 the floating of wood using the system of klavže, which subsequently made the Lauf obsolete. The Italians instead built forest roads and transported the wood by truck.

A life-size replica of the regljač was put on display as part of a reconstructed forest wagon way in the Idrijca valley. The rebuilt wagon way has the status of a technical monument. The replica wagon was built by a number of companies in the wood-processing sector.

The available records suggest the Lauf wagon way was the first forest railway in the world. Its technology inspired the forest railways that were later built in Slovenia (around 350 km) and elsewhere in the world, including Bosnia-Herzegovina (around 1,500 km), Romania, Poland, Slovakia, Russia and large parts of the United States of America. Forest railways are now in use only in the forests of what used to be Manchuria, in China, while they are no longer in service elsewhere.

There is no evidence to suggest that the regljač wagon technology was used anywhere else. The forest wagon way is therefore an example of unique technology developed in Idrija.

2.a.2.2. Ethnographic characteristics of Idrija. The culture of mining.

Not only trading routes, know-how and discoveries that changed the thinking in numerous areas also made their way around the world from Idrija. The same routes that were used for exports of mercury were also taken for the delivery of the essential goods to the town: salt, wheat and other produce and products that were needed by the rapidly growing town. The routes were also used by new settlers, who arrived to work in the mine, but also included mining experts, scientists and scholars, the latter drawn to Idrija by the exceptional nature and rarity of the ore deposit. These scientists helped shape the history of individual branches of science and the importance of the mine was instrumental in establishing schools that led to intercultural dialogue and exchange of know-how between the various regions. The development and transfer of know-how was throughout history promoted by the Viennese court. The same routes used by mercury were also the trade routes for Idrijan lace, created by miners' wives from the 17th century onwards.

The development of natural sciences in Idrija traces its roots in the 16th century, but the first major name to arrive to the town is Joannes Antonius Scopoli (1723–1788), a polymath of global importance, a pioneer of European medicine at the work place and a major name in the fields of botany, geology, mineralogy, chemistry, etc. Scopoli was employed as Idrija's first physician between 1754 and 1769 and his bibliography encompasses some 30 books from the area of natural sciences (KAVČIČ, I., et al., 2007). J.A. Scopoli was undoubtedly one of the first company physicians to lay the foundations of modern occupational medicine. Although today's knowledge provides new perspectives of Scopoli's work on mercurialism, his

work is still very important and can be considered a part of occupational medicine heritage (KOBAL, A.B. and KOBAL GRUM, D., 2010).

He is remembered as the discoverer of several geni and species, including the Proteus Sanguinus (a new genus and one endemitic to the dinaride carst), the dormouse. He also provided the first descriptions of numerous species of insects, funghi and lichens among others.

Another famous person to live in Idrija between 1766 and 1773, partly because of the exceptional nature of the ore deposit and partly because of the glory of his predecessor as the doctor, was the surgeon, doctor and world-class naturalist Balthasar Hacquet (1739-1815). Some 60 of his works have been preserved on various naturalists, medical, veterinary and ethnographic subjects.

He was not the last major figure linked to Idrija to have left his mark



002 085
JOANNES ANTONIUS SCOPOLI, IDRIJA'S SURGEON GENERAL BETWEEN 1754 AND 1769

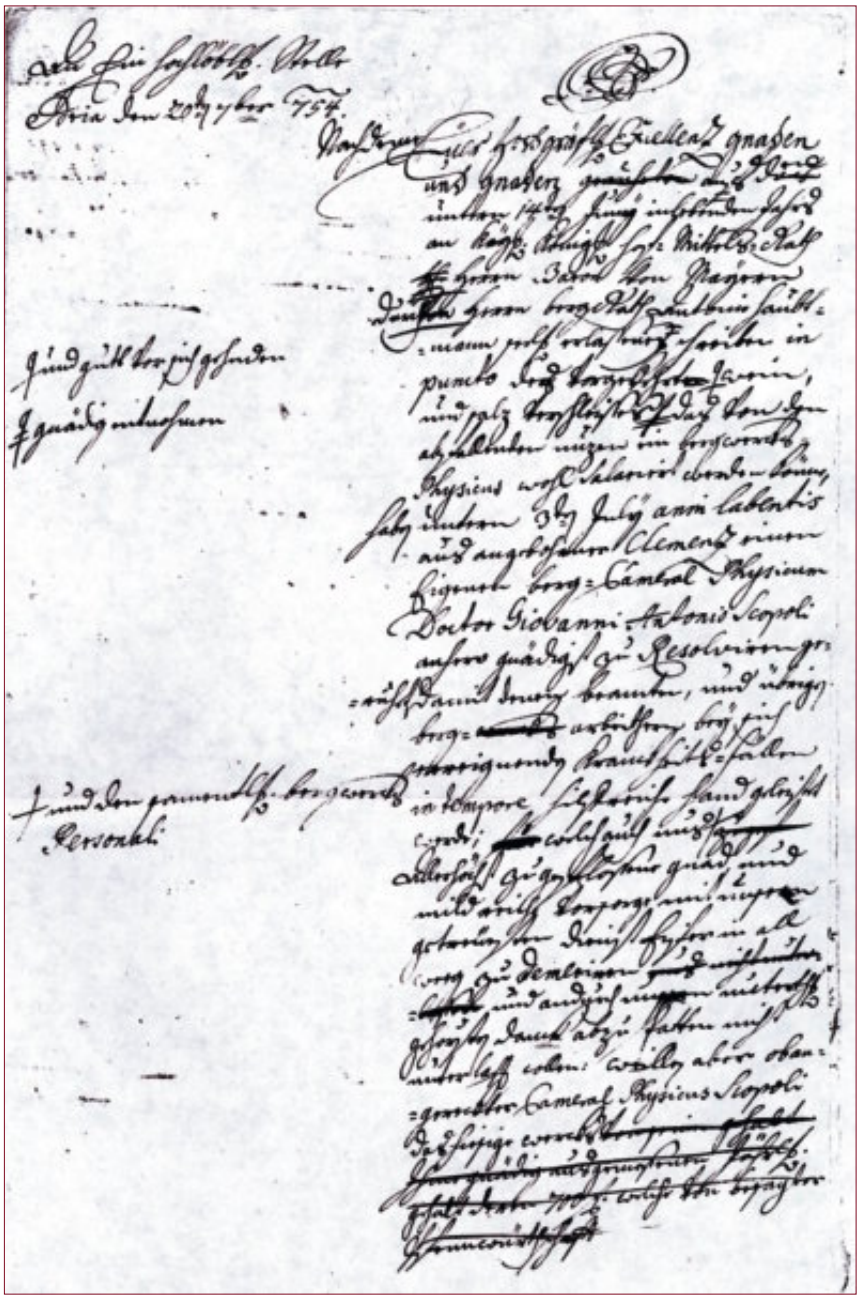


002 111
IDRIJA LACE MADE BY YARD, END OF THE 19TH CENTURY

on the international development of science: Pedagogue, botanist and researcher Franc Hladnik (1773-1884), taught H. Freyer, S. Graf, M. Tommasini, A. Felischmann; Henrik Freyer (1802-1866), a renowned European researcher (both Hladnik and Freyer have plants and animals named after them); Georg Dolliner (1794-1872), the mine's surgeon and botanist, renowned throughout Europe. Naturalists Karel Dežman (1821-1889) and Julij Glowacki (1846-1915) were meanwhile born in Idrija.

Scientists from other branches also left their mark on Idrija, as geology was one of the most important subjects for the development of the mine, it is not surprising that the likes of Scopoli and Hacquet were followed by other important names. One person to push the boundaries of geology further was the mine's administrator Marko Vincenc Lipold.

At the end of the 1950s and early 1960s, Idrija became home to the world/renowned "Idrija School of Ge-



002 092
A REPORT BY THE MINE'S MANAGER HAUPTMANN ON THE PLANNED EMPLOYMENT OF THE FIRST MINE DOCTOR J. A. SCOPOLI ON 20TH SEPTEMBER 1754

ology". Its best-known representative is Ivan Mlakar, who made a detailed map of the entire mine and the wider Idrija region. Mlakar's work was continued and amended by: Jože Čar, Ladislav Placer, Franci Čadež, Matija Drovenik and Jošt Valentin Lavrič. Some 400 treatises and articles have been produced so far on the mineralogical, mining, metallurgical and chemical aspects of the mine, published both in Slovenia and abroad.

Health and Social Security of Idrija Miners

The exceptional importance of the Idrija mine for the development of health and social security in Slovenia is shown in two areas: the first forms of organised health and social care of workers in the Slovenian lands appeared in Idrija; the grounds for occupational medicine were created here in a bid to prevent job-related illnesses.

a.) From 1575 the Idrija mine was owned and run by the Habsburgs. There was next to no health care and social security in the 16th century. The mine's administrators generally paid remittance to disabled miners and widows of miners.

A schooled physician was hired in 1754 to treat miners along with the barber surgeon. Also established at this time was a pharmacy, while family members of miners were also given free health care.

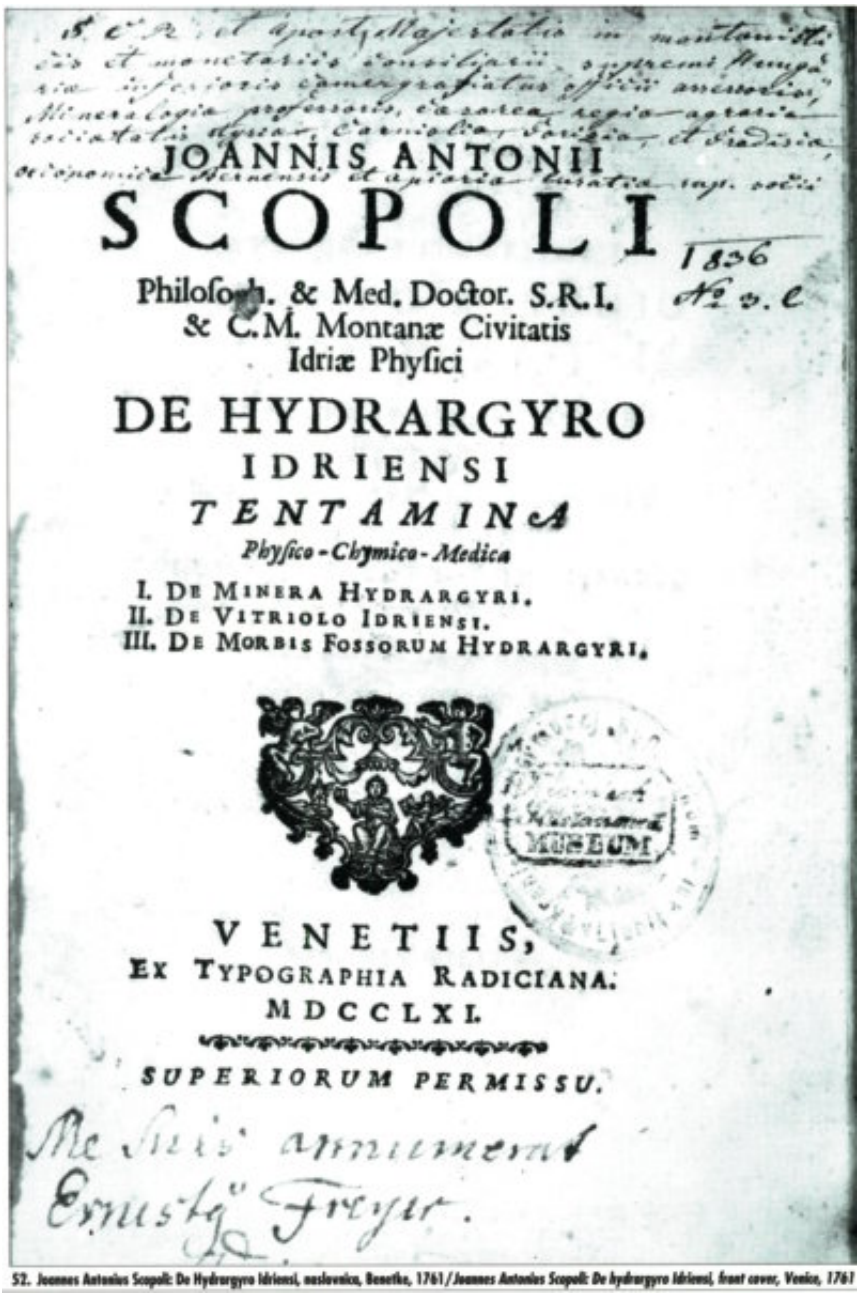
By the end of the 18th century, almost all workers at the Idrija mine had health and social insurance. Workers on sick leave for longer than six weeks were also given a special allowance from the brotherhood treasury. Miners with more than eight years of service were entitled to a pension in case of disability, while pensions were also paid out to widows and orphaned children. The brotherhood treasury also began to pay for a part of the costs for treatment in health spas upon a doctor's referral and with the consent of the management. The mine also paid wet nurses for mothers unable to breastfeed, covered funeral costs for miners killed on the job and insured the cattle of miners. The miners could also get low-interest loans, while charity was given to those who found themselves in financial difficulties. At that time, Idrija undoubtedly led the way in health and social care for workers in the Slovenian lands.

b.) Mercury exposure was a major issue throughout the history of the mine. This was a problem both in the smelting plant as well as in the mine itself, as native mercury in the schist would evaporate at air temperature. Reports on mercury exposure date back to the 16th and 17th centuries. The Idrija mine began to attend to the problem very early on, introducing various equipment and practices aimed at reducing the miners' exposure to mercury vapour. Mattioli wrote that workers were equipped with animal bladders, which were used as masks, in the smelting plant. In emptying the furnace retorts, the workers wore cloth masks. In the 17th century, sweat baths began to be used as a treatment for chronic mercury exposure, while rotations of miners in the most exposed jobs were instituted.

The first scientific evidence of mercury exposure in Idrijan mines and description of treatment was described by physician J. A. Scopoli in the book "De Hydrargyro Idriensi" (1761).

In the mid-19th century, European doctors began to show greater interest in the effects of mercury on the human body.

A new disease appeared with the onset of compressed-air drilling in 1916: silicosis. Wet drilling would begin to be used in 1968, which was also the time that a special working group and laboratory were established. The mine's ambulance for occupational medicine was headed between 1965 and 2004 by Dr Alfred B. Kobal, who investigated extensively mercury intoxications. A number of measures were in place at the time to protect miners: monitoring of mercury concentrations in the mine, technical measures for reducing the emissions of mercury vapours in the mine, protective gear, a shortened working day, frequent rotations, exposure monitoring and regular medical examinations of miners. From 1975 onwards no cases of mercury exposure were registered, nor were there any cases of silicosis. (DIZDAREVIĆ, T., 2007)


JOANNIS ANTONII
SCOPOLI
Philoſoph. & Med. Doctor. S.R.I.
& C.M. Montanæ Civitatis
Idriæ Phyſici
DE HYDRARGYRO
IDRIENSI
TENTAMINA
Phyſico-Chymico-Medica
I. De Minera Hydrargyri.
II. De Vitriolo Idriensi.
III. De Morbis Fossorum Hydrargyri.
VENETIIS,
Ex Typographia Radiciana.
MDCCLXI.
SUPERIORUM PERMISSU.

52. Joannes Antonius Scopoli: De Hydrargyro Idriensi, naslovnica, Benetke, 1761/Joannes Antonius Scopoli: De hydrargyro Idriensi, front cover, Venice, 1761

002 093
THE FIRST SCIENTIFIC DESCRIPTION OF MERCURIALISM AND THE METHODS FOR ITS TREATMENT IN THE BOOK "DE HYDRARGYRO IDRIENSI"



002 094
IONISATION OF MINERS, A PROTECTIVE MEASURE AGAINST MERCURY POISONING, THE FIRST HALF OF THE 20TH CENTURY

Education

The Idrija mine administrators wrote in a report in 1795: *»The miners are poor, but they willingly and at their own behest support the school fund for the benefit of their children."*

This quote is a short but telling testament to the reason that Idrijan schools hold a special place in the development of the Slovenian education system and were also considered a model for the whole of Central Europe. The 500-year history of education in Idrija is firm proof that a successful school system requires not only money and a regulatory basis, but support from the local society and an appreciation for the importance of knowledge.

Two factors in particular played a crucial role in shaping Idrija and schools in the town. Both propagated the desire for greater general knowledge and in entrenching the theoretic and practical training of the young as a core value. Firstly, the Mercury Mine Idrija had close contacts with the developed world. It strived throughout to be at the cutting-edge of mining methods and metallurgy, courting renowned international experts, promoting the development of science and a general outlook as well demanding ingenuity and creativity from its miners and forestry workers. Secondly, the town's lie in a small, remote valley squeezed between two great mountain chains constantly revived in the conscience of the townsfolk the desire and need for intellectual growth.

Miners in Idrija had throughout history been staunchly inclined to schools of all kinds. They supported –both in principle and with deeds– secondary, vocational and other kinds of education institutions. They were aware that knowledge was the sure way out of backwardness and that the schooling of children was the best investment for the future. There are countless examples in Idrija's history of the townspeople standing up to the overly bureaucratic and rigid state education legislation to set up and maintain their own schools. The establishment of education institutions and the building of schools in Idrija were unanimously supported by workers and administrators, merchants and tradespersons, famous townspeople and scholars as well as representatives of the state and Church. This has resulted in a school tradition lasting continuously for almost 500 years, boasting diverse programmes, an intimate understanding of the needs of the town and its people, a functioning system of state and private financing, excellent teaching

methods and diverse extra-curricular activities. In turn Idrijan schools have throughout history gained national or even international recognition and have attracted excellent staff, who had obtained training at seminars in various corners of the Habsburg Empire.

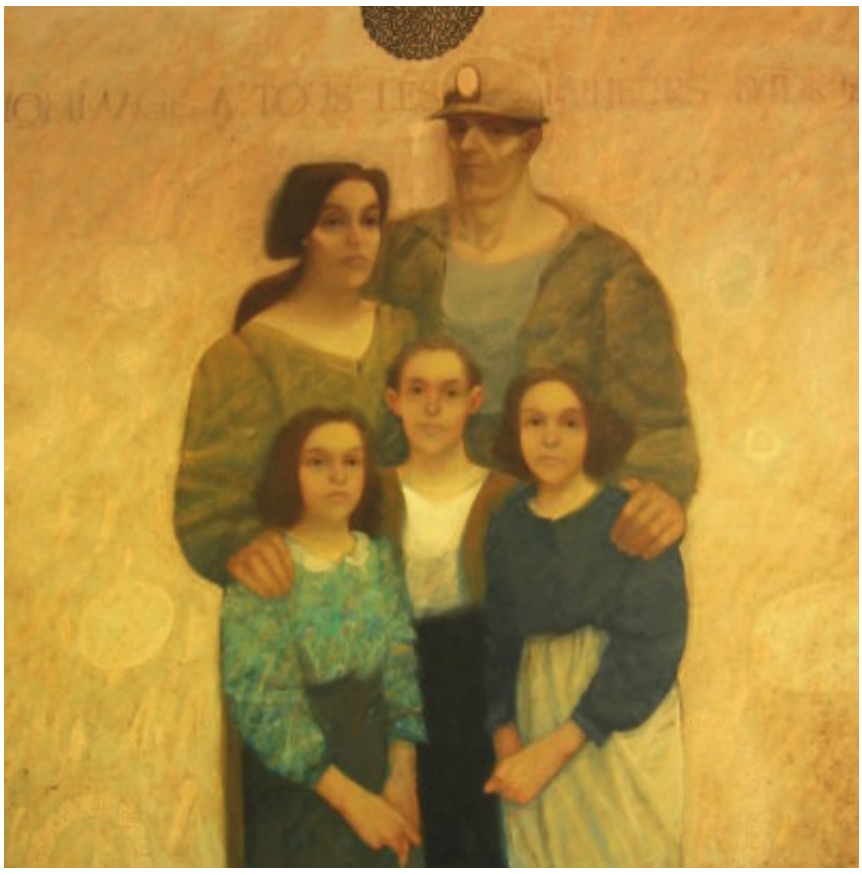
The most important education institutions during the centuries were: "Trivialschule", "Hauptschule", the Idrija Main School, "industrial school", the first Slovenian secondary school for natural sciences, the first vocational technical, surveying and cartography school in Slovenia, a school of minerals, metallurgy and chemistry, the Idrija Lace Making School, etc.

Today Idrija has modern primary schools with European methods of teaching. One of them (Primary school Spodnja Idrija) belongs also to the net of UNESCO schools. (KAVČIČ, J., 2007)

The Way of Life of Miners in Idrija

The small number of inhabitants of the Idrija basin 500 years ago lived modestly. Some of the inhabitants made a living of agriculture, but this was not a lucrative business. Fields created by forest clearing were not very fertile, which is why some of the people turned to various trades in order to make a living.

Legend has it that mercury was discovered in this remote area by a tub-maker, who was cleaning a newly-made tub in the stream. The discovery of quicksilver would lead to drastic changes in the town, resulting in extensive new settlement. Early on after the discovery of mercury, the town had a mixed population, made up of Slovenians, Germans, Italians, and Czechs. It seems that the Germans even outnumbered Slovenians, as the newly-created settlement around the mine was initially called



002 101
A TRIBUTE TO ALL OF IDRIJA'S MINERS. A PAINTING BY RENOWNED SLOVENIAN PAINTER RUDI SKOČIR, 1990

German Idrija. However, the town's German population would quickly sag. No new German immigrants arrived, while the number of Slovenians grew rapidly. The language of the town testifies to strong outside influences brought by immigrants. Many of the mining and technical terms in the town are German, while many of the families in Idrija still have German-sounding names.

Miners' work and pay

In the 16th century most miners earned wages, although there were a number of contractors who leased parts of the mine and then sold the mined mercury to the owner. In 1580 the contractors were given the right to keep the ore they produced for processing and for sale. The contractors often included women and children in the mining activities, foremost for the sorting and cleaning of the ore.

Although Idrijan miners earned similar wages to those of miners in Austrian mines, they were worse off because of high prices. Idrija lacked a fertile hinterland and food had to be imported from distant places. The miners were supplied with food from the mine. This meant that money made up only a small portion of the wage, as the rest was paid out in rations.

It is almost certain that Idrijan miners did not have it easy. A bushel of wheat far exceeded a miner's weekly pay. What is more, miners did not always get wages on time. However, reports on the general poverty of Idrijan miners are accompanied by various accounts of their spend-happiness. This became even more evident when the mine's success turned Idrija into a relatively wealthy town.

Wages remained almost unchanged in the first half of the 18th century, during a recession. As things turned for the better, the mine raised wages and took on contractors. In 1870 five pay brackets were introduced for miners, ranging in pay from 15.45 to 36.45 crowns. For a comparison: one egg cost 2 crowns and 0.5 kg of lard was 38 crowns. A new pay system was introduced in 1902 which overhauled the five pay brackets and introduced two levels for each bracket. Miners in the 3rd, 4th and 5th pay brackets earned a monthly wage of 60 to 160 crowns. Records show that the monthly rent at the time was 3 crowns, a kilogram of bacon cost 1 crown, while a cupboard was 36 crowns. An average mining family had about 10 crowns to spend on items other than food and housing - most of that went for clothes and footwear, as well as furniture.

Another recession hit the mine in the 1930s, which led to extensive layoffs and wage cuts. The average income a four-member family stood at 528 liras, while a kilogram of meat was 10 liras and a kilogram of potatoes 1 lira. Rations were phased out as a mode of payment in 1912.

Things started to turn for the better in the 1950s and the standard of life in Idrija started to improve significantly in the 1960s.

However, miners in Idrija could never live a lavish life, as their wages were simply too modest. On many occasions in the mine's history, the basic wages did not even suffice for the bare necessities. This forced miners to look for side jobs. Lace making and various manual jobs were the most common source of additional income in Idrija.

Luckily, the relatively short working day meant that miners had a lot of spare time, which they could use for other jobs. Side jobs became a part of life in Idrija, even getting its own name "sojšna" (meaning working on your own).

Side jobs allowed miners to improve their standard of life. Quite a few miners worked as carpenters in

their spare time, as demand for such services was high. Bricklayers and joiners were also in high demand and well paid.

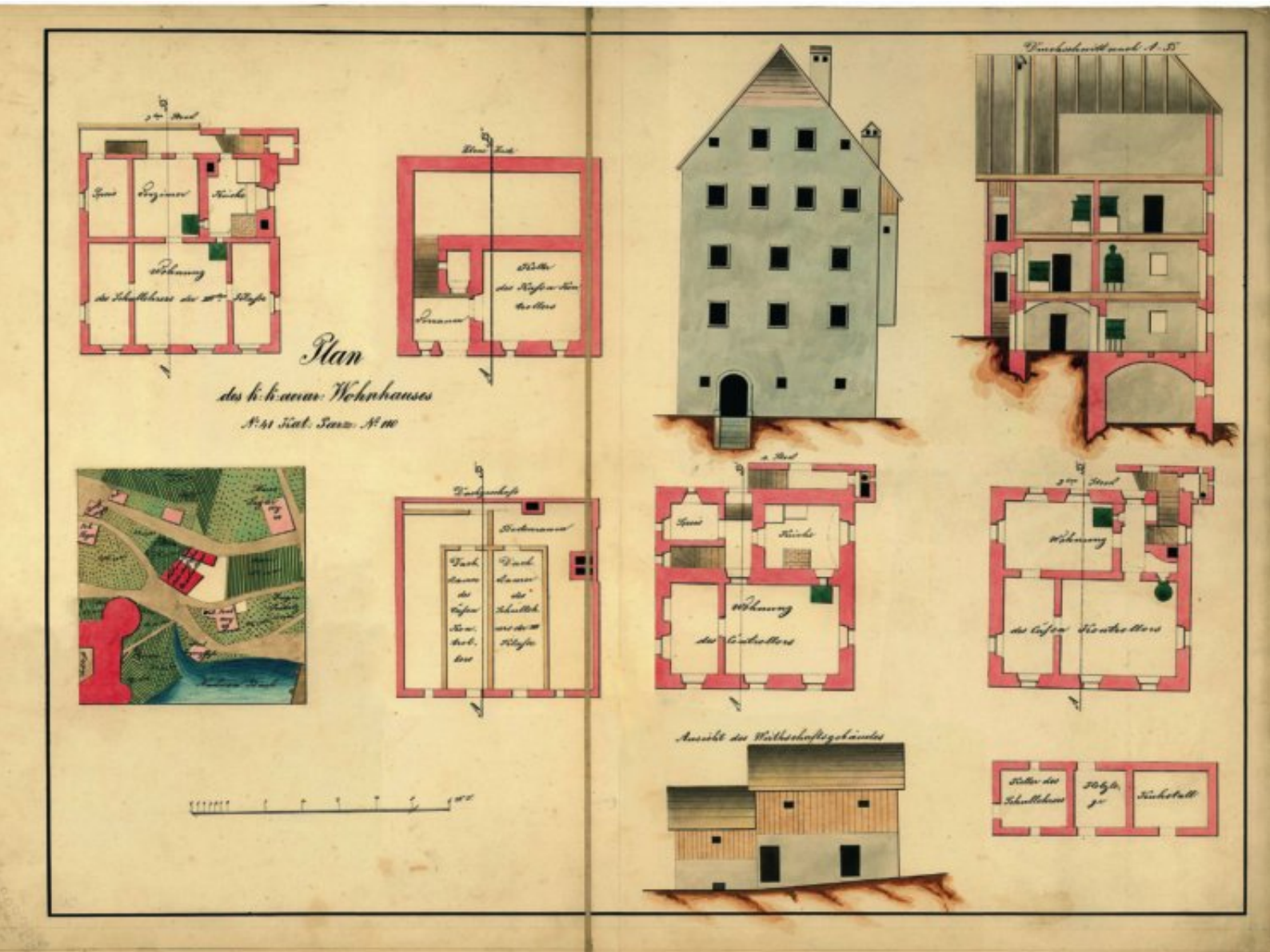
Some of the miners worked as shoemakers; other as tailors. Some opted for manual labour, helping local farmers with the mowing and other work on the farm. The earnings from sojšna were used for buying personal products, including cigarettes and wine and sometimes shoes and clothes. They did not buy such things from their wages, which barely sufficed to buy necessities. Miners' wives often chipped in to the family budget with bobbin-work. They gave all of their earnings to the family budget, using it for food and clothes.

The oldest written account of bobbin-work dates back to 1696. Idrijan women would make this into a special art over the centuries. The number of women making bobbin lace rose in the mid-18th century, when many of them lost their jobs in the smelting mill due to technological improvements in the smelting process, which made them redundant. Children, too, did bobbin-work. It was mostly the girls that made lace products, earning money for their wedding dress or just chipping into the modest family budget.

Way of living

Surrounded by steep slopes and the rivers Idrijca and Nikova, the flat land in the Idrija region is pushed up against to the bottom of the Idrija valley. Houses in the area are mostly built at the foot of the slopes and are pushed up against the hills. Virtually every house in Idrija is dug into the

002 102
A PLAN OF THE TYPICAL IDRIJA MINERS' HOUSE



slope, while the frontages face the valley. The narrow houses are made to look even more crammed by the gable roof. A traditional miner's house in Idrija was made of stone and clay at the base and of wood and plaster at the top. Its façade was painted white. The house had a wooden landing on the entrance side. Its position in the slope, wood construction and the landing are what separated the Idrijan house from those in nearby Škofja Loka and Cerkno.

The traditional Idrijan house has another unique feature: it was made so as to accommodate as many people as possible. A housing shortage in Idrija resulted in Idrijan houses being turned into one or more flats. The average miner's house in Idrija was an impressive structure with its height and white façade. Its base was about 8 metres long and 9 metres wide. On the ground floor it had a small entrance hall, kitchen, room and closet. The first floor was made up of bedrooms, while the mansard part usually consisted of a room and two closets. An important external feature of a traditional Idrijan house was the vegetable garden.

Very few miners could actually afford to buy such a house. They were paid modestly and families usually had barely enough for the necessities. The majority of the miners were tenants in private houses. In the late 19th century, several blocks of flats, known as "prhauz" (from the German word "Berghaus«) were built for the miners. The mine's administrators decided to build the blocks in order to deal with a growing housing shortage in the town. The first block was completed in 1872 in what is today Rudarska ulica (Mining Street).

002 103
RUDARSKA ULICA (MINERS' STREET), 2007



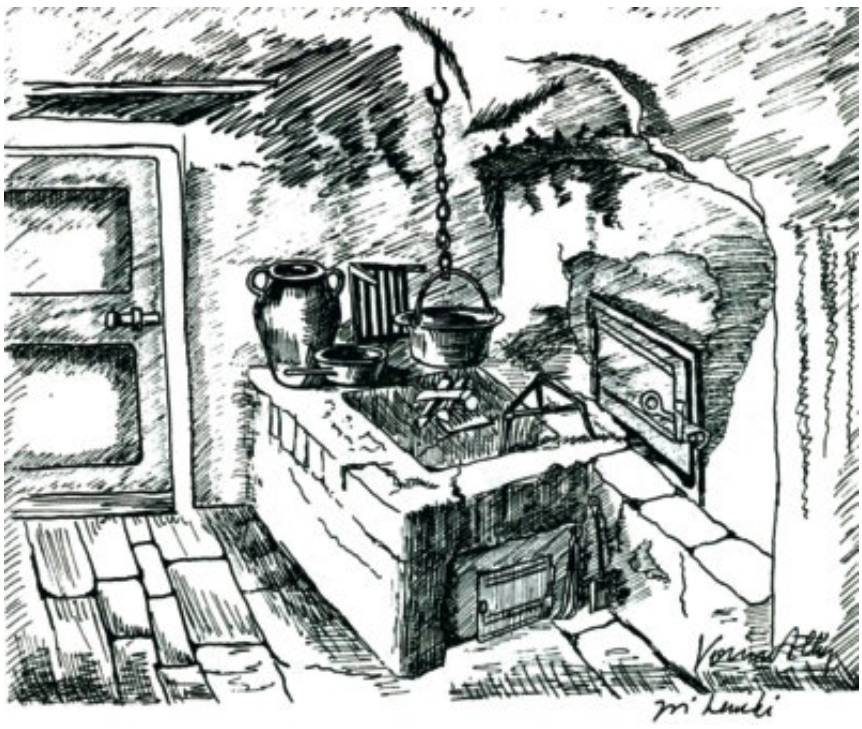


002 104
"PRHAUZ", THE MINERS' BLOCK OF FLATS FROM THE LATE 19TH CENTURY.

It had 12 flats, but was later extended with a further 26 flats. The mine would have 13 more blocks erected with a total of 163 flats until 1932. All of the flats were 44 m2 and had three rooms: a kitchen, a room and a closet. The toilets were shared among two flats, while the building also had a shared laundry. Woodsheds were at the back of the building.

It was uncommon for an Idrijan houses to be inhabited by a single family. In fact, 16 people lived in a single house on average. Each house owner let the house out to at least one family, in some cases two or three. It was not uncommon for miners to move often. They usually moved on St. George's Day in the spring (24 April) or on St. Ursula's Day in the autumn (24 October). In the 19th century, a family moved an average of five times, while the next generation moved an average of three times. Frequent moves were caused by family needs, either the owner's or the tenants. The owners would make the tenants move out when their children grew up and needed more space to start their families. The tenants would decide to move on their own when they had children and could no longer squeeze into their existing apartments. There was a vast difference in the social and economic status of the owner and tenant, although that was not evident in daily life. The owner usually raised pigs, rabbits, hens and, in some cases, cattle, something that was out of reach of the tenants. Money earned from farming and the rent ensured the owner was much better off than the tenant. In addition to having to pay the rent, the tenants also had to help the owner with work around the house, including roof repairs and the chopping of wood.

The tenants had only the most basic furniture and amenities, including wooden and clay pots, a fireplace, a small cupboard with shelves and drawers, several drawers, a wall-mounted holder for the pots, a table, bench, some chairs, a crib and one or two beds. The equipment was spread out randomly and unlike that in a rural house. A drawer stood by the fireplace instead of a bench. The table was not in the corner opposite to the fireplace, but in the middle of the other section of the house. The



002 105
THE BLACK KITCHEN, DRAWING BY ALBIN VONČINA, 1956

bed was in the corner of the room. Housewives had until the 19th century cooked in the smoke kitchen during the summer and in the stove in the winter.

In the late 19th century, a new piece of furniture appeared in many a miners' flat - a sofa. They were not new, but second-hand, disposed of by the rich folk when they went out of fashion. Soon, Idrijan joiners also began to produce a simplified version of the sofa that was adapted to the Idrijan way of life. A unique and telling feature of the Idrijan miner's way of life was the bed, which often had to be makeshift. An average family owned two beds, while it had seven or eight members. The double bed was reserved for the mother and the father until the first child outgrew the crib, after which the mother and the child would sleep in it, while the father used the second bed in the house. The following children were made to sleep on the "ladlc", a drawer that was pulled out from under the bed in the evening and put back under the bed in the morning. Other children were made to sleep on makeshift beds, made either on chests, the sofa or in the attic. Beds were also made in the woodshed, on hey or in the stables.

People were not the only inhabitants of a miner's apartment, as songbirds (goldfinches, finches, blackbirds, thrushes, ...) were a common feature. Birdcages would be mounted on walls around the house, or stand on top of cupboard or on window sills.

Idrijan miners were always extremely social people, who liked to go for visits for a chat, games or business. Women in particular liked to gather for bobbin-working sessions (LESKOVEC, I., 2002).

The civil society

The civil society began to flourish in the 19th century, although it was present in Idrija much earlier. Its roots lie in music. Idrija was home to a colourful bunch of societies and associations, which varied both by purpose and political conviction. All three leading political ideologies (liberal, clerical and social-democratic) established their societies in an effort to build a loyal core of followers. In this respect, Idrija was much like the rest of the country. Miners of the time were politically aware and membership in societies was confirmation of one's political beliefs, while it was also way to spend one's spare time and socialise as well as to take part in artistic expression.

The oldest and best-known societies of the time were: the Firefighters' Society, the National Book Club, the Drama Society, the War Veterans' Society, the Workers' Book Club, the Consumer Society, Orel (Eagle), the Working Cultural Society Svoboda (Freedom), Naprej (Advance), the Youth Association, Women's Society Veda, etc. (LESKOVEC, I., 1990)

The turn of the 20th century saw a flurry of new societies, a trend which lasted all until the First World War, which spelled the beginning of the end of them. The final nail in the coffin was provided by the Italian occupation.

The miners were accepted into societies by both liberals and clericals. However, the miners benefited the most from social-democratic societies. The General Consumer Society was established in Idrija in 1898. It grew quickly and had by 1908 acquired substantial assets: a shop, two houses in Idrija and one in Spodnja Idrija, a ranch with a windmill in Podroteja. The shop owned by the society, which was frequented predominantly by miners' families, was one of the main achievements of the social-democratic party in improving the standard of life of miners and had a major impact on new membership of the party.

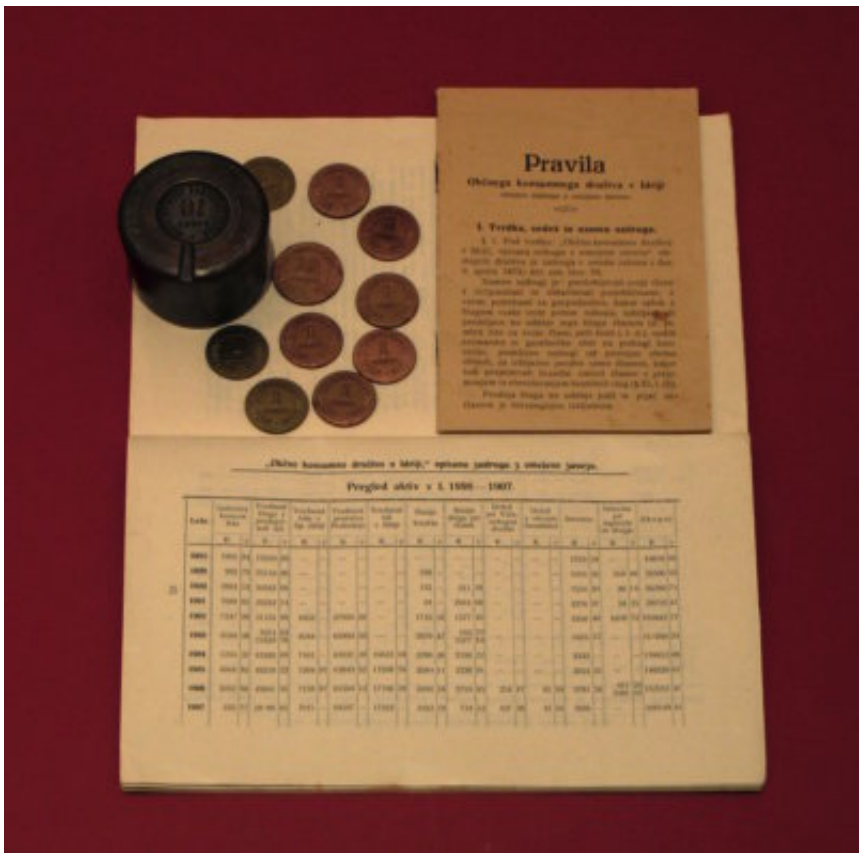
In the years following 1900, the social-democrats began establishing societies for educating adults and young people. A branch of the Union of Austrian Miners was established in 1903, which organised lectures for miners. The General Youth Association was established in 1910 and had a number of sections: choir, theatre, debating group, entertainment group and lecture group. Other social-democratic associations included the Working Hunters' Association (1905), the Sloga Cycling Society (1902) and Naprej (Advance - 1906).

The sheer number of societies in Idrija at the turn of the 20th century was not a real indicator of the actual involvement of miners in the civil society. The influence of societies did not depend only on its members but also on its adherents, who visited lectures and other events. Expressions of rivalries between the societies and political ideologies were limited to taunts such as us »commie« and »bible-basher«. Shops and bars were established catering for followers of one or another party.

The associations played similar roles in the society regardless of their political affiliations. They would stage with great fanfare open-air events that were open to all and which provided a source of entertainment.

Another long-running Idrijan association is the Music Society or what would become the Idrija Brass Band. From its launch the band provided much needed entertainment and promoted patriotism through its concerts. The band was there in the good times and the bad, as it played at both celebrations and funerals.

Slovenian polymath Janez Vajkard Valvasor wrote in his monumental work »The Glory of the Duchy of Carniola« that the expulsion of the Turks from Budim was celebrated in Idrija with the signing of Te Deum and a



002 107
THE MEMBERS OF THE GENERAL CONSUMER SOCIETY HAD STRINGENT RULES. THEY ALSO MINTED THEIR OWN MONEY

massive celebration. The mine's administrator of the time, lord Volk Žiga Kinbach, set 15 September 1686 as the date of the celebration. This is also the oldest mention of the Idrija miner's band. Former Idrija museum keeper Janko Trost later discovered while sifting through documents that 1665 was generally accepted as being the year the band was formed, which makes it the oldest band in Slovenia. Historian Mihael Arko wrote in his book »The History of Idrija« that records about 1765 and 1785 write of a band run by the mine that played at various celebrations.

Jožef Mrak's plan of the Mercury Mine Idrija from 1770 clearly shows a mine band section standing in a cordon by the mine police in honour of the visit of Tuscan Archduke Peter Leopold.

A document issued in 1795 bans band members from playing at private functions, alluding to the fact that the instruments were owned by the mine.

The mine's administrators often dodged their responsibility for the upkeep of the band, which meant that its existence was often put to the test. The mine allocated a share of the entrance fees levied on foreigners wanting to visit the mine to the band. After 1850, the administrator's decided that they would pay one kreutzer for every florin they earned for the upkeep of the band.

A proposal was laid out to include other officials and townsfolk in funding the band, but a decision was made that it continue to be run solely by the mine and funded by the mine's

002 108
THE IDRIJA BRASS BAND, 1903



officials, for whom it would be available at all times.

The outfit was disbanded in 1903 due to internal discord and a cash shortage. The mine took back the instruments, uniforms and even the music papers belonging to its members. However, the band's tradition was continued by other musicians under the auspices of the Music Society (established in 1903). The Italian occupation would temporarily put an end to the society, only for it to be revived again after the end of the Second World War. However, the band would soon face financial difficulties, which prompted the mine's trade union to take control of it.

The band is still around today, but in a somewhat altered format. Its music is enjoyed by young and old alike. The Idrija brass band, whose roots can be traced to 1665, rightfully holds the title of the band with the longest tradition in Slovenia (VILER, D., 2007).

Lace – making trade

Bobbin-work represented an important source of income for miners' families, while also being a special social event. Miners' wives would often gather for joint knitting sessions in order to save on lighting. In the summer they would gather outside the house, chatting and competing to see who could get more bobbing-work done.

The exact origins of the bobbin lace in Idrija is unclear, although it is safe to assume that the trade was brought to the town from outside, probably from Germany or the Czech Republic, by travelling miners and mine experts. Another theory suggests that bobbin-work came to Idrija from nearby northern Italy. The oldest written records mentioning bobbin-work date back to 1696. They indicate that rural tradesman came to Idrija to swap provisions for lace.

In the early years of the craft, the lace was made from coarse flax yarn and was intended for the domestic market: church dignitaries and wealthy land owners. Demand for the precious lace grew in the mid-18th century, at the same time that improvements in smelting technology meant that many women no longer needed to work at the mine. The



002 109
A SECTION OF THE MINERS' BAND, DEPICTED ON A MAP BY JOŽEF MRAK, WHICH ALSO CONTAINS THE SPANISH FURNICE, 1770

result was a boom in bobbin-work. The interest in lace-making was also driven by the fact that the narrow Idrijan valley does not allow for farming activities.

The secrets of lace-making were initially passed down from older generations to the younger generations. But in 1876 the Ministry of Trade in Vienna established a school of lace in Idrija in order to cater for growing demand for schooled lacemakers by the local company Franc Lapajne, which was established a year earlier and had success on the European market with its quality lace. It was in this time that the Idrijan bobbin lace got its unique form. The general rule of lace-making in Idrija was based on the use of seven pairs of bobbins

Lace-making in Idrija was at its peak at the turn of the 20th century and just before the First World War. Records speak of more than 2,000 lace-makers in the town and surrounding areas, most of them the wives and daughters of miners as well as children above the age of five. Young girls used the earnings from bobbin-work to purchase their wedding gowns. Teachers of lace-making in Idrija would later take the craft to other areas of Slovenia, including Cerkno, the area of the Trnovski gozd forest, as well as the valleys of Poljanska and Selška Sora rivers. There was great demand for the bobbin lace in Germany and the United States of America. Local designers, some of them mining draughtsmen, would transform old patterns into new ones. Bobbin lace traders from Idrija won the most prestigious prizes at international exhibitions (Vienna, Philadelphia, Trieste).

Just like the mercury, bobbin lace was also exported around the world. Although the pay of a lacemaker was modest, the craft was a steady source of income for many women all until the end of the 19th century, when lace-making companies were established. The pay for about 14 hours of lace making amounted to between 10 and 35 kreutzers in 1890. For a comparison, a kilogram of flour cost about 15 kreutzers, the price of a kilogramme of lard was 70 kreutzers and a kilogramme of beef cost around 48 kreutzers.

The onset of the Italian occupation in 1920 led to a change in demand. The market dictated the need for mass production, which meant that the bobbin technique had to be adjusted - instead of seven, lace-makers began to use only five pairs of bobbins. This in turn meant that Idrijan lace became cheaper.

Nowadays, the brand name "Idria Lace" is used to promote this Idrijan craft around the world. It encompasses the Idrija Bobbin Lace School, the Idrija Town Museum, the Society of Lace-Makers and the Festival of Idrijan Lace (GNEZDA, M., 2007).

002 110
IDRIJA LACEMAKERS IN THEIR ACTIVITIES, EARLY 20TH CENTURY



2. b. History and Development

2.b.1. Historic and geographic framework

The sites of Almadén (Spain) and Idrija (Slovenia) – are presented as components of a serial nomination of a transnational nature, since they are linked by eminently representatives of the historical meaning and transcendence of the phenomenon that arose from the introduction of the mercury-based metal refining system in America in 1555. This innovative method of amalgamation by means of quicksilver, known as "patio"method, allowed the exploitation of low yield ores, those combined with lead and those that are hard to treat with smelting methods, revolutionized precious metals refining in America and marked a strong dependence on mercury, which was the basis for the extraordinary growth in silver production.

Mercury was used to form amalgams with other metals from around 500 BC. The Greeks used mercury to make ointments and the Romans to manufacture cosmetics. Although mercury and its mineral derivatives have been known and used since the antiquity in small quantities, as a coloured pigment (vermilion), in jewellery making, and as an ingredient of the pharmacopoeia, the legacy of the historical heritage in these locations comprises elements that are closely and necessarily interlinked as a result of their interactive historic function through a well-structured and articulated system that historically comprised the main locations for the extraction and destination of this material, the roads and procedures established for its transportation by sea and land, the methods discovered and used for its necessary and optimal utilization in the exploitation of precious metals in America, the subsequent distribution routes, the administrative organisation created for the control of the whole process, and its impact on the world economy of the day, together with other related social and cultural factors. This way, mercury facilitated the extraction of the silver in the Spanish America and the establishment of specific channels for the distribution of both metals.

The quicksilver amalgamation process for refining silver introduced by Bartolome de Medina in America in the middle of the 16th century meant a technological revolution which gave path to an extraordinary increase in terms of silver industrial production, making mercury the key element in the whole system and its economy, which also acted as a major driving force for the economy in Europe. This would also generate later

N: 414

Da die bisher abgewalteten Umstände, welche uns zu unserer Aufhebung des Hauptbilanz Contracts im Jahre 1782 sine spe beneficii genöthiget haben, nicht mehr obwalten; und wir Willens waren, den Eingang minerali beyzubehalten sie unsere Zahlungen schuldigst einzubringen, als anzuhalten zu können, solchergestalt es nothwendig gewesen wäre, auch Jemanden, und über den Jenaischen Contract zum übrigen Ordinari Debitis übrig bleiben könnte pro arario den gnädigsten Nachlaß zu ziehen: so würde, einem niedergebeugten mancher dieser Hofbeamtenschaft heute 12ten Sitzend zu Folge, übrig bleiben, mit den Contractzahlungen angefangen auf den alten Fuß zu Zahlen ein Pfund und Zwanzig Gulden wieder zu bringen, solchergestalt wenn heute einer zu der Hauptbilanz zu Felde in Thüringen oder Pfundweisen das Pfund um die Gulden 33 xr. in gangbaren Zahlungen den Zentner um vier hundert fünf und Zwanzig Gulden gegen baare Zahlung, und ohne einigen Discont an dem material Abgabe zu bekommen pflegt.

Wenn das Hofgebäude zur Nachricht bemerkt wird.

Das 10 Horn

x
+

Cons. Gub: J: St:
Jena den 17ten August 785.

outstanding advances in the technological field in both continents, which largely influenced the development of mining sciences and practices.

The mercury that Spain obtained in Europe came from the largest mine in the world, located in Almadén and when it became scarce, due to the impossibility of extracting the necessary metal caused by fires or when the human capacity employed was exceeded, it was purchased from Idrija (in present-day Slovenia), the second largest mine in the world. After it was received from both sources of supply and conveniently controlled and prepared for sending to the Viceroyalty of New Spain (present-day Mexico), it was dispatched from the port of Seville and later on, from Cádiz. The supply of mercury that was necessary for obtaining silver in the Viceroyalty of Peru came from the Huancavelica deposits, which served the mines in this region and contributed by sending some to New Spain when the European supplies became scarce. Mercury from Almadén and Idrija was also sent to Peru on occasion, becoming necessary from the 17th century onwards. All of the dispatches were made on behalf of the Royal Treasury and trading by third parties was prohibited.

Given that mercury deposits are a very peculiar geological phenomenon, it should be noted that the system that was established had three major sources of supply of the highest importance, which along with the deposits in China, were the only known deposits at the time. Attempts to find mercury mines for self-supply in New Spain only resulted in the discovery of small deposits that did not serve this purpose and mercury was only occasionally officially obtained from China. For example, in the year 1697 "mercury was scarce in New Spain and therefore the viceroy of New Spain wrote to the governor of the Philippines to buy a portion of that metal in China and dispatch it to Acapulco" (CAVO, A., 1852, p. 373.) However, the quantities received through this channel were insignificant. For instance, "between 1661 and 1662, small quantities of mercury were received, but they were so insignificant that they could not solve the problem of the scarcity" (AGN).

The heritage created by mercury "historically comprised the main locations for the extraction of this material and the roads and procedures established for its transportation by sea and land, as well as the methods discovered and used for its necessary and optimal utilization in the exploitation of precious metals in America, the subsequent distribution roads and its impact on the world economy of the day, together with other related social and cultural factors" (SUÁREZ-INCLÁN, María Rosa, 2006)

In 1609, Viceroy Luis de Velasco II, at the time a statesman of great age and experience, held the position of Viceroy of New Spain for the second time and he began a letter to a member of the Council of the Indies with these words: "Thus your honour judges the most important business of today in the Indies the question of quicksilver, as the main sinew for the land …".

About forty years earlier, in 1572, when Viceroy Enríquez ordered distribution in New Spain to be placed under the control of the Crown, he informed the King of some reactions to his order, one of which said: "… the sustenance of this land depends on the silver mines and these cannot be sustained without quicksilver." (López Morales, Francisco, 2006) These remarks were typical and are repeated throughout the 16th and 17th centuries. This is only natural, as precious metals and wealth was one and the same thing, an equation that was valid then and indisputable in practice.

This was so because in general terms it was not possible to refine silver by smelting, as the ore was either not rich enough or was unsuitable for this system, so mining depended com-

pletely on mercury. Without mercury, no silver could be produced and without silver, the whole driving force of the colonial economy would grind to a halt. A large part of the internal trade that depended on silver as a means of exchange would have died away, and foreign trade would have shrunk even more, because silver represented the largest part of the exports.

The process of amalgamating silver developed by Bartolomé de Medina in New Spain, followed by the creation, by Lope de Saavedra Barba, of the *aludel* furnaces, later taken to Almadén by Juan Alonso de Bustamante, constituted the driving force for an early technological revolution accompanied by a cultural process with a decisive influence on the world as it was known then.

As indicated above, during the colonial period, it could be said, in general, that Spain had three useable sources of mercury supplies. Two of these were on Spanish territory, the first at Almadén and the other in Huancavelica. This one was not discovered by the Spaniards until 1564, but the Incas used it earlier as a source of the vermilion (extracted from cinnabar) they used for ceremonial and cosmetic purposes. The third source was also within the domains of the Hapsburgs, albeit on the Austrian side of the family, in Idrija, at the end of the Adriatic, in Slovenia. Generally speaking, the mercury produced at Huancavelica was consumed in Peruvian mines, whereas Almadén's production was mainly exported to New Spain.

During the 17th century, attempts were made to exploit at least two other sources, one of which was at the mercury veins in New Spain, mainly located in Michoacán, by the venture turned out to be unfeasibly expensive. It is also appropriate to mention several erratic and somewhat frustrated bids to import mercury from China via Manila (LÓPEZ MORALES, Francisco, 2006).

Brief history of mercury
CASTILLO MARTOS, Manuel, 2006

Quicksilver was known before Bartolomé de Medina contributed to the world in the 16th century his invention of the process for large-scale amalgamation of silver ores to obtain pure silver. To carry out his works at Pachuca (New Spain) from 1553, we suspect that he had to know of previous attempts to use amalgamation to obtain metallic silver (CASTILLO MARTOS & M. Lang, M., 1995), and, of course, was familiar with the cinnabar from which the quicksilver indispensable for this process was obtained, a mineral known since the most remote antiquity for various uses. Pliny gave the name of *argentum vivum t*o native mercury and *hydrargyrum* to that obtained from cinnabar, a Greek name possibly taken from Theophrastus and Dioscorides, from whom he copied the methods of extraction described in Naturalis Historia.

The Roman not only advanced in the use of the amalgam: for example, Strabo and Vitruvius describe it as technique to obtain gold by means of an astringent metal, but also exploited the cinnabar mines at Almadén, and the emperor ordered strict control of the production of mercury, an element of great utility to purify and obtain the precious metal (CHIC GARCÍA, G, 1991, quoted CASTILLO MARTOS, M. 2006), which when combined with salt could also be used to gild copper and silver (BARGALLÓ, M., 1955, quoted CASTILLO MARTOS, M. 2006).

The Arabs also showed interest in this element, which they called quicksilver: "Geber" (720?-815?) wrote a large number of works, including the Book of Mercury. "Rhazes" (865-925 ó 928) mentions amalgamation in the Book of Secrets of Secrets. And Avicenna (980-1036) accepts the dominant conceptions of the time in his Book of the Remedy. In general, the Arab alchemists resorted to

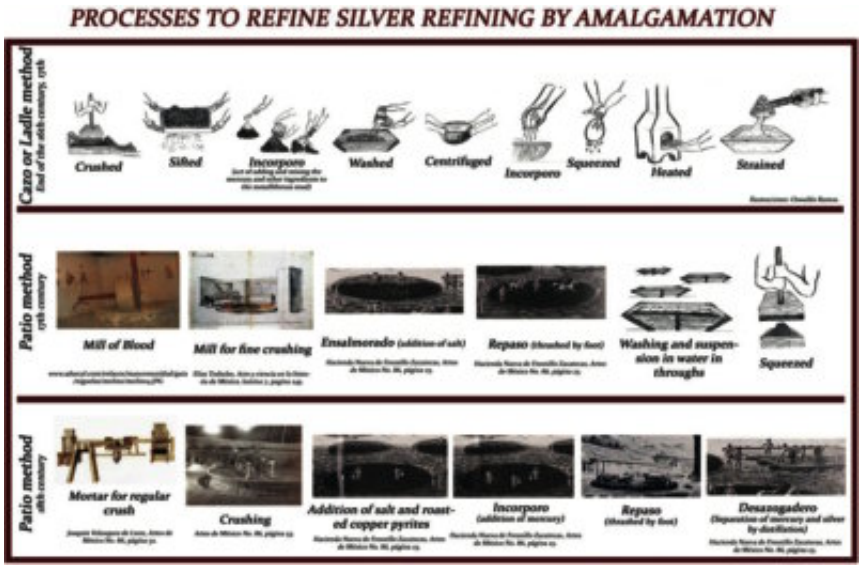
amalgamating free metals to transform them into gold (BARGALLÓ, M., 1955, quoted CASTILLO MARTOS, M. 2006).

In the Christian world, Saint Isidore of Seville (560-637) describes the union of quicksilver with different metals in the Etymologiae. Roger Bacon (1214-1294) accepted the mercury-sulfur theory. Albertus Magnus (1199?-1280) refers on various occasions to obtaining silver by quicksilver (CASTILLO MARTOS, Manuel, 1996) and to his disciple Thomas Aquinas (1225?-1274) we owe the name "amalgam".

Raimond Llull and Arnua de Vilanova considered mercury important both as the origin of all things and because to transmute an ordinary metal into gold or silver it was necessary to prepare liquid mercury and mix it in the proper proportion. Bartholomaeus Anglicus (14th c.) in his work On the Properties of Things discusses the mercury mentioned in De architectura by Vitruvius. In Spain, one of the earliest references to mercury is found in the Book of the Treasure, attributed to Alfonso X, where he speaks of amalgams and describes a procedure to obtain mercury oxide. (MENÉNDEZ PELAYO, in his work, *La ciencia española,* warned that it was an apocryphal work wrongly attributed to Alfonso X. And father Sarmiento in his *Memorias para la historia de la poesía* says that there are two works with the title "The Book of the Treasur).

The first amalgamation of silver ore probably took place in Venice (BENOIT, P., 1994, quoted CASTILLO MARTOS, M. 2006), and in early 1507 Tommasso Cusano and Giovanni Antonio Mauro, former gold workers, requested permission to extract silver from the ore without fire using water and quicksilver, i.e., cold amalgamation. In the first half of the 16th century, the first German books describing methods for obtaining silver by amalgamation appeared. The most famous book is the Bergbüchlein, which was used by European miners and assayers because it was a practical manual of the knowledge of the time and explained how to recover silver and gold from coinage waste, hats (BARGALLÓ, M., 1969, quoted Castillo Martos, M. 2006) and old gilded tablets.

Between 1551 and 1553, the years when Bartolomé de Medina began to work almost exclusively on silver metallurgy, the work of Vannoccio Biringuccio (1480-1539), De la Pirotechnia (1540) was in circulation, in which he describes the operations he had seen being carried out in the mines



002 172
PROCESSES TO REFINE SILVER. REFINING BY AMALGAMATION

of Italy and Germany. In the section devoted to amalgamation of silver ores, it states that to extract silver: The substance silver is also extracted from various pure ores in a wooden vat by grinding, as I said before, in which the ores are washed and then moistened with vinegar to which copper acetate, whose common name is verdigris… has been added, or moistened in a solution in water of sublimate, vitriol or verdigris. In book 1 he speaks of silver ores and their qualities, and in book 3 he says that mercury can be used to purify slags and filing from the smelting of noble metals (silver or gold) that are worth recovering. In the method of extracting particles of gold and silver from slags of ores and coinage scrap, gold and silver beaters, as well as those contained in certain ores, he states that mercury can be obtained without the need for smelting. This method is similar that that used by Bartolomé de Medina at Pachuca, working with large quantities of ore (LANGE, 1966, quoted Castillo Martos, M., 2006).

Shortly afterwards, Georg Bauer, Agricola (1494-1555), published De Re Metallica (1556), a book cataloguing the knowledge on mining, refining and smelting metals at that time. This work is directly related to our subject, it includes a historical note on amalgamation, *Assays of gold by amalgamation with the aid of common salt or other ingredients, Parting of silver and gold with mercury and common salt*. It also includes *Method with salt, saltpetre, vitriol and other ingredients, Assays with salt of mercury ore (cinnabar), Amalgamation of native gold, Purification of free metallic mercury from the mine with vinegar and salt* (ROCKE, 1985, pp. 38-42, quoted Castillo Martos, M., 2006).

Andrés Laguna (1499-1560), the pre-eminent doctor of Phillip II, translated of Dioscorides's De Materia Medica, and transcribed: *The alchemists call mercury quicksilver and hold it to be a very resolute substance that can be transformed into any metal as the fitting and natural constituent of all metals*.



001 054
ETCHING OF THE REVERBERATORY FURNACE (DRAWING FROM RE METALLICA BY AGRÍCOLA 1556, PAGE 104)

Bartolomé de Medina obtained silver in America from silver ores, though not without great effort and sacrifice, using the process of amalgamation. On November 13th , 1566, Jerónimo López, town councillor and chief attorney of Mexico, said: the quicksilver process for refining silver was brought (to New Spain) by Bartolomé de Medina, who heard of it from a German called Maese Lorenzo". And ten years later, Juan de Moscoso, a witness at an official informative hearing, swore that Medina brought the quicksilver process for refining silver, which he said he had learned from a German who showed it to him (AGI, México, 209 no. 29, quoted Castillo Martos, M., 2006).

The mercury monopoly originated with the discovery of silver production by means of the amalgamation process, made known in New Spain by Bartolomé de Medina based on the description of a German of unknown name...(SCHÄFER, E., 1947, Volume II, p. 83. - Quoted Castillo Martos, M., 2006).

There is no doubt that the mercury mines at Almadén and Idrija and also the Huancavelica mines in Peru were the ones able to provide the mercury for amalgamation in the Viceroyalty of New Spain (CARRILLO, 1977, quoted Castillo Martos, M., 2006). Pedro Contreras discovered the mines in Peru and used the *xabeca* furnaces to obtain mercury; Lope de Saavedra Barba perfected the furnaces used in distillation of mercury at Huancavelica (1633). The furnaces of this new invention, called *busconiles,* were the same as those introduced at Almadén in 1646 by Juan Alonso de Bustamante.

001 043 BUSTAMANTE FURNACES. ALMADÉN



The mining of silver and mercury in Peru went hand in hand (…), with the first entirely dependent on the supply of the latter, whether it was produced in Huancavelica or imported from Almadén (Spain) or sporadically from Idrija (…) These two last-named mines, together with the ore deposits in China, were the only ones known in the world at the time. Hence the great interest in the Peruvian deposit, of which it could be said that it was vital for the recovery of silver in Potosí" (ORCHE, Enrique, 2006).

As no more advantageous system was known for silver extraction than amalgamation with mercury, without a cheap and abundant supply of the latter, the rich silver ores were a resource that could never be tapped. Mercury was undoubtedly one of the Spanish Crown's most profitable monopolies because more than 95% of the silver produced was obtained by amalgamation. At different times, other commodities were placed under state monopoly, but none achieved the predominance of the monopoly on mercury or lasted for so long.

Enrique Orche says, "production and trade of mercury from Huancavelica was not profitable for the Spanish Crown and usually was a problem, but necessary to obtain silver" (Message, August 13th 2007). This explains that, even when production and trade were not profitable by themselves, they were so in terms of profit from silver.

The miners of Spain's American viceroyalty required ever increasing amounts of mercury to extract silver from its ore. If during the first years orders were made in small quantities on an experimental basis, shipments from peninsular Spain would gradually became more and more frequent and larger in size. The discovery of new silver mines increased the need for ore extraction and hence caused a growth in the demand for mercury over the years. These were the normal circumstances that caused the annual average expenditure to grow.

Bartolomé de Medina's amalgamation process led to an unexpected increase in the demand for mercury that the Spanish Crown tried to satisfy with greater or lesser success. Shipments of mercury from the Almadén mine to the American viceroyalties far exceeded those from other American and European mines.

The invention of Bartolomé de Medina, immersed in a technological revolution of the 16th century, was to come to the attention of specialists from later centuries: In 1775, Guillermo Bowles wrote about the applications of the mercury from Almadén and noted that many of the mines of New Spain extracted metals from their ores by smelting, but where firewood was scarce or the mine was poor, extraction was done by amalgamation with mercury (BOWLES, pp. 21-22, quoted Castillo Martos, M. 2006).

The modern social history of science and technology does no explain the revolution in American metallurgical processes as the result of a single discovery, and its great complexity should be emphasized. Bartolomé de Medina's invention gave rise to a number of other innovations aimed at adapting this technique to the different silver ores as well as technical improvements in the process made by metallurgical experts in New Spain and Peru, the hot amalgamation by Álvaro Alonso Barba and modification of the furnaces to obtain mercury, and the introduction of iron and steel tools to work the Peruvian mines, while the Incas only used hardened copper implements. And the extensive literature generated around Bartolomé de Medina's method, beginning in 1640 with Alonso Barba's "Art of Metals". It should also be emphasized that amalgamation was the driving force that changed the mentality of society of that time, first in the American viceroyalties – where drove the foundation of new settlements– and later in the areas of Europe where there was a tradition of mining and metalworking.



001 055
ALONSO BARBA: "ARTE DE LOS METALES"

Economic significance of the use of mercury in the amalgamation of silver
DOBADO GONZÁLEZ, Rafael, 2006

Almadén and Idrija have been the most important producers of mercury throughout the Modern and Contemporary Ages. On the other hand, that extensive portion of the American continent that formed part, also for three centuries, of the Spanish Empire contained giant silver ore deposits. Some of these, including the world-famous Potosí mines in modern-day Bolivia, were located in the Andean region, in territories belonging for the largest part of the colonial period to the Viceroyalty of Peru. Other deposits, some as renowned as Zacatecas or Guanajuato, were located within the limits of the Viceroyalty of New Spain.

Apart from the obvious fact of the Conquest, the prolonged and intense connection between Europe and America is due to the answers humans found to the technical and economic difficulties. In Europe, silver-bearing ores were processed by a smelting process. This was also the first method used in America. It was an appropriate method for handling ore with a high silver content and where there was an abundant supply of fuel. However, the great volume of the American deposits provided, generally speaking, low-quality ore and they were mostly mined in areas with little or nor forest resources. That is why America quickly adopted mercury-based amalgamation as the metallurgical method of choice for obtaining silver. The version known as *beneficio de patio* (BARGALLÓ, M., 1955, quoted Dobado, R., 2007) (yard processing) have been applied for the first time in Pachuca (Mexico) at the start of the second half of the 16th century.

In 1559, The Spanish Crown officially acknowledged Bartolomé de Medina as the inventor of the *beneficio de patio*. From Pachuca, the method spread to other royal mines in New Spain and it did not take long to reach the Viceroyalty of Peru. Its adoption at Potosí was one of the reasons for the great splendour of silver mining in the *Cerro Rico* area. Amalgamation adapted better than smelting to the conditions in force in America and so continued to be successful for centuries.

Until the end of the 18th century, the mines in the Andes obtained their mercury from the region itself thanks to the deposits at Huancavelica. The production of mercury at Huancavelica was sufficient to meet the demand in the Andes and even to provide occasional significant remittances of mercury to New Spain. This viceroyalty, which lacked any local source of mercury during the colonial period, was the destination for that produced in the Almadén Mines from shortly after that start of the expansion of its activities, in the middle of the second half of the 16th century, due to the increased demand for mercury in New Spain.

The fear of a shortage of mercury was always clearly present among the miners of New Spain, as witnessed by such outstanding experts in the subject as De Lassaga and Velázquez de León: *"We know all too well the harm caused on many occasions by the scarcity or absolute absence of quicksilver through a wrecked shipment or a stoppage at the Mine in Almadén"* (LASSAGA, De, J. L. and VELÁZQUEZ, J. quoted Dobado, R., 2007).

These statements refer, in turn, to another of the reasons explaining the centuries-long relationship between Almadén and New Spain: quite simply, the imperial policy and more exactly its financial aspects. Silver mining provided the Crown with substantial revenue in terms of the taxes levied on its production and the striking of silver coinage *(quinto* or *diezmo* tithes, *señoreaje* and *braceaje* fees). In addition, it also gave rise to considerable income for the Crown through other sources, such as the sales of mercury, on the one hand, and, on the other

hand, the taxes collected on all those economic activities influenced to a greater or lesser extent by silver production (agriculture and domestic and foreign trade, mainly).

Mercury, silver and the Spanish Crown revenue were, therefore, closely linked. Since even earlier than is generally thought, that relationship was the object of some attention by the Spanish Crown, which considered it a strategic element, and not by mere whim. This was particularly true in a century such as the 18th, when active participation in the ever more complicated political and military scenario required growing financial resources.

The increased consumption was due to factors that affected both Spain (the supply of mercury) and the colony (the demand for mercury). With the arrival of the 18th century and coinciding with the Bourbon dynasty, mercury production in the mines at Almadén began to exceed the levels achieved during the second half of the 17th century.

It was not until the end of the first half of the century that the production levels achieved previously began to be constantly exceeded. That was when a boom in quicksilver *sacas* (extractions) whereby, in the decades beginning in 1790 and 1800, peak production records of close to 20.000 *quintales* a year were set. This figure contrasts with the annual mean of a little over 4,500 obtained between 1700 and 1739. It is no chance occurrence that the trends in mercury production at Almadén and the consignments made for use at the Mines maintain a parallelism that is far from merely superficial. Between 1744 and 1776, the Mines' annual expenditure went from under one million *reales de vellón* to six million. This increase reflects the Crown's early interest in removing the obstacles preventing the sustained boost in the supply of mercury. At the start of the 18th century, the Mines were spending on average around 7.5 million *reales* a year, but they began to suffer with the Crown's financial problems. The invasion by Napoleon and his troops only made things worse.

But achieving those higher levels of regular *sacas* was also due to other reasons which, together with the increase in financial resources mentioned above at the end of the first half of the 18th century, created what we might call an "early reform movement" with regard to such a key matter for sustaining the Empire as the supply of mercury to the mines of New Spain. In 1708, Almadén became the responsibility of the Indies Council, so bringing to an end the ongoing dissent between the Exchequer Council and the Indies Council, jointly in charge of the Mines during the 17th century that had hindered the taking of decisions until then. The operation of a bed at the start of the 18th century that gave rise to the "Mina del Castillo" in Almadén and the discovery of the deposits at Almadenejos provided huge volumes of mercury in 1760-1766 and 1796-1808.

From the middle of the century on, the successive governments adopted a wide range of measures to allow the Mines to offer their workforce a broad and varied selection of non-monetary stimuli (exemptions from military and tax obligations, hospital assistance, pensions and charitable relief, distribution of work lots, *jornales de saneamiento* ("health wages") for sick workers, the supply of bread on favourable conditions, etc.) that make up a highly unusual model of labour relations in its day in Spain and western Europe. In this way it was possible to overcome the traditional "lack of manpower" that had so limited the production of mercury.

This was also achieved through technical changes, without which the extraction of ore and drainage, as the mines got deeper, would have absorbed ever greater amounts of labour to the point where it wood have seriously hindered, if not prevented, any increase in ore production. One of the first milestones in this process of technical change came early on with the introduction of gunpowder, (already used in Huancavelica in the 17th century), for excavations both in ore-bearing and sterile rock at the start of the 18th century. "However, in 1626, gunpowder was used for the first time in mining. This occurred in Schmnitz (modern-day Banská Štiavnica, Slovakia). Very soon afterwards, in 1635, gunpowder was used in the Huancavelica mercury mine to make a shaft to drain the mine, but its use did not reach Almadén until 1689. Technological transfers were not always from Almadén to America, but sometimes in the opposite direction" (PUCHE RIART, Octavio, 2006).

A "wave" of technical innovations began to make its effects felt after the fire in the mines from 1755-1757, a phenomenon that explains the contraction in production during the 1750s. This innovation wave was driven by the German experts hired to reform a way of working that was untenable at the depths achieved by the mines and for which "autochthonous" technical solutions had unsuccessfully been sought in the 1740s. Another wave of innovation occurred between the middle of the 1780s and the early 1800s.

Technical change is, then, undeniable. However, some problems (poor ventilation and the subsequent unhealthy conditions in the mines; poor metallurgical yield from the smelting furnaces) remained unresolved and the target was first to overcome the physical obstacles deriving from mining deeper that prevented them from digging out ever greater *sacas* of quicksilver rather than to reduce substantially the cost of producing mercury. Although they had many limitations, the results in this terrain are far from negligible.

The profitability of the mercury monopoly diminished substantially in 1767 when, in response to an oft-repeated request from the representa-

tives of the interests of New Spain's mine owners, a drop of 25% in the sales price was decreed. This would be lowered even further from 1776 on, with a further drop of 33.3%. From this point on, it is doubtful whether the monopoly was particularly profitable, or even just profitable.

In this respect, the purchases of mercury made by the Spanish Crown from the House of Austria at the end of the 18th century and early 19th centuries were sold on (*"at cost plus expenses"* according to the documentation consulted, without any profit margin in other words) in New Spain at 63 pesos per Castilian *quintal*. Humboldt maintains the opposite: *"In the mercury from Idrija, due to the difference in the weight used in Germany and Mexico, the king makes 23 per cent"*. No additional details are provided in favour of the argument set out by Humboldt, who challenges the interpretation of the agreement with the Austrian government inferred from the original documents by Matilla Tascón. (HUMBOLDT, A., 1822:1991, quoted Dobado, R., 2007).

These purchases were made for the first time in the middle of the 1780s, when the problems of keeping up the high production levels in the face of the suspension of *sacas* (extraction) in Almadenejos came to aggravate the need to send Spanish mercury to the mines in the Andes in response to the crisis at Huancavelica and the increase in demand in New Spain. (After 1780, the mean five-yearly production figure at Huancavelica never exceeded 4,000 *quintales* per annum. - DOBADO, R. - 1989.) Recourse to Idrija was, therefore, almost inevitable if they were to avoid creating a bottleneck in the supply of mercury to the expanding silver mines in America.

For the Crown, the results of its mining policy were certainly positive. The financial resources obtained in New Spain peaked at the start of the 18th century: the Royal Exchequer's ordinary revenues were around 18 million pesos whereas they did not reach 4 million in the middle of the decade of 1710. From New Spain came a large part of the resources financing the Spanish Empire and the costly wars in which the Crown was entangled during the second half of the 18th and the start of the 19th centuries. For Humboldt, this was a clear demonstration of the colony's economic bonanza.



001 056
BALDÉS FOR
THE TRANSPORTATION OF MERCURY

The mercury route in the current territory of Spain

From the source deposits to its destination in America, the quicksilver from Almadén travelled over 9,000 km, during which time it changed containers at least twice, and another three times its form of transportation, in a journey that can be divided into different stages.

The delicate task of packing up the quicksilver took place in a warehouse located in the Almadén foundry area, the so-called Cerco de Buitrones, where the aludel furnaces were installed. The peculiar characteristics of mercury (its fluidity and ability to penetrate solid bodies, its extreme density and weight, the scant volume it takes up and of course its toxicity) made it obligatory to use a safe, resistant, impervious and not too big package in order to ensure, given its weight, that it could be manhandled. (GONZÁLEZ TASCÓN, Ignacio, Dolores Romero, Amaya Sáenz, 1996).The mercury was poured into *baldeses,* i.e. leather pouches with capacity of 4 and 2 *arrobas,* depending on the transport system to be used. These were transported on ox-drawn carts or on mule-back, as required to ensure the mercury promptly reached the shipyard stores in Seville. The process of packing mercury at the warehouses in Almadén is quite well known thanks, among other sources, to the meticulous description given of it by Agustín de Betancourt in his "Memorias de las Reales Minas de Almadén" (Memoirs of the Royal Mines at Almadén).

The form of transport used obliged the state to provide exemptions from the payment of gate and bridge tolls, or goods taxes when entering towns as well as ensuring the use of pasture lands to feed the large number of oxen and mules required rendering this service. The cattle breeders who contracted out their carts and teams for the quicksilver route also enjoyed over wintering and grazing privileges in various pasturelands around Almadén (Castilseras, Alcudia) allocated for the mines. In exchange, in addition to the pure transport service, they undertook to supply the mines with timber and firewood.

The trails followed by the fleets of carts and the mule trains from Almadén to Seville were long and



001 057 CART ROAD FROM ALMADÉN

plagued with difficulties. They left Almadén through the gate known as "Puerta de Carros" in the Cerco de Buitrones and from 1795 on through the "Puerta de Carlos IV" (King Charles IV's Gate) to take the common road to Azuaga in the province of Badajoz, from where the road split up: two trails were taken by the carts and another was used by the mule trains.

The time spent by the carts covering this 46 to 48 league trail was approximately a month and a half, basically depending on the conditions of the terrain, which caused serious breakdowns in the carts, while the time for the mule trains was approximately a week, but they were only used in situations of extreme urgency as they were more costly.

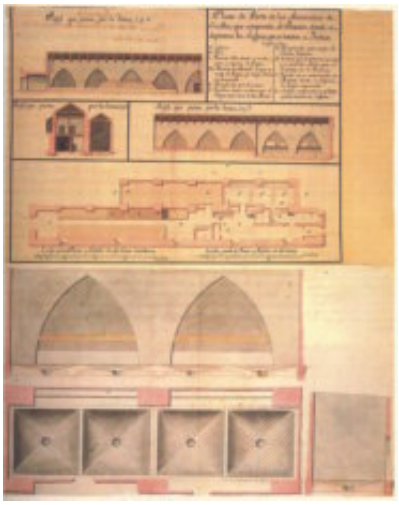
Once the mercury was located at the shipyards in Seville, it was weighed again and repacked to have it ready for shipment on the convoys across the Atlantic.

Following the standard procedure in road transport, the return trip was used to take back other merchandise, including the iron and steel needed at the mines, and various other articles and equipment for the personnel (professional miners and conscripts) working there. Between the months of November and April the oxen spent the winter in the pastures close to Almadén; in the meantime, the carts were repaired in time for the next trip or were used to transport timber and firewood from the nearby hillsides for use in shoring up the mines or as fuel for the furnaces.

001 058 STONE BRIDGE
ON THE CART ROAD



After the quicksilver had reached Seville and was re-packed ready for the trans-Atlantic leg of its route, it would be shipped directly from this city or, when the sandbanks at the river mouth prevented the largest ships from sailing up-river to the city's port, it had to be ferried down-river in lighter craft to Sanlúcar de Barrameda and then Cádiz, which is where the Casa de la Contratación (The Trade House) was transferred to in 1717, but Seville was the official departure point until 1679 (MANSILLA, Luis, 2006).



001 059 SEVILLE. ATARAZANAS



001 060 GUADALQUIVIR RIVER

The mercury route from Idrija to the neighbouring territories

HODNIK, M., 2007

The Idrija mercury mine has throughout its history rightfully been one of the major exporters of mercury, not only in Slovenia but in Europe as well. The largest South German and Venetian trading companies, which had enough assets on hand, traded with this precious metal already in the 16th Century. These companies entered into monopoly contracts with entrepreneurs and the region's nobleman to transport large quantities of mercury and cinnabar. The entrepreneurs and the nobleman continuously wanted to increase the mine's output to boost their income. Competition from the Spanish mercury mines often brought problems for the Idrija mine and those who traded with it and they often recorded losses, especially in the mine's early periods when the market for mercury from Idrija was limited to the Italian and eastern lands. The traders were also often in danger of going bankrupt if they did not cancel their contracts at the right moment and Idrija entrepreneurs often had a hard time finding traders who would undertake such a risky business. However, the breaks in the trade were felt by the miners who lost their jobs and their pay the most.

Countries in the Middle East had well-developed crafts that required mercury already in the period preceding the Middle Ages. Greeks and Romans were already aware of mercury mines, the ways of its mining, its characteristics and use. Indeed, prior to the discovery of the Idrija mercury mine, the only known location of this metal was in Spain.

The discovery of the New World at the end of the 15th century and mercury in Idrija in the same period greatly changed the market situation for this precious metal. Moreover, amalgamation and a procedure for separating silver and gold from other metals by the use of mercury was discovered in the Spanish colonies in America in the 16th Century. This revolutionary discovery brought with it an increase in the demand for this precious liquid metal in gold and silver mines in the Spanish colonies in America. This meant that the entire mercury production from the Spanish Almadén mercury mine was exported to the other side of the Atlantic. Mercury from Idrija was, however, also making itself known in America.

To better understand the trade routes of mercury from Idrija, it is necessary to explain who held sovereignty over the region at the turn of the 16th century.

When mercury was discovered in Idrija in 1490, the Slovenian town belonged under the town of Tolmin which itself was ruled by Cividale, a town in present-day NE Italy, in turn controlled by Venice. At first, proceeds from the production of mercury did not even suffice to cover the mine's operating costs. This was changed in 1493 when the Venetians allowed experienced German master miners to come to Idrija and systematically began to look for and mine the metal. As the Venetians were, however, counting on large profits from Idrija mercury they also gave a mining license to Germany despite opposition from Cividale. The Venetians employed their own supervisor to oversee the sales of Idrija mercury. They also held a monopoly over the sale of mercury and cinnabar and demanded that the output could only be exported to Venice. This did not stop a German mining company operating in the area from exporting large quantities of the metal to German lands. The clashes regarding the monopoly hurt Idrija entrepreneurs the most. They were additionally hit by the abundance of mercury on the market at the close of the 15th century, which led to a virtual standstill in trade. To offset these conditions, some of them also began smuggling the metal.

Idrija came under the ownership of the Habsburg dynasty in 1514 following a war between Austria and Venice.

Venice remained the main market until the middle of the 17th century. It was also exported to Flanders in early 16th century on ships from Flanders as Venetian galleys were incapable of navigating the ocean. The first major trader in Idrija mercury was Wilhelm Neumann from Villach and his associate Johannes Pflügel of Salzburg. The pair sold all of the mercury to Venice where they operated a subsidiary. Neumann was appointed Idrija's first magistrate in 1509 but later gave up the work to concentrate on managing the mine and trading in mercury. He also began selling the metal to Germany by establishing links with the Höchsteter trading company from Augsburg; however, the previously mentioned standstill in trade buried the venture. Other one who became active in the trade was Hans Baumgartner from Augsburg, who exported the metal to Venice via Trieste.

The Almadén mercury mine was heavily damaged by fire in the middle of the 16th century and its production decreased sharply. Back then, the main trader with mercury from Spain was the Fugger family, the well-known Augsburg wholesalers. They maintained good contacts with Genoa, from where the metal was shipped to other destinations. It could be argued that this fire came as a boom for the Idrija mine as it allowed the metal to be exported to the Spanish peninsula and from there to America. However, this lucrative trade only lasted for a few years, as the Almadén mine soon recovered resulting in a ban on the sales of the Idrija mercury to Spain and further west. It also needs to be mentioned that the Span-



002 053
DEVELOPMENT OF TRANSPORT ROUTES
FOR IDRIJA MERCURY
TO THE OUTSIDE WORLD

ish and Austrian courts held secret talks on an agreement to bypass the traders and create a global monopoly on the sales of mercury. However, the court at Vienna withdrew from talks after the Spanish proposed to take over the entire production in Idrija and offered a price that was deemed too low. The ban on exports of Idrija mercury brought with it a rise in smuggling to the Spanish colonies. Smuggling was in the domain of traders who purchased the metal from the Herwarts in Antwerp as well as Portuguese and French shipping companies which maintained contacts with Brazil. The smuggling forced the Austrians to again make contact with the Spanish king and propose that Spain purchases a specified amount of Idrija mercury or at least allow the metal, the stocks of which were high, to be exported to America after levying an excise duty.

On the other hand, the Herwart trading company, which knew nothing about talks between the two courts and had taken over the trade in mercury from Idrija in the meantime, tried to take advantage of the situation as well. It introduced large price cuts and the merchants were buying it, despite the Spanish ban. The cuts made mercury from Idrija substantially cheaper than its Spanish counterpart and was successfully sold by the Herwarts to the Spanish merchants in Antwerp whereupon it was sold to America as mercury from Almadén.

Trading in mercury was a risky business. Many times a trader risked everything if he did not back down soon enough, resulting in bankruptcies of numerous trading companies from Augsburg towards the end of the 16th Century. Their place was taken by Venetians and Italians who lent money to the Austrian archduke and were given sales monopoly in return. This ushered in the period of Italian traders (Bontempelo, Albertinelli, Balbi). Many of them were, however, driven out of the business by high excise duties and road tolls. High import and export tariffs for Idrija mercury and the high costs of insurance for transporting the metal from Venice to places further west eliminated overseas transports from Venice. This resulted in a rise of land transports to Amsterdam from the mid-17th Century onwards. However, Trieste was also gaining in importance as the principal port of export for Idrija mercury and was starting to compete with Amsterdam as the main mercury market. Indeed, all the trade in Idrija mercury took place through Trieste from 1736 onwards and even Venetians were forced to purchase their mercury there.

Several routes were in place for transports from Idrija. When trade was still officially controlled by Venetians (until 1509), mercury and cinnabar was transported through the town of Tolmin and the Friuli region to Venice. After the Tolmin area was occupied by the Habsburgs in 1509, the way between Venice and the Hungarian lands was cancelled and all of Idrija mercury and cinnabar had to be transported to Trieste across Gorizia and Devin, even though these roads were less penetrable than the previous ones. The hauliers had several ways of communication on their disposal, one that went across Podroteja to Črni Vrh and Podkraj and from there on to Vipava, Razdrto, Senožeče and Trieste; another road went through the Vipava valley to Sveti Križ, where it joined the Karst road towards Trieste; while a third, slightly longer way, crossed the Jeličnі Vrh to Dole and Medvedje Brdo, from then to Ceste and Zaplana and Vrhnika where the hauliers joined the Karst trading route to Trieste, via Logatec. The hauliers often complained over poorly maintained roads, which is why the Inner Austrian court chamber demanded from its regional lords to force their subjects to regularly maintain road links in the area. However, it took until the 18th century to strengthen enough the road to Vrhnika and from there on to

Logatec and Trieste to allow carts on it. The road to Logatec, via Črni Vrh, was meanwhile built as late as the mid-19th century.

The roads were used by subjects of the Tolmin, Loka and Logatec townships. The majority of mercury was transported by subjects from Logatec who owned the most cattle as their hilly region did not allow agriculture. Moreover, three major roads crossed Logatec, making its hauliers one of the most affluent in the Carniola region and Logatec one of its richest towns. Carniola's ruler also decreed, based on the demand by Idrija entrepreneurs that Logatec hauliers have to carry out transports solely for Idrija's needs. Trade towards Idrija meanwhile included life necessities (grain, cattle, wine, and salt) and material required for the mine (skins for packaging, sulphur, iron, hemp for ropes, oil for lighting the mine). All trading goods earmarked for the mine were controlled by the land's ruler and as such exempt from any road and customs levies.

The mine's development, meaning its production and sales of mercury and cinnabar, were given fresh impetus in the 17th century, when the Almadén mines went through another crisis which increased the demand for mercury from Idrija in the west. Even though the production of mercury in Almadén was over three times the output of the Idrija mine, it was barely sufficient for the Spanish and Mexican markets. Because of the lack of the metal for Peru, the Spanish government ordered large quantities of the metal from Idrija. However, this hike in demand was not to last. Demand surged again with the arrival of Austrian court councillor Abondio Inzaghi, who proposed that the state (Inner Austria chamber) take over the operations of the Idrija mine and the sales of mercury. It was also set that not a quintal of mercury could be sold in Germany for less that 100 Guldens nor in Venice for less than 150 guldens. Inzaghi is also credited with bringing the trade in mercury, which was in decline during the commercial rule of the Balbi family, back to life.

The war of the Spanish succession also brought uncertainties to maritime transports across the Adriatic as the volume of trade in the Middle East did not meet expectations. This also resulted in a smaller Italian market. The mercury market was additionally rocked after English vessels brought cheap Chinese and Indian mercury to Europe's ports. The prices embarked on a downwards spiral and sales were on decline, causing the downfall of merchants and a rise in stocks.

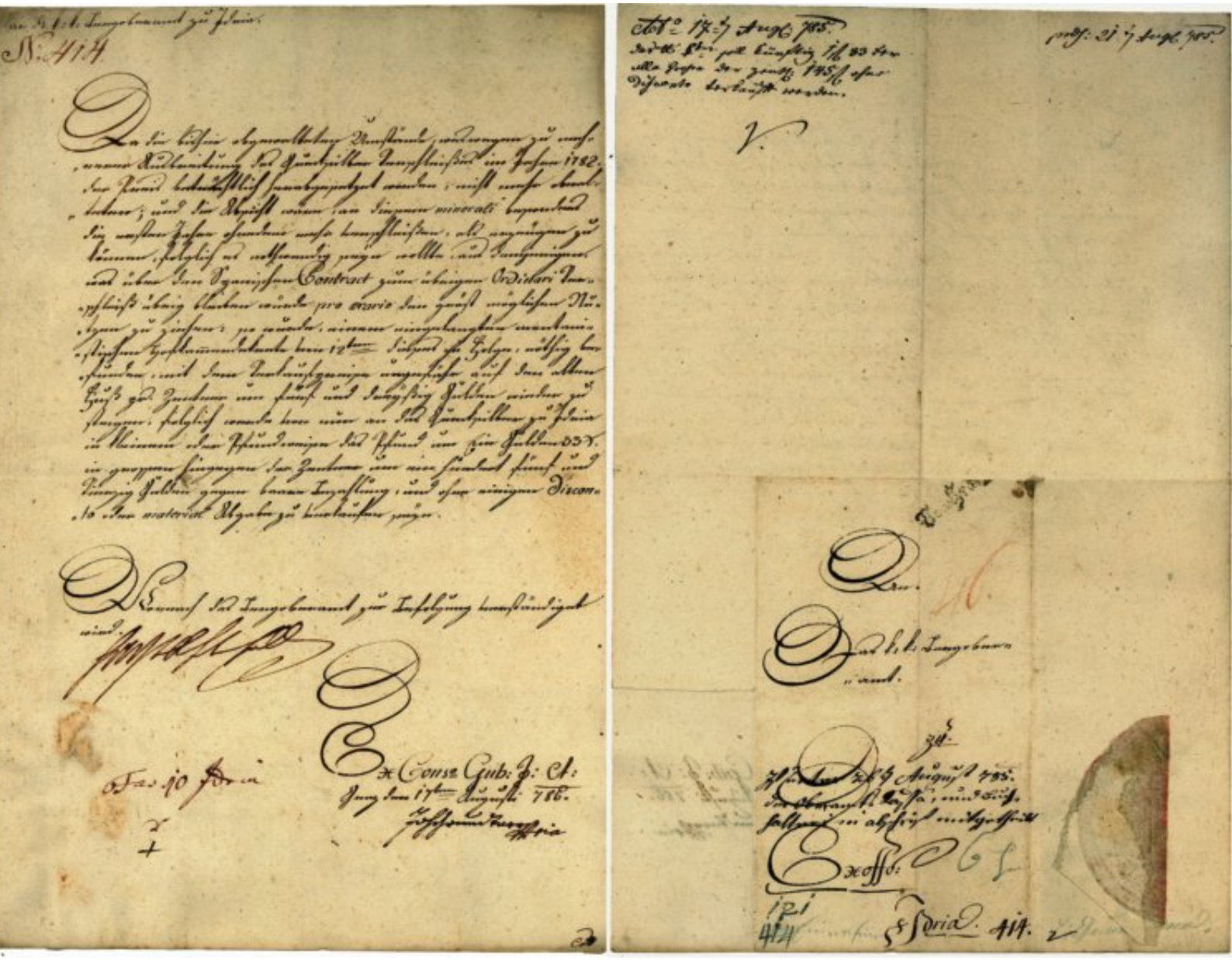
Emperor Charles VI tried to mitigate the situation by decreeing that mercury can only be sold in ports and cities in his lands. Such a solution should eliminate all the outposts abroad and bring foreign clients to Austria's ports. The emperor shut down the outpost in Venice and launched trade in the ports of Trieste and Reka. The mine was however tasked with operating around the clock, regardless of the situation on the market, and supply mercury to the Netherlands for repayment of loans. Other problems faced by the mine were of technical nature and a decline in output. The mine's operators were constantly on the lookout for technical improvements, and enhanced ways of smelting the ore in order to increase the mine's output.

After the mine was freed from Dutch debts the mercury from Idrija managed to remain competitive, despite new competitors. Trieste and Reka had to fend off massive competitors and the crisis was finally overcome in 1732 when retail trade in mercury was established. Production began to increase in the mid-18th century with the largest part of the output being bought by the Verbrugg and Goll Company from Amsterdam.

The mine's output topped out in the last two decades of the 18th century. The development of the technol-

ogy and the manufacture of new end products as well as newly-discovered veins led to more mercury being processed and to a hike in prices. New veins especially allowed Austria to conclude in 1785 contracts for large amounts of mercury with Spain. The first contract was concluded for a period of five years and bound the mine to supply at least 4,480 quintals of mercury. Numerous new jobs opened at the mine in order to meet the obligations and miners from other cities came to work to Idrija. New tunnels were opened and the existing ones updated.

Another contract with Spain was concluded in 1791 and further increased the mine's obligations. All mercury was shipped to Spain from the port of Trieste with Spanish ships. The record amount of mined mercury was recorded in 1789 – 79.329 quintals.



002 046
MENTION OF THE FIRST FIVE-YEAR CONTRACT ON DELIVERY OF MERCURY FROM IDRIJA TO SPAIN, 1785

2.b.1. 1. Science, Technology, Public Health, Knowledge

Medical care in Almadén mining
Alfredo Menéndez Navarro, 2006

The provision of health care facilities in production centers is not a measure originating in or exclusive to Almadén. However, the degree of sophistication and breadth achieved by these resources in these mines –particularly during the 18th century– makes them a case without parallel in preindustrial Europe. In my opinion, there are three key features that can be extracted from the study of medical care at Almadén during the modern period and these will be three main points of my presentation. First, the primarily utilitarian aim of the introduction of medical and health care into the work setting, conceived as instruments to recover the productive capacity of the workforce.

In this regard, Almadén illustrates this aim more clearly than other contemporary cases owing to the convergence of two centuries-old conditions. On one hand, the use of a production process extremely hazardous to health such as that employed to obtain mercury brought to the forefront the biological deterioration of the workers and the difficulties that they faced to find a means of subsistence once they were declared unfit to work in the mine. On the other, the collective importance of the health problems caused by the mine went beyond the individual problems of each miner and his family to become one of the determining factors in labor relations at Almadén and a major obstacle for achievement of the production goals of the mines.

Second, the study of medical care at the Almadén mines allows us to explore in exceptional detail the process of conversion of the workplace into an area of legitimization of new knowledge and practices related to the health and illness of workers. In other words, a setting where physicians, surgeons, nurses and attendants claimed new competencies for restoring health to the workers' body and deciding on their fitness for work. In a particularly significant and pioneering way, these competencies extended to regulating the workers' living habits and moral behaviors to maintain the productive order, with medical science claiming the regulatory function carried out in modern societies by religion until then.

Third, the close and prolonged contact between workers and health professionals in the care setting fostered the birth in Almadén of a richer and more original school of thought in the study of work-related diseases in the Hispanic world. A school that for the first time questioned the traditional dominant role of Central European countries in this area.

I honestly believe that the development of medical concern for workers' health in the preindustrial world and its incorporation into the care, professional and nosographic settings cannot be understood without considering the case of the Almadén mines. To assess the true significance of this uniqueness, we must first put it into context. For this, I will first show the origin of medical care in the working world in Renaissance Europe. I will then describe the health care facility developed at Almadén and the new functions taken on by health professionals, with special attention to the enlightenment period. Finally, I will analyze the nosographic tradition that these mines gave rise to.

Work, health and disease in the modern world

Loss of health is a phenomenon inherent to work. However, the concern of medicine for productive work is a trait specific to the modern world. The boom in commerce and the establishment of a monetary economy in Europe created a greater demand

for precious metals, which, together with the appearance of firearms, increased the scale of mineral-metallurgical activities in the Renaissance period. On the other hand, the social rise of the merchant middle class fostered a slow but inexorable shift in cultural values, with a growing appreciation of the practical arts. Praise of manual labor, mechanics or mining activity by Renaissance authors, such as Giordano Bruno (1548-1600), Guidobaldo del Monte (1545-1607) or Georg Bauer (1494-1555) –known as Agricola–, were the counterpoint to the traditional contempt of the ancient and high medieval world for the technical and manual work carried out by slaves and servants (ROSSI, Paolo, 1998).

It is not a coincidence that precisely the *morbi metallici,* the diseases caused by contact with metals in mining and metallurgical activity, were the first work-related diseases to attract medical attention and be recorded in the first monographic descriptions, generally written by Central European physicians[1]. Similarly, the growth in mining activity and its economic importance contributed to the creation of care areas in mining centers, where, in addition to general care measures, medical and surgical practices carried out by physicians, surgeons, or, more commonly, barbers hired by the employers, developed early. I will limit my discussion to the dominions of the Spanish Crown and mining activity, noting the cases of Guadalcanal (GOODMAN, D. C., 1990), Potosí (BAKEWELL, P.J., 1989), Huancavelica (SALA CATALÁ, José, 1987) and Almadén (MATILLA TASCÓN, A., 1958). Aside from mining activity, other early examples of care areas for workers are those related to large construction projects, such as the hospital for workers built during construction of the monastery of El Escorial (1563-1599) (MAGANTO PAVÓN, E, 1992).

Although the Almadén Mines already had the services of a physician at the end of the 1550s, the first care center to equip the mines was founded in 1568, once the spread of amalgamation as the predominant metallurgical process in American silver mining converted the supply of quicksilver into one of the keys to silver production. The creation of this first infirmary seems to have arisen from the need to provide care for the growing number of outside workers traveling from nearby districts to work in the mines. The infirmary was installed in the prison building built at around the same date to house the forced labor workers. Because of either its location or the growing importance of the work contribution made by the forced labor workforce at Almadén, the infirmary ended up being devoted almost exclusively to the convicts. The dominant care model among free workers was the provision of home care by physicians from the mine. From the mid-17th century, this care was complemented by an active policy of granting economic aid in cash or in kind to mine workers declared unfit to work, the so-called alms.

Health care resources at the Almadén mines in the 18th century: mercantilism and production expansion

The expansion of European economic activity in the 17th and 18th centuries and the growing importance of mercantilist theories contributed to the introduction of health care resources into the workplace. On one hand, the linking of a larger productive population with greater wealth and power of the state ["The more mouths, the more wealth", as coined by Daniel Defoe (1660-1731)], gave health its modern economic meaning (ROSEN, George, 1984). On the other, the incipient conception of health as capacity to produce contributed to medical professionals paying growing attention to the working world. European medical literature recorded observations on a wide variety of oc-

[1] The text by Ulrich Ellenbog (1440-1499) *(Von den gifftigen Besen Temmpffen und Reuchen,* 1473) on the occupational hazards of Augsburg gold and silversmiths, the monograph by Paracelsus (1493-1541) *(Von der Bergsucht und anderen Bergskrankenheiten,* 1567) on the miners' sickness and other diseases of miners, or the work on mining by Agricola, *De Re Metallica* (1556), where he refers to the diseases and accidents specific to this activity, are good examples of this Central European tradition.

cupational groups, with special attention to certain productive activities of key importance for the power of European states. Such was the case of the so-called seafaring people, whose health was vital to maintaining the colonial interests of the European metropolises[2].

Bernardino Ramazzini (1633-1714), professor of medicine at the Universities of Modena and Padua, is considered the founder of the scientific tradition in occupational medicine and hygiene thanks to his *Treatise on the diseases of tradesmen*[3]. It is not surprising that the first chapter of this work was devoted to "diseases of miners", and that, among them, he should single out for their severity the diseases related to mercury mining. Ramazzini gave a clear empirical character to his investigations, and urged the need to direct medical attention to productive areas and activities that had not been the object of medical study until that time. He also urged the need for legislative action on the living and working conditions of workers.

The mercantilist ideology and economic conception of health that inspired this new medical viewpoint on the working world found fertile ground in the Almadén Mines during the 18th century where it gave rise to health care facility of huge proportions. This was contributed to by various circumstances that changed the importance of the mines for the Spanish crown. On one hand, the royal officials in charge of the state-owned monopoly on quicksilver designed an expansionist policy aimed at raising the tax revenues from duties on silver production and coinage (DOBADO GONZÁLEZ, Rafael, 1991). On the other, the fall in output from the Huancavelica mercury mine converted the Almadén mine into the *de facto* only source of supply of mercury (WHITAKER, Arthur Preston, 1941, MOLINA MARTÍNEZ, Miguel, 1995). The expansion of mining operations at Almadén to satisfy the growing demand for quicksilver caused a sharp rise in labor requirements that soon collided with the local population's manifest inability to cover them. The programmatic desire to incorporate all subjects possible into productive work as the basis for increasing the economic wealth and power of the State overlapped in the Almadén mines with the need to enlarge the workforce at the mines and the clear economic implications caused by the unhealthy working conditions.

After a more or less prolonged period of working in the underground mine or in certain metallurgical tasks, *ptyalism* (heavy salivation) and tremor would inevitably appear, the principal manifestations of mercury poisoning. Although they were rarely life threatening for the workers, the symptoms of mercury poisoning caused frequent temporary absences from work and were the main cause of temporary disability and a shortened work life among Almadén miners. Respiratory illnesses and accidents completed the list of occupational health problems. Furthermore, and as in a large part of the peninsular territory, malaria was endemic in the area surrounding Almadén during the second half of the 17th century. Widespread mercury poisoning and the consequent temporary unfitness for work from occupational illnesses, along with the accumulation of a large number of cases of "tertiary fever" over the summer to autumn months, required withdrawal of a considerable part of the workforce from their posts, resulting in the closure of the mining campaign with the arrival of the summer months. In addition to reducing the rhythm of production, the unhealthiness of the work with the consequent rapid incapacitation of the workers and restriction of the labor supply became the main obstacles encountered by the mines to achieve their production goals.

The policy deployed by the Almadén mining establishment to overcome these obstacles went far be-

[2] Thus, the 17th and 18th centuries saw the printing of treatises on the risks of transoceanic voyages (Nicolas Vernette, *Tract ... de toutes les maladies qui arrivent sur la mer,* 1671) or on the diseases suffered by sailors on long sea voyages, such as scurvy (William Cockburn, *An Account of the Nature, Causes, Symptoms and Cure of the Distempers that are incident to seafaring people*, 1696 and 1706; James Lind, *A Treatise of the Scurvy in Three Parts,* 1753; Frederick Thomson, *An essay on the scurvy,* 1790).

[3] *De morbis artificum diatriba.* The first edition of the work, published in Modena in 1700, reviewed the occupational hazards and diseases associated with 42 different trades, a figure that was raised to 54 in the second edition (Padua, 1713).

yond the traditional population-based approaches aimed at attracting and retaining new settlers. Replacement of workers is an inadequate and insufficient mechanism in a labor market such as mining, characterized by technically skilled workers. Because of this, in addition to incorporation of new workers, the directors of the establishment introduced mechanisms designed to ensure "conservation" of the workforce employed at the mines in the medium and long term. Although these measures were undertaken on the initiative of the management of the mine, they can also be interpreted as an expression of the workers' own resistance to accept the inevitability of their biological deterioration. These health conservation measures were finally incorporated into the work regulations of the mines: the reduction of the work day in the interior –six hours versus the "sunrise to sunset" work day in the exterior–, the previously mentioned suspension of production during the summer months and the alternation of workers in the most hazardous excavations are some examples of how the uses of the workforce were influenced by health problems. Medical discourse legitimated each and every one of these practices, while also demanding new areas of experience for medical practice and control. For example, the state of health of the miners, determined by the hospital case mix, was systematically used as an argument to decide or force the suspension of work activity on the arrival of summer. Similarly, access of workers to work regimens less damaging for their health (the so-called "healthy sites") depended on or could be modified by medical judgment.

The management of the mining establishment also decided to strengthen the health policy aimed at facilitating the recovery of workers declared unfit for work. This health policy first sought to guarantee the provision of medical and surgical care to sick or injured workers, in addition to dispensing the medicines necessary for their recovery under advantageous conditions. Second, it called for the transfer of economic resources to the miner's family to allow their subsistence through the granting of aid to unfit miners or, in the event of death, to their widows and orphans. In the latter case, the aid helped to relieve the hardships the families suffered by families and facilitated the future conversion of miner's sons into workers at the mines. Medical professionals played a prominent role in this area of care. Medical certification of the occupational origin of the illnesses causing unfitness for work became an indispensable requirement to be eligible for aid, granting the physicians of the mine a new area of knowledge as well as competency and responsibility in the management of this care modality. In addition to supervising the course of their patients, physicians were responsible for reporting to the authorities their "cure", which led to immediate discontinuation of aid, or if an adequate recovery was not obtained, the recommendation to send the convalescent worker to a less hazardous and less productive post until he had fully recovered. This type of leaves, called "healing leaves", grew in number throughout the 18th century, with the physician monopolizing decision making on the workers who were eligible for them.

The big quantitative and qualitative leap in health care took place in the middle of the century with the founding in 1752 of Royal Miners' Hospital in Almadén. The hospital was equipped with 40 beds and designed to attend the mine workers and their families, i.e., those who contributed in a real or potential way to productive work. In the almost 22 years between its founding and first access by patients to its rooms –in March 1774– the funds raised for its construction served to increase the total amount allocated by the mines for health care purposes. These funds were channeled to a small pilgrims' hospital in the town called the Charity Hospital, where a physician from

the mine provided his services from 1752. The economic aid granted to patients who remained at home was also substantially increased.

For the purpose that concerns us here, the coming into service of the new hospital in 1774, and particularly the increase in its levels of activity between 1780 and the first decade of the 19th century, had three notable effects on the care model existing in the mine. First, the hospital took on the dominant role in this model at the expense of home care. For the first time since health care activity began at the mines, the largest proportion of patients was attended at the hospital. The number of hospital admissions during this period averaged over 800 patients per year, accounting for an average of more than 14,500 hospital stays annually. Second, the volume of resources allocated by the mines to health care purposes increased several fold compared to previous periods. Health expenditure reached annual figures exceeding 200,000 reales de vellón, an amount representing more than 3% of the total expenditure of the mine. Because the health care system contributed to the recovery of the miners by providing basic care, such as food and lodging, as well as economic aid, the growth in the resources provided for this purpose resulted in a significant extension of coverage. Finally, although the funds provided for home care of patients were reduced, the range of population receiving care outside the hospital was broadened by introducing new measures that allowed miners and their families to obtain medicines under economically advantageous conditions.

In addition to its size and level of activity, there are two elements which, in my opinion, allow the Royal Miners' Hospital in Almadén to be classified as a novel institution within the panorama of 18th century Europe. First, its full incorporation into a broader reproductive policy. As I mentioned before, the hospital was situated in the center of a series of health care and regulatory practices performed or overseen by medical professionals. In addition to providing medical and surgical care, the hospital physicians were responsible for deciding on the granting of economic aid and its duration, eligibility for "healing" work days, rotation of workers from dangerous workplaces to less harmful sites, or the need to slow down productive activity. Second, the hospital in Almadén was conceived from its inception as a place of patients and physicians. The selective nature of patient access –in this case linked to their real or potential contribution to the workforce of the mines–, the permanent presence of health professionals and the linking of the medical, surgical and general care administered at the hospital with achievement of early recovery of patient health levels compatible with their return to work are traits that illustrate a considerable level of medicalización (KEEL, Othmar, 1985) (VALENZUELA CANDELARIO, José and Esteban Rodríguez Ocaña, 1993). Traits that separate the hospital in Almadén from other traditional care centers linked to productive areas.

The evolution of the health care facility over the 19th century reinforced its utilitarian orientation. After the War of Independence and emancipation of the American republics, the miners' hospital and the resources devoted to health care purposes experienced a continuous recession. The consolidation of autonomous demographic growth of the population of Almadén from the second decade of the 19th century, the increase in productivity from the introduction of a new system of working the deposits, and the transformation of the international mercury market –due to both the inrush of mercury from the Californian mines and independence of the colonies–, were determining factors in the transformation of the labor panorama in the mines.

In the mid-19th century, and the first time since the beginning of large-

[4] See, for example, the mention made by IMHOF, Arthur E. The hospital in the 18th Century: For Whom? The Charite Hospital in Berlin, the Navy Hospital in Copenhagen, the Kongsberg Hospital in Norway. *In:* Branca, P. (ed.), *The Medicine Show. Patients, Physicians and the Perplexities of the Health Revolution in Modern Society, New York, Science History Publications, 1977*, pp. 141-163, to the functions carried out by the hospital in the city of Kongsberg (Norway) in the 18th century.

scale exploitation, the mines experienced the problem of a relative surplus of labor, a situation diametrically opposed to that which had driven the development of the health care system. In addition to loss of part of the tasks entrusted to the hospital in the health conservation strategy of the mines, there was a decline in the number of miners affected by mercury poisoning. The introduction of work sharing measures to ensure a minimum income to all miners in the oversized mine workforce reduced the periods that each miner was exposed to the toxic environment. A logical consequence of this lower exposure was a reduction in occupational illness rates and in the demand of hospital care for this type of illness. In the last third of the 19th century, the hospital was converted into an asylum, with most of its rooms being occupied by incurable miners.

Birth of the hispanic nosographic tradition

As I previously noted, the growing presence of physicians and surgeons at productive centers of Old Regime fostered their close contact with the living and working conditions of certain occupational groups. Many of these professionals applied the "new viewpoint" postulated by Ramazzini to the health reality around them, leaving us descriptions of extraordinary medical and social value. In the case of Spain, Almadén mine was the site that generated the first and most significant original medical contributions on occupational health. Francisco López de Arévalo (d. 1765), a physician at the mines from the early 1730s to 1761, sent a letter in June 1755 with a description of illness suffered by the Almadén miners to the French physician François Thiéry (b. 1719), a text that was finally published in 1791 (LOPEZ DE AREBALO, F , 1791) (LÓPEZ PIÑERO, J. Mª, 1964). Of much greater significance is the contribution made by José Parés y Franqués (1720-1798), who succeeded López de Arévalo in the post and served in it until his death in 1798, and who left an impressive unpublished work on the diseases of the Almadén miners.

In early 1770, Parés was commissioned by the General Superintendence of Quicksilver, the official body responsible for management of the mining establishment, to prepare a medical text that would help to improve knowledge and treatment of the occupational disease of the Almadén miners and simplify the task of future physicians of the hospital. Around 1778, Parés completed the commission by concluding the writing of *Catastrophic Illness of the Mercury Mines of Almadén. History of the harmfulness of these Royal Mines for the health of their workers, and presentation of the bodily and medical-moral diseases of their miners, with their respective cures.* This is the first and most ambitious work in the Hispanic world to apply the work program systematized by Ramazzini. In addition to the enormous nosographic task of describing 17 diseases considered specific to work in the mercury mines, his familiarity with the productive process and the complex social and labor structure of the mines, make *Catastrophic Illness* a testimony of outstanding value and originality and undoubtedly the most complete expression in the Spanish language in the 18th century on the economic value of health in the preindustrial world.

The sinister panorama of the living and working conditions of the miners provided by Parés in his text made it go beyond its status as a medical study to become a politically committed document. The intention guiding the Catalan physician in showing the "catastrophe", or constellation of evils, in which the miners lived, was not, in my opinion, to denounce these conditions; on the contrary, Parés appealed in his account to the compassion of the sovereign in an attempt to justify and increase the

health funds assigned to the mines for the recovery of workers and their families. Whatever the case may be, the persons responsible in the Royal Treasury did not consider it appropriate to print the work, which has remained unpublished until the present day[27]. I believe I can state that if *Catastrophic Illness* had been printed in its time, it would have become a classic reference work and would have nurtured a much more empirical approach to the study of occupational risks in our country.

The work of Parés work summarizes a large part of the arguments that I have put forward in this presentation. In an original and specific manner, Parés conceived loss of health as a reduction in productive capacity and understood that the priority functions of medical science and health care facilities should be to preserve levels of health compatible with prolonged employment in the mines or the recovery of this capacity once it was lost. Occupational risks were perceived in the medical work of Parés as "natural", i.e., inherent to productive activity and therefore inevitable. This perception was largely a consequence of the prevailing conception of the productive order as immutable under the Old Regime. A consideration that can also be extended to the political and social order.

The perception of risks as natural entailed a permanent absence of criticism of the productive process. The title of the work itself, *Catastrophic Illness,* points out the inevitable nature of the high levels of morbidity among the workforce as a result of the mining of mercury. Such a "collection of misfortunes" was thus the undesirable but necessary effect of a productive process determined by the nature of mercury itself and the richness of the deposits, excluding from causal consideration the decisions on levels of production or work paces, social determinants –as we know well today– of the risk levels taken by workers. The same could be said about accidents, conceived in the period and in the work of Parés as "misfortunes".

In contrast to the prevailing perception of risks as natural, Parés underscored the role of health intervention as a key instrument in the service of the requirements of the labor market of the mines. An intervention justified by the rhetoric of enlightened paternalism as it provided the scenario from which the monarch could exercise tutelage over his subjects. In the dedication of *Catastrophic Illness* to King Charles III, Parés stated:

"A most notable endeavor that of Your Royal Majesty and that of Nature! Hers in cruelly shortening within these subterranean caverns of cinnabar the days of labor of the miners, and Your Loving Power in healing their ailments and prolonging their lives" (pp. 1-2).

Finally, the medical work of Parés incorporated in a novel way a regulatory function to model the living habits and behaviors of the miners to the requirements of the productive system. For this purpose, Parés medicalized the behaviors of workers considered morally or socially undesirable. In other words, he converted them into morbid entities, the so-called medical-moral diseases, addressed in the second treatise of *Catastrophic Illness*. Thus, the "sensuality of the miners" –understood as increased sexual activity– "vanity", –or excessive desire of self-praise–, and "gluttony", –or excessive appetite–, were converted by Parés into diseases with a recognized cause, the same as tremor or salivation from the inhalation of mercury particles. The loss of physical vigor of the workers or even their death as a result of excessive lustfulness; the disdain for precaution or extravagant spending tied to vanity; or the immoderate consumption of inappropriate foods caused by gluttony, were behaviors not only contrary to Christian morality, but also to the social and productive order in force at the mines.

Far from appealing to temperance of character and moderation in ingestion, traditional proposals of classical dietetics, Parés applied to his therapeutic proposals an unequivocal moralizing stamp: continence, humility, submission, patience, and so on, in short, subjection to the divine will and to the service of the king. In this area, the work of Parés brilliantly points out one of the key functions performed by 19th century hygienic literature: to moralize the working classes as the basis for forming a productive, obedient and healthy workforce shaped to the requirements of the new industrial society.

Almadén continued to hold its fascination for both local and foreign industrial hygienists throughout the contemporary period. The introduction of so-called laboratory medicine in the second half of the 19th century led to the elaboration of the first pathophysiological studies on mercury poisoning in our country. The growing number of labor conflicts registered in the mines at the beginning of the 20th century brought the health arguments back to the forefront of debate, providing some exceptional examples of the growing instrumental use of expert knowledge to settle social conflicts.

By way of an epilogue

Nowadays we tend to consider it "natural" that knowledge and care of health and illness is the competency of the health professions. However, the consolidation of this doctrinal and practical monopoly is the result of historic circumstances that were socially and culturally determined. The special features that came together at Almadén throughout the modern period –from the unhealthiness of its productive process to its economic importance in the context of colonial domination–, contributed to it becoming the ideal setting for the introduction and flowering of medicine in the preindustrial working world. It is not difficult to trace back to Almadén the origin of some of the practices that still persist today in the practice of occupational medicine in productive and geographical settings remote from mercury mining.

Idrija: exchange of knowledge

Not only trading routes, know-how and discoveries that changed the thinking in numerous areas also made their way around the world from Idrija. The same routes that were used for exports of mercury were also taken for the delivery of the essential goods to the town: salt, wheat and other produce and products that were needed by the rapidly growing town. The routes were also used by new settlers, who arrived to work in the mine, but also included mining experts, scientists and scholars, the latter drawn to Idrija by the exceptional nature and rarity of the ore deposit. These scientists helped shape the history of individual branches of science and the importance of the mine was instrumental in establishing schools that led to intercultural dialogue and exchange of know-how between the various regions. The development and transfer of know-how was throughout history promoted by the Viennese court. The same routes used by mercury were also the trade routes for Idrijan lace, created by miners' wives from the 17th century onwards.

The development of natural sciences in Idrija traces its roots in the 16th century, but the first major name to arrive to the town is Joannes Antonius Scopoli (1723–1788), a polymath of global importance, a pioneer of European medicine at the work place and a major name in the fields of botany, geology, mineralogy, chemistry, etc. Scopoli was employed as Idrija's first doctor between 1754 and 1769 and his bibliography encompasses some 30 books from the area of natural sciences. He is remembered as the discoverer of several geni and spe-

cies, including the Proteus Sanguinus (a new genus and one endemitic to the dinaride carst), the dormouse. He also provided the first descriptions of numerous species of insects, funghi and lichens among others.

His work was also held in high esteem by the self-titled Swedish botanist "princeps botanicorum mundi" Carl von Linne (1707 – 1778) with whom Scopoli maintained a lively correspondence during his 15-year stay in Idrija between 1760 and 1775. Scopoli wrote his best-known works in Idrija, including a book on Idrija mercury titled De Hydrargyro Idriensi. He also wrote the Tentamina Physico-Chimico-Medica, printed in Venice in 1761. The book contains three treatises in Latin, the first is dedicated to Idrija's land products, mercury ores and mercury and the second to mineral Epsomite (vitriol) and the third to mercury disease - mercurialismus, the poisoning of Idrija miners by mercury vapours. Scopoli is also revered as the originator of inorganic chemistry in Slovenia, mainly because he served between 1763 and 1769 as a lecturer at the higher education institution for chemistry and metallurgy in Idrija – considered the cradle of Slovenian chemistry.

Another famous person to live in Idrija between 1766 and 1773, partly because of the exceptional nature of the ore deposit and partly because of the glory of his predecessor as the doctor, was the surgeon, doctor and world-class naturalist Balthasar Hacquet (1739-1815). Some 60 of his works have been preserved on various naturalist, medical, veterinary and ethnographic subjects. Hacquet was an all-round researcher of the Eastern Alps, Carpathians and the Dinaric mountains. One of his major works is the 1782 "Plantae alpinae Carniolicae" (Alpine plants of Carniola), in which he described numerous



002 086
MEMORIAL PLAQUE, DEDICATED TO THE COOPERATION OF THE TWO GREAT SCIENTISTS OF THE TIME, JOANNES ANTONIUS SCOPOLI AND CARL VON LINNÉ

previously unknown plants. He was also the first to point to the importance of rock-type for the spread of plants (1780). The genus Hacquetia was named after him. Also important are his contributions to the Idrija ore deposit, its caverns and structure. He was an adept observer of nature and a talented researcher with an extensive knowledge of geology, mineralogy, chemistry and botany. While historic sources often underestimate his contribution to the development of chemistry in Slovenia, his main mer-



002 087
PORTRAIT OF BALTHASAR HACQUET,
THE MINE'S DOCTOR
BETWEEN 1766 AND 1773

its lie in stressing the importance of chemistry as the founding science for the all natural sciences, technology and medicine. He was a pronounced member of the Enlightenment movement, a man of the world and a critical scientist who contributed importantly to the development of natural sciences in Slovenia and spread knowledge about Slovenia, its inhabitants and customs.

He was not the last major figure linked to Idrija to have left his mark on the international development of science: Pedagogue, botanist and researcher Franc Hladnik (1773-1884), taught H. Freyer, S. Graf, M. Tommasini, A. Felischmann; Henrik Freyer (1802-1866), a renowned European researcher (both Hladnik and Freyer have plants and animals named after them); Georg Dolliner (1794-1872), the mine's surgeon and botanist, renowned throughout Europe. Naturalists Karel Dežman (1821-1889) and Julij Glowacki (1846-1915) were meanwhile born in Idrija.

Scientists from other branches also left their mark on Idrija, as geology was one of the most important subjects for the development of the mine, it is not surprising that the likes of Scopoli and Hacquet were followed by other important names. One person to push the boundaries of geology further was the mine's administrator Marko Vincenc Lipold. His surveyor's map that has maintained its value until today, won special recognition at the 1873 Vienna Great Exhibition.

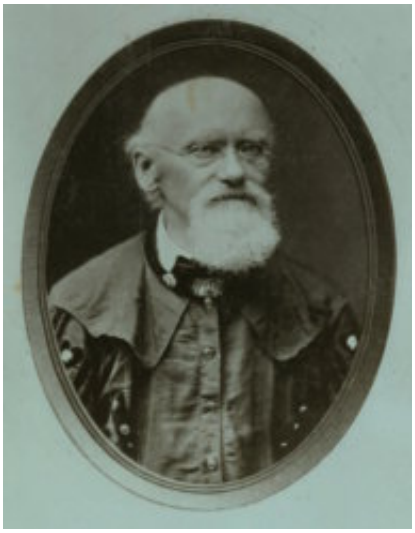
Numerous other important surveyors, metallurgist, chemists and mineralogists studied the geology of Idrija and its mine, the mine's age and formation, cinnabar ores and minerals. These include: Franz Kossmat (extensive treatises on the Idrija ore deposit) and Josef Kropáč (excellent manual to aid miners in their search for rich ores, used until 1957).

At the end of the 1950s and early 1960s, Idrija became home to the world/renowned "Idrija School of Geology". Its best-known representative is Ivan Mlakar, who made a detailed map of the entire mine and the wider Idrija region. Mlakar's work was continued and amended by: Jože Čar, Ladislav Placer, Franci Čadež, Matija Drovenik and Jošt Valentin Lavrič. Some 400 treatises and articles have been produced so far on the mineralogical, mining, metallurgical and chemical aspects of the mine, published both in Slovenia and abroad.

The 1960s, 1970s and 1980s saw the Idrija mine introduce numerous innovations and machines that raised the output of the ore from 120,000 tonnes in 1960 to 280,000 tonnes in 1968, as well as increase the scope of prospecting. Important new features included wet drilling, mechanised loading (rail loaders and autoloaders on rubber wheels) and backfilling (pots, blowing machines) and battery-powered cave lights. The drift mining method and the new sublevel method were also introduced in the period. The expansion of the mine's rail network also brought with it new carts, while its pumping stations and compressor were also increased in capacity. The introduction of modified and completely new protective gear for miners in the parts of the mine with increased levels of mercury vapours was also introduced at this time.

The development of the new sublevel mining method was the product of research by Uroš Bajželj, who also held numerous presentations on the problems of mercury ore mining and published numerous articles, both alone and in cooperation with coworkers.

Experts from Idrija in the area of forestry also maintained links with numerous forestry centres throughout Europe, promoting better, sustainable and planned management with this important natural good.



002 088
MARKO VINCENC LIPOLD, THE FIRST SLOVENIAN GEOLOGIST AND THE MINE'S DIRECTOR BETWEEN 1867 AND 1883



002 107
THE MEMBERS OF THE GENERAL CONSUMER SOCIETY HAD STRINGENT RULES. THEY ALSO MINTED THEIR OWN MONEY

Health and Social Security of Idrija Miners

The exceptional importance of the Idrija mine for the development of health and social security in Slovenia is shown in three areas. The first forms of organised health and social care of workers in the Slovenian lands appeared in Idrija; the grounds for occupational medicine were created here in a bid to prevent job-related illnesses. Numerous physicians, who have not only proven themselves extremely professionally capable but also gained recognition around the world, were employed in the mine in the past.

From 1575 the Idrija mine was owned and run by the Habsburgs. There was next to no health care and social security in the 16th century. The mine's administrators generally paid remittance to disabled miners and widows of miners, but there was no regulations governing this and the payments were not steady. Miners had to pay the mine physicians and barber surgeons, which records show operated in Idrija already in the 16th century, from their own pockets.

In 1709, the Idrija mine hired a barber surgeon who was paid from the public treasury. The barber surgeon had to provide free treatment to sick and injured miners, keep a record of patients and give miners free shaves.

In 1718 the authorities introduced alimony for widows and orphans, and in 1736 sick pay was introduced. Regulations from 1763 show that no regular pensions existed at the time. They would be introduced in 1783.

A schooled physician was hired in 1754 to treat miners along with the barber surgeon. Also established at this time was a pharmacy, while family members of miners were also given free health care. The majority of the health care costs were paid for from the brotherhood treasury. In 1777 a special financial department was opened at the mine for this purpose.

By the end of the 18th century, Idrija had 3,600 inhabitants, who had access to two doctors - one barber-surgeon and one physician. The town also had one pharmacist and a laboratory worker, as well as three midwives.

By this time almost all workers at the Idrija mine had health and social insurance. Workers on sick leave for longer than six weeks were also given a special allowance from the brotherhood treasury. Miners with more than eight years of service were entitled to a pension in case of disability, while pensions were also paid out to widows and orphaned children. The brotherhood treasury also began to pay for a part of the costs for treatment in health spas upon a doctor's referral and with the consent of the management. The mine also paid wet nurses for mothers unable to breastfeed, covered funeral costs for miners killed on the job and insured the cattle of miners. The miners could also get low-interest loans, while charity was give to those was found themselves in financial difficulties. At that time, Idrija undoubtedly led the way in health and social care for workers in the Slovenian lands.

But the mine's good fortunes would turn early in the 19th century. The recession that began in 1813 resulted in numerous job cuts. Health and social care was also curbed.

Idrijan miners had it tough in the first half of the 19th century. Their wages were cut, while many of them were hired only part-time and not given pension insurance. Moreover, health conditions in Idrija deteriorated in the 19th century: the mortality rate was higher than elsewhere and tuberculosis was rife. But things would improve at the end of the century. The mine began to build blocks of flats for its workers. Investment in the municipal water system and sew-

age at the end of the 19th century also helped bring down the number of typhus infections.

In 1891 a law was introduce on brotherhood treasuries, which required that they take up full health and pension insurance for workers. The mine did not have to make much adjustment for the new law, as its budget had already been paying for most of these costs. The contribution fee of the miner's to the brotherhood treasury remained unchanged at 3% of wages.

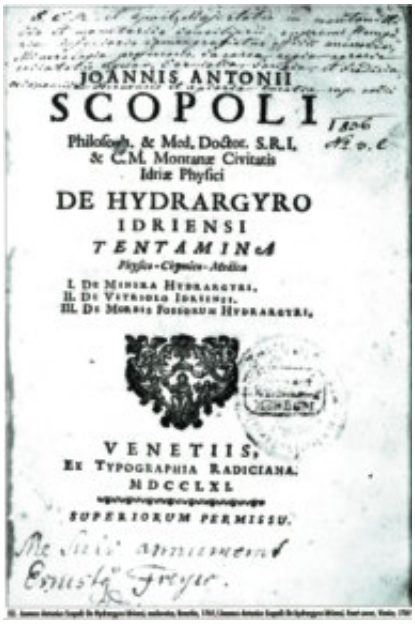
Mercury exposure was a major issue throughout the history of the mine. This was a problem both in the smelting plant as well as in the mine itself, as native mercury in the schist would evaporate at air temperature. Reports on mercury exposure date back to as far back at the 16th and 17th centuries. The disease was studied intensively both by Gorizia physician Mattioli and Slovenian polymath Janez Vajkard Valvasor. The frequency and potency of mercury exposure was caused by the working conditions in the smelter and the mine, as well as extraordinary circumstances, including a number of large mine fires. Malnutrition and excessive alcohol consumption among miners only added to the body's inability to fight of the deadly effects of mercury exposure. The Idrija mine began to attend to the problem very early on, introducing various equipment and practices aimed at reducing the miners' exposure to mercury vapour. Mattioli wrote that workers were equipped with animal bladders, which were used as masks, in the smelting plant. In emptying the furnace retorts, the workers wore cloth masks. In the 17th century, sweat baths began to be used as a treatment for chronic mercury exposure, while rotations of miners in the most exposed jobs were instituted.

The first scientific evidence of mercury exposure in Idrijan miners and description of treatment was described by physician J. A. Scopoli in the book "De Hydrargyro Idriensi« (1761).

The third section of the book describes both main symptoms of mercury exposure: inflammation of the mucous membranes in the mouth coupled with increased salivation, and tremor in the limbs. The medical profession did not have any effective cure for mercury exposure at the time. Scopoli came up with a number of useful hygienic guidelines and other recommendations for preventing exposure. He suggested that miners suffering from mercury exposure should abstain from alcohol and take sweat baths, while he also recommended to the supervisors that miners be taken off the job as soon as they began showing signs of the disease. He also suggested to the mine's administrators that the most exposed jobs should be operated in rotations shorter than eight hours at a time.

In the mid-19th century, European doctors began to show greater interest in the effects of mercury on the human body. This was prompted mostly by the fact that mercury was widely used as a cure for syphilis. Idrijan mine physician Dr Gerbec was involved extensively in the treatment of miners who fell sick from mercury exposure and his findings were published in 1873 by Dr J. Hammerschmied in his book on the occupational diseases of miners, smelters, salt workers and forestry workers. Dr Gerbec used potassium iodide to treat mercury exposure, but he was not happy with the results. He rightfully claimed that the best treatment for mercury poisoning was lengthy spells in the fresh air, while he also recommended sweat baths, frequent rotations of workers in the smelting mill and wholesome food.

Other doctors in Idrija also wrote about the subject: in 1886 Dr J. Baaz wrote a paper on mercury exposure in the Wiener Medizinche Presse and


JOANNIS ANTONII
SCOPOLI
Philosoph. & Med. Doctor. S.R.I.
& C.M. Montanæ Civitatis
Idriæ Physici
DE HYDRARGYRO
IDRIENSI
TENTAMINA
Physico-Chymico-Medica
I. De Mineræ Hydrargyri.
II. De Vitriolo Idriensi.
III. De Morbis Fossilium Hydrargyri.
VENETIIS,
Ex Typographia Radiciana.
MDCCLXL
SUPERIORUM PERMISSU.

002 093
THE FIRST SCIENTIFIC DESCRIPTION OF MERCURIALISM AND THE METHODS FOR ITS TREATMENT IN THE BOOK "DE HYDRARGYRO IDRIENSI"



002 094
IONISATION OF MINERS, A PROTECTIVE MEASURE AGAINST MERCURY POISONING, THE FIRST HALF OF THE 20TH CENTURY

002 095
THE PROTECTIVE RACAL HELMET FOR WORKERS IN IDRIJA MERCURY MINE, AFTER 1980

in 1950 the issue was examined by Dr I. Hribernik in the Arhiv za higijena rada.

A new disease appeared with the onset of compressed-air drilling in 1916: silicosis. Wet drilling would begin to be used in 1968, which was also the time that a special working group and laboratory were established. The mine's ambulance for occupational medicine was headed between 1965 and 2004 by Dr Alfred Kobal, who investigated extensively mercury intoxications. From 1975 onwards no cases of mercury exposure were registered, nor were there any cases of silicosis.

A number of measures were in place at the time to protect miners: monitoring of mercury concentrations in the mine, technical measures for reducing the emissions of mercury vapours in the mine, protective gear, a shortened working day, frequent rotations, exposure monitoring and regular checkups of miners.

Among all the physicians who worked in Idrija, the most famous in all respects was scientist Dr Joannes Antonius Scopoli, who was best known for being a botanist, but who was versed in entomology, chemistry, mineralogy and metallurgy. He worked in Idrija between 1745 and 1769 and later became a professor at the mining academy in Schemnitz and a chemistry and botany professor at Padua University.

Scopoli was succeeded by Baltazar Hacquet, who worked as the mine physician from 1766 to 1773. He was also a scientist versed in a number of fields and was credited with numerous works related to human and veterinary medicine as well as scientific papers on mineralogy, botany, entomology and national heritage.



Hacquet wrote the scientific book Oryctographia Carniolica, an extensive account of Idrija and its mine. He left Idrija to become a professor at the hospital college in Ljubljana, where he would teach surgery. Later, he moved to Krakow, where he was a professor of sciences.

The Idrija pharmacy was run between 1754 and 1795 by Ernest Freyer, who was a well-known botanist. He was succeeded in the job by his son, Karel, who was also a botanist. Karl's son Henrik, who helped his father at the pharmacy in 1826-1827, would go on to become a botanist, cartographer, geologist and palaeontologist.

Hacquet was succeeded as the mine physician by Franc Klopstein, who served between 1773 and 1776. Prior to coming to Idrija, Klopstein was a professor at the hospital college in Ljubljana and was considered an expert in medicine. The same can be said for Dr Janez Mihael Sergej, who was the mine physician between 1794 and 1797. Sergej, who also taught at the hospital college in Ljubljana, was the first Idrijan physician to hold a doctorate.

Meanwhile, Dr Jozef Ignac Fantom von Brunn, who was a part-time assistant doctor in Idrija from 1788 and then a full-time physician between 1792 and 1795, was previously an animal doctor in Ljubljana and had in 1784 adapted Wolstein's book on animal diseases for publication in Slovenian.

Anton Makovic, a respected obstetrician, worked as the main physician in Idrija between 1798 and 1802. Before that he was a lecturer of obstetrics and held courses for midwives in Ljubljana. He had in 1782 adapted a German manual for midwives, while in 1788 he published a textbook for midwives. He was a member of the Slovenian national revival at the end of the 18th century and early 19th century and a member of the Academica Operosorum scholar association in Ljubljana. Makovic's successor was Dr Franc Melzer, who served from 1802 to 1805 and later became a professor of surgery at the Ljubljana hospital college.

Dr Blaz Hafner served two stints as a physician in Idrija, first between 1792 and 1810 and then between 1815 and 1833. He was a staunch advocate of smallpox vaccinations, making them mandatory in Idrija. Juri Dolinar became the chief Idrijan physicians in 1846, staying on in the post until his retirement in 1867. He was a respected botanist and a member of several foreign scholar associations and the author of a comprehensive book on botany.

Dr Ludvik Gerbec, whose activities in searching for ways to prevent mercury exposure have already been covered, held the post of physician in Idrija between 1833 and 1835 and then again from 1836 to 1874. Hammerschmied described Gerbec as a »top authority« on mercury exposure of the time. Gerbec kept meticulous records of his observations and he was honoured for his work with the honorary title of the Emperor's Adviser.

Education

The Idrija mine administrators wrote in a report in 1795: *»The miners are poor, but they willingly and at their own behest support the school fund for the benefit of their children."*

This quote is a short but telling testament to the reason that Idrijan schools hold a special place in the development of the Slovenian education system and were also considered a model for the whole of Central Europe. The 500-year history of education in Idrija is firm proof that a successful school system requires not only money and a regulatory basis, but support from the local society and an appreciation for the importance of knowledge.

Two factors in particular played a crucial role in shaping Idrija and schools in the town. Both propagated the desire for greater general knowledge and in entrenching the theoretic and practical training of the young as a core value. Firstly, the Mercury Mine Idrija had close contacts with the developed world. It strived throughout to be at the cutting-edge of mining methods and metallurgy, courting renowned international experts, promoting the development of science and a general outlook as well demanding ingenuity and creativity from its miners and forestry workers. Secondly, the town's lie in a small, remote valley squeezed between two great mountain chains constantly revived in the conscience of the townsfolk the desire and need for intellectual growth.

Miners in Idrija had throughout history been staunchly inclined to schools of all kinds. They supported -both in principle and with deeds- secondary, vocational and other kinds of education institutions. They were aware that knowledge was the sure way out of backwardness and that the schooling of children was the best investment for the future. There are countless examples in Idrija's history of the townspeople standing up to the overly bureaucratic and rigid state education legislation to set up and maintain their own schools. The establishment of education institutions and the building of schools in Idrija were unanimously supported by workers and administrators, merchants and tradespersons, famous townspeople and scholars as well as representatives of the state and Church. This has resulted in a school tradition lasting continuously for almost 500 years, boasting diverse programmes, an intimate understanding of the needs of the town and its people, a functioning system of state and private financing, excellent teaching methods and diverse extra-curricular activities. In turn Idrijan schools have throughout history gained national or even international recognition and have attracted excellent staff, who had obtained training at seminars in various corners of the Habsburg Empire.

The first teachers in Idrija - whose services and accommodation were paid by the miners – worked in the 16th century. A well-known case in 1579-1580 saw a teacher writing complaints on behalf of the miners against exploitation in their jobs, which led to serious sanctions for the teacher. The administrators and staff at the mine came under the strong influence of Protestantism at the end of the 16th century. The Protestants brought about modernisation at the mine as well as the creation of a state school that provided lessons in reading, writing, arithmetic, singing and religious education. The school remained even after the victory of anti-Reformists, but was subject to Catholic influence instead. Not even recession, poverty and war, all constant features of 17th and 18th century Idrija, could bring about the demise of basic primary education in Idrija.

Primary education in Idrija made an important leap following the adoption in 1774 of state education legislation by Empress Maria Theresa. Idrija was initially slated to have a "Trivialschule«, a very basic primary school, but the town rose up against the plan and managed to secure a "Hauptschule", which boasted a much enhanced programme lasting three years. The Idrija Main School soon gained wide prominence – at the end of the 18th century, education inspectors declared it the best school in Carniola. Along with regular classes, the school held additional drawing and music lessons and staged professional seminars for teachers from nearby rural schools. Education for girls was also taken care of by the town. In as early as 1779, an »industrial school« was established, boasting special departments that provided girls with training in darning, sowing, knitting, crocheting and lace - making. The products made by the girls would in turn be sold at public auctions to raise funds for the Mine's School Fund.

Primary education in Idrija evolved throughout the 19th century and all until the First World War. Boys and girls were given a fairly comprehensive primary school education, especially after a mixed primary school was established in 1869, allowing them to progress to vocational schools or even secondary schools located outside of Idrija. An important development for education in Idrija was the construction in 1876 of a mighty school building, which was wholly funded by the mine. The building, which is still the pride of the town, housed the primary school, but is now used by cultural institutions and the town's internationally-acclaimed lace-making school.

However, the ambitions of the inhabitants of Idrija would soon surpass that of having only a primary school. Nearly 200 years of campaigning, at times feverish, for a state-endorsed secondary school would eventually pay off. The Idrijan authorities had as early as 1716 sent a request to Vienna for the opening of two grammar school grades, but to no avail. As the bureaucrats in Vienna continued to stifle efforts for official approval of a high school, the town took a near revolutionary decision – it set up private secondary school departments on its own. These were running from 1784 to 1797 and in the first half of the 19th century and included the first two years of "Latin" grades, which enabled the students to progress on to higher grades in grammar schools in Ljubljana and Gorizia.

When in 1848 secondary schools for natural sciences joined grammar schools in the Austrian secondary education system, the people in Idrija requested that two grades be set-up in their town. Again, they were turned down. The education workers in Idrija had more success in establishing and running between 1852 and 1866

a one-year school for teachers. Over 200 candidates for teaching positions in rural schools were enrolled at the school over the 14 years. Among them were six women, who attended courses even though the law forbade it. The women had to pass a special exam in front of a strict commission in order to become the first secular women teachers in Carniola.

The long-running efforts to secure a secondary school would reach their peak in the early 20th century. The diplomatic efforts and significant inpourings of funds resulted in a breakthrough in 1901, when the first Slovenian secondary school for natural sciences was opened in Idrija. Only two years later the school would get a large, modern building. The Idrija Secondary School of Natural Sciences was the first secondary school in the Slovenian territories where Slovenian took over from Germany as the teaching language. Over the 25 years, the Idrijan Secondary School of Natural Sciences was attended by over 1000 pupils from all across Austrian-ruled Slovenian lands. Over 400 graduates from the school would go on to study abroad, while many Slovenian scholars of the time got their secondary education there. The fact that as many as a third of the teachers at the school held doctorate degrees testifies to the quality of the teaching. The Idrijan Secondary School of Natural Sciences was the only Slovenian secondary school to keep operating under Italian rule after the First World War. But even it was forced to shut down by the Fascist authorities.

An important chapter in the history of education in Idrija belongs to vocational education, which was closely connected to the town's mining tradition. The beginnings of vocational education in Idrija are directly related to efforts to increase the mine's output. Operating a globally-renowned mine - the second biggest mercury mine in the world – created a large demand for skilled workers. Even experts arriving from abroad to work in Idrija could not meet all the demand for skilled workers, which is why locals were given many opportunities to advance.

Vocational schools in Idrija were set up by mine administrator Franc Anton Steinberg (1684-1765), a respected engineer and cartographer, during the transformation to a secular system. In 1728 Steinberg set up the first vocational technical, surveying and cartography school in Slovenia.

One of the students was the all-around talent Jožef Mrak (1709-1786), who would go on to make a name for himself by constructing the mighty klavže water barriers on the Idrijca and Belca creeks. Mrak worked at the mine for over 40 years, in which time he perfected Steinberg's project of surveying and mapping the mine. As part of this project, he drew several fine plans and sketches of underground and surface infrastructure and facilities. As a sketcher and engineer, Mrak worked in various parts of the Habsburg monarchy. Many of his exquisite maps and drawings are stored in the Aulic Chamber Archives in Vienna. Mrak was in 1752 made by royal decree a teacher of surveying, geometry and sketching at the Idrija Vocational School of Mining.

Empress Maria Theresa issued in 1763 a decree establishing a school of minerals, metallurgy and chemistry in Idrija, similar to that in Banska Stiavnica in Slovakia. Respected scientist and Idrija's first physician Joannes Antonius Scopoli (1723-1788) was appointed the senior professor. He taught both local and foreign students. This was the first time in history that chemistry was made a standalone subject. Scopoli was assisted at the school by Mrak, who was in charge of practical work in mine surveying and cartography. The school ran for six years, before Scopoli was named in 1769 a professor at the Mining Academy in Banska Stiavnica. It should be mentioned that Idrija and Banska Stiavnica – both being im-



002 099
J. MRAK, A DISCIPLE OF STEINBERG AND A TEACHER OF DRAWING AT THE MINE SURVEYING SCHOOL

portant European mining hubs—had for many years worked closely in a number of fields, exchanging experience and experts

Evidence also exists indicating that the mine surveying and cartography school in Idrija was also active in later periods, offering other vocational programmes as well. Here it must be emphasised that the vocational schools in Idrija in the 18th century played an important role in Central European cartography and cultural history and that their legacy is by all rights an important element of world cultural heritage.

Closely linked with the development of mining activities in Idrija was the growth of forestry, since the mine required large quantities of wood for its operations and maintenance. This required the introduction of sustainable forestry methods in the woods around Idrija. It was not by chance that the Imperial ministry of education established in Idrija in 1892 a forestry school, which was attended for nearly 16 years by pupils from Carniola, the Littoral region, Carinthia,Styria, Upper and Lower Austria, the Czech territories, Moravia, Hungary, Galicia, Istria and Dalmatia. The course lasted eleven months and was led by the chief administrator of forestry and agriculture in the Idrijan forestry district. The study schedule included 42 hours of lessons a week. Established as a boarding school, the institution had a strict code of conduct. Following the completion of studies, graduates had to undergo three years of compulsory work experience.

2.b. 2. Specific historical background of Almadén

The first mining resources of the area were the mineral pigments used in the numerous rock paintings, probably from the Chalcolithic period, which appear in the sheltered areas of the local quartzite mountains (e.g., Virgen del Castillo).

Theophrastus of Ephesus (372-285 BC), the favorite student of Aristotle, described the estimated amount of cinnabar obtained from the Spanish mines, which implies that mining of this mineral is at least 2,300 years old. Celio Rodriguino noted that exploitation of the Almadén mine began with the First Punic Wars (264-241 BC), but, as we have seen, it was actually earlier. (PUCHE RIART, Octavio, 2006)

The most complete, detailed and wide-ranging study of these cave paintings was that by Alfonso Caballero Klink in 1983. It allowed the cataloguing of a good number of painting sites and deposits in the mountains of Aznarón, Virgen del Castillo and Cordoneros, and it is the only summary archaeological background study of the district's Prehistory. (HEVIA, Patricia and Germán ESTEBAN, 2006)

The mercury and vermilion of Almadén were well-known to its earliest inhabitants, even before the arrival of the Romans on the Iberian peninsula, and they were key elements in the trade of metals between the inhabitants of the Sierra Morena mountains and the peoples of the Mediterranean.

Spanish vermilion travelled over the natural paths opened since time immemorial through the foothills of Sierra Morena until it reached the ports of the Mediterranean (Cádiz, Málaga, and others), where it was shipped off to the middle east for use mainly in dyes and paints. These roads were soon to be used by the

Romans and would serve as the vehicle for connecting the plateau with Southern Spain.

Roman times

With the arrival of the Romans, these paths achieved their greatest growth and the region of Almadén, because of its mining wealth and its strategic position south-east of Ciudad Real, became one of the most important communication hubs for the Iberian Peninsula with roads that passed through the town linking the main centres of the day: Mérida, Córdoba, Seville, Zaragoza, Cartagena (MANSILLA, LUIS, 2006-c). The richest ores were sent to Rome for purification by crushing and washing. Mining activities involved open-cast operations in the form of trenches or gullies and small, shallow pits.

The ore deposit was the property of the Emperor, kept under lock and key, and it was protected, as was the custom in Roman times, by a military garrison. It was not operated on a continuous basis and was only "opened" for operation when the pertinent orders arrived from Rome. This system probably remained until the fall of the Roman Empire, when a period of 300 years began during which there is a lack of documented information, although it is assumed that operations must have continued from time to time. (MINAS DE ALMADÉN Y ARRAYANES S. A., 2007)

On their arrival on the Iberian Peninsula, the Romans revived the operations at the mines that were already known previously and carried out prospecting to locate additional ore deposits *(metalla)*. For these tasks, they took into account the colouring of the soil or gas emanations and paid careful attention to the rivers and their springs, techniques that have been used until very recent times (modern geochemistry). In their search for ore, they also used more costly methods such as the digging of prospection shafts *(ternagi)* which indicates the degree of interest and the systematic nature of the Romans search. Once the vein was located, the most common system for working it underground was the "shafts and galleries" method. A shaft was dug down to a certain depth and from its bottom the different galleries spread out to seek the richest veins in order to expend the least effort and achieve the greatest profit.

The galleries were generally quite narrow, so much so that their diameter did not, on occasions, exceed half a metre, so they had to be worked using children or dwarfs. The roofs and walls could be reinforced with wooden beams to prevent cave-ins. If the terrain were very hard, circular corridors were built to distribute the pressure without the need for wooden supports. Modern prospecting has brought to light many of these galleries, some of which still retain the marks of Roman picks on the walls or the shelves on which they placed their lamps. The depth these galleries could reach is quite considerable, almost 300 metres when the terrain conditions so allowed.

The fact that veins have been detected on the surface indicates the existence of an exploitation system using *rafas* or trenches following the line imposed by these outcrops and combining it with in-depth shafts.

For the mines to operate well, it was necessary to bear in mind a series of aspects such as access, ventilation, lighting and drainage systems to allow the best possible performance.

Access to the galleries where the ore was located, as well as exit from the mines, represented an important stage in the proceedings. For this reason the entrances into the mine had to be perfectly controlled and accessible. Different types of access have been documented in the province of Hispania:

Vertical shafts: this involves vertical excavation from which the galleries set out in different directions. Generally speaking, this kind of access was excavated directly in the terrain. Miners went down through the structures by means of ladders cut from a single piece of wood with footholds cut out in a saw tooth shape. It was also possible to descend using pulleys. A system of pulleys operated from outside was used to bring up the ore.

Sloping galleries (angled planes): when the mines were small, the vein was close to the surface or the conditions of the terrain so allowed, sloping galleries were used to provide access for pack animals, thus facilitating the extraction of the ore.

Lighting was an important issue in the mines for the proper progress of the work inside. When they were not dug too deep, it was possible to excavate a series of small shafts to allow sunlight to reach down into the deeper areas at the same time as they provided ventilation (chimneys). For deeper galleries it was essential to provide artificial light which was initially achieved with torches and cords of esparto grass impregnated in oil which were then set alight. Later on, small baked clay lamps called *lucernas* were placed on the shelves cut into the walls of the rock.

The ore was transported first by hand, and then using esparto rope baskets handed up from one miner to another until they reached the outside.

One of the major concerns of the old miners was the flooding of galleries when they dug below the water level of the surrounding terrain. In order to counteract this problem, various different techniques were used some of which were quite complex.

Sloping gallery: in this case the gallery was dug at a slight angle so that it would emerge at a level below the mine's flood level. It was necessary for the operations to be located on a slope giving on to a valley, as in the case of the mains in the district of Almadén. When the flooded galleries where too far from these channels, the water was transported manually in buckets. Containers made from woven esparto grass with vertical wooden ribs is to provide rigidity have been found in some of these mines. The inside of these baskets was coated in pitch to make them waterproof.

Hand winches: this was one of the systems most commonly used in the Mine at Almadén and which lasted for longest in history, as this was the system used throughout the Middle Ages and even during the time when the mines were operated by the Függer family. It required large leather bags to be filled with water at the bottom of the shafts where the water was conveyed by channels or by hand; these bags were then tied to a wooden winch a few metres higher up and were raised by two men to pour the water into a channel taking it to a higher level and from here following the same process until it was taken out of the mine altogether. (IRAIZOZ, José María, 2006)

Arab domination

In the 8th century (711 A.D.), Arabs began to dominate the Iberian Peninsula and once their rule was stabilized, the site became the property of the Caliphs, who operated it systematically, to the point where over a thousand people were employed in the 12th century.

Although the documentation on the Arabic period of the mine's history is relatively scant, its continuity and importance are shown by the heritage they left behind in the place names still in use: Almadén, for example, means "the mine". Many of the tools and activities developed during this period and afterwards have unmistakably Arabic roots *(alarife,*

aludel, etc.) and have been handed down to us today. Quicksilver was used by alchemists and physics in their experiments and medicinal preparations. (MINAS DE ALMADÉN y ARRAYANES S. A., 2007) (CASTILLO MARTOS, Manuel, 2006)

The Arabs continued to use the roads that already existed, and the road between Almadén and Córdoba took on strategic importance to communicate the mines in the east of Sierra Morena with Córdoba, with the quicksilver from the mines at Almadén as the key element in the expansion of these routes, as it was the Arabs who introduced into Almadén the first major metalworking technology to extract mercury, mainly due to the new uses they began to develop for the liquid metal (MANSILLA, LUIS, 2006). This is when cinnabar began to be distilled using the *xabeca* kilns to produce quicksilver for medicinal and cosmetic uses.

At the beginning of the 12th century, the region of Almadén was definitively reconquered from the Arabs and the mine was assigned, first in part and then in its entirety, to the Military Order of Calatrava, which in turn leased it for operation by Catalans and Genoese. In general, it can be said that throughout this period prior to the 16th century, the mine at Almadén was a small-scale operation, as corresponded to the mainly superficial mining activities. (ESTEBAN BORRAJO, Germán, 2006)

Modern era

The history of the Modern Age in the Almadén district is marked by the maximum importance acquired by mercury mining due to the political, social and economic circumstances of the world. During the 16th century, mercury was the key for using amalgamation to extract gold and silver from the ores mined in America, so Almadén became, from this moment on, a crucial mining and industrial centre contributing directly to the exploitation of the riches from the New World and indirectly to the expansion of the Spanish Empire in America (ESTEBAN BORRAJO, Germán, 2006).

First the "picking method" (método de hurtos) was used to extract the metal; as the name indicates this was a less than orthodox method which simply meant collecting the material from wherever it was available making irregular holes in an untidy fashion that were supported with a lot of timber as required by the stability of the sides and roofs.

During this period, in addition to the esparto torches impregnated in oil, other lighting systems were used as these caused terrible fires.

At first long, thin clay candles were used followed later by metal candles, also known as Almadén candles, lit from the oil deposited inside them. This latter model had a great impact on the world of metal mining throughout the south of Spain, and was copied in a great many mines. In fact, its existence is on record right into the 20th century.

The water was removed from the shafts through sloping galleries and also using hand-powered winches lifting *"zacas",* huge leather bags capable of transporting between 10 and 12 *arrobas* of water (an *arroba* in Castile weighed 11.5 kilogrammes). A system was established to split up the water's upward journey into segments, something like a staircase with landings approximately every ten metres or so, to make things easier for the teams of pumpers.

The tools used by miners for extracting the ore did not evolve to any great extent. They continued to use the same types as in the Roman period: hammers, wedges, iron blades and picks to break the rocks, shovels and adzes to collect them and levers for the harder areas. The ore was transported in baskets to the galleries

that had four-wheeled trolleys, which allowed up to one third of the transport expense to be saved.

The ventilation shafts at Almadén were called *resolladeros* (blowers) and were located in strategic areas of the mine to expel the dusty air from the workplaces. In order to increase the speed and the force of the air and so ensure that air reached the workface better, the "Socavón de la Mina del Pozo" and the "Socavón de la Contramina" entries were created as alleys built in rubble which opened out like funnels as they emerged from the mouths of the shaft. (IRAIZOZ, José María, 2007)

The miners of Spain's American viceroyalty required ever increasing amounts of mercury to extract silver from its ore. If during the first years orders were made in small quantities on an experimental basis, shipments from peninsular Spain would gradu-



001 061
ETCHING OF THE AMALGAMATION OF SILVER WITH MERCURY. (MARTÍNEZ COMPAÑON COLLECTION. LIBRARY OF THE ROYAL PALACE IN MADRID)

ally became more and more frequent and larger in size. The discovery of new silver mines increased the need for ore extraction and hence caused a growth in the demand for mercury over the years. These were the normal circumstances that caused the annual average expenditure to grow. During the 16th century, the Almadén mine successively delivered amounts for shipment to New Spain of 1000, 1200, and 1500 quintals annualy (HEREDIA HERRERA, .- Quoted CASTILLO MARTOS, Manuel., 2006). An adequate supply of mercury was essential for the success of the metallurgical industry and consequently for the economic system of the crown, where silver was the key element and the colonial system granted it its dual function as the main link with the exterior and as the element determining the entire productive process in the colonial area (SEMPAT ASSADOURIAN, 1983, Quoted CASTILLO MARTOS, Manuel, 2006)

Mercury was undoubtedly one of the Spanish Crown's most profitable monopolies because more than 95% of the silver produced was obtained by amalgamation. At different times, other commodities were placed under state monopoly, but none achieved the predominance of the monopoly on mercury or lasted for so long (CASTILLO MARTOS, ManueL, 2006).

In the middle of the 16th century, specifically in 1554, Bartolomé de Medina suggested to the Viceroy of New Spain, Luis de Velasco, a procedure for using amalgamation to separate gold and silver from their respective ores, and this was the origin of the mercury route between Almadén and New Spain, and the trigger for a series of linked milestones in the history of Almadén. In the same 16th century, King Charles I leased the mines at Almadén to the Függer family to try to redeem some of the debts run up with them and this fostered the introduction of numerous technical innovations originating in central Europe, including the reverberatory furnaces known as "buitrones". Furthermore, new work organization systems were introduced and led to an increase in productivity and profits (ESTEBAN BORRAJO, Germán, 2006).

The production of quicksilver increased due to an improvement in the mining operation technique and the first plans of the mine began to appear, showing a real labyrinth of shafts, tunnels, slopes and workfaces known at the time by such names as pits, hoists and pickings.

On the other hand, the use of leases led to a kind of savage exploitation, leading at times to cave-ins and fires inside the mine. Thus, the fire that happened in 1550, apart from several fatalities due to asphyxiation, represented in practice the paralysis of all mining operations for the next two years. A little earlier, in 1543, a cave-in had buried eight miners.

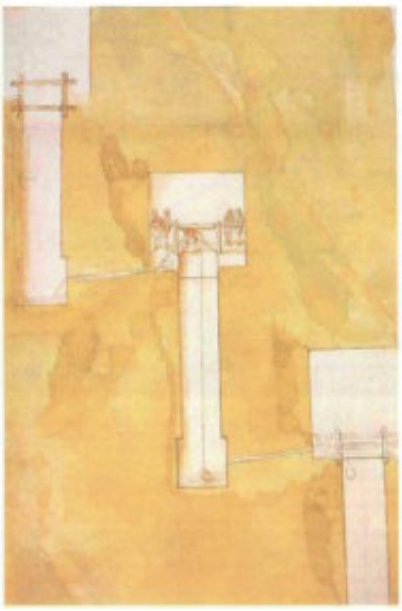
The Crown was aware that quicksilver was the key product for silver mining in Mexico, so it not only gave the maximum priority to it among all freight shipments, but also adjusted the departures of the fleets to accommodate production difficulties at Almadén or packaging delays in Seville. Quicksilver was, therefore, the key factor not only for the economic development of colonial America, but also of the Spanish economy in general (MINAS DE ALMADÉN Y ARRAYANES S. A, 2007).

The saddest part in the history of the mines at Almadén began in 1566 when the Függer family of German bankers who had leased the mines from the King requested the possibility of using slave labour or the convicts sentenced to serve on galley ships to work in the mines at Almadén instead. They used a building next to the storerooms as a prison but it was not secure enough, despite having an underground tunnel connecting directly to the Mina del Pozo. There have been improvements such as, in 1584, Contramina's gallery opened to produce a better ventilation.



001 062
DRAIN WITH HAND WINCHES AND LEATHER CONTAINERS MADE BY ENFORCED LABOUR PRISONERS. (GENERAL ARCHIVE OF SIMANCAS)

001 063
DRAWING OF THE HAND WINCH FOR DRAINAGE AT THE MINE, ACCORDING TO A DRAWING BY AGUSTÍN DE BETANCOURT FROM THE YEAR 1783 (NATIONAL LIBRARY IN MADRID)



On December 31st, 1645, after almost 120 years under the control of the Függers, the mercury mines returned into the direct ownership of the Royal Exchequer, bringing to an end the system of leases. However, the contradiction was that the withdrawal of the Függers coincided with a period of stagnation in silver production in America, which fell from 24,000 *quintales* in 1610 to 9,000 *quintales* in 1670, apparently due to a reduction in the production of mercury in Almadén, probably caused by organizational difficulties, despite the operations at the mine in Almadén continuing at a fast pace.

In 1646, the new type of furnaces invented by Lope de Saavedra Barba, in Huancavelica (Peru), were installed with a system of *aludeles* or pipes necessary for the complete extraction of the quicksilver and their construction was entrusted to Don Juan Alonso de Bustamante.

No fewer than 13 years would have to pass from the invention of the *aludel* furnaces in Huancavelica before the Royal Exchequer issued its Order dated September 15th, 1646, whereby Juan Alonso de Bustamante and Diego de Sotomayor were able, after a period of hard work in which it was necessary to convince a great many of their contemporaries, to build the first *aludel* furnace in Spain, named Our Lady of the Immaculate Conception as we are reminded by Matilla Tascón (MATILLA TASCÓN, quoted MANSILLA, Luis, 2006). It began its operations on October 19th, 1646, with a load of 280 *quintales* of cinnabar, from which 1,259 and a half *libras* of mercury were obtained on the 25th of that same month (MANSILLA, Luis, 2006, a)

At the end of the 17th century, three new mines of great significance were located, two in Almadén, namely the Mina del Castillo and the Mina de La Hoya or Mina del Pozo, and a third one in Almadenejos. They were even richer than the others and easier to drain because they were shallower. As a result, the Contramina shaft was closed in 1701 (ESTEBAN BORRAJO, Germán, 2006). D. Miguel de Unda Garibay used for the first time gunpowder for mercury extraction in 1698, so production was improved. Nevertheless using gunpowder was not generalised until 1703.

From the 17th to the 18th century

From 1717 to 1735, the mines were under the control of the Council of the Indies. In the 18th century, there were several technological advances accompanied by important changes in the mines' management with a view to improving productivity, all of which implied social reforms and transcendental development of health-care provision.

In 1735, the Regulations for the governance of the quicksilver mines and installations at Almadén established the working conditions and how the mines should be worked, the tunnels timbered or shored up, the metals extracted and smelted, the mercury washed and purified.

In 1783, Engineer Agustín de Betancourt was commissioned to visit the mines at Almadén and wrote three magnificent reports in a brilliantly, concise style, accompanied by excellent drawings. He proposed numerous technical improvements for the extraction of water, the operation of the mines and the processing of the mercury.

In 1784, J.M. Hoppensak, an engineer of German extraction, changed the working method by introducing the Breast and Stope System, whereby the pressure on the side walls was held back by wooden props on top of which a criss-cross of timber beams left gaps for the ore to be dropped down to the transport gallery. These breasts and stopes reached heights of 2 to 2.5 *varas* (a *vara* was equivalent to 836 millimetres) and their width varied depending on the thickness of the ore.



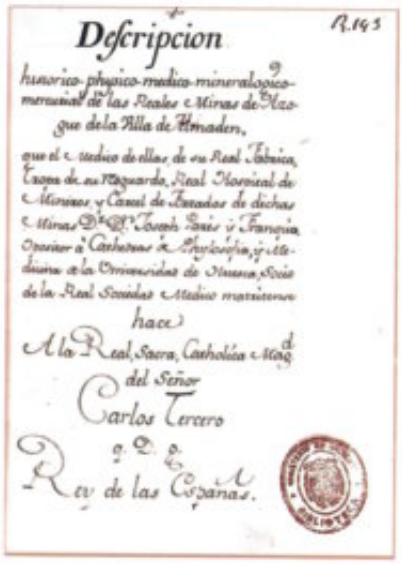
001 064
ETCHING OF THE BUITRONES ENCLOSURE, DRAWING BY J.A. ALZATE Y RAMÍREZ BASED ON ANOTHER BY SIMONEAU THAT ILLUSTRATES THE MEMOIR BY A. JUSSIEU FROM 1714 . (LIBRARY OF THE ROYAL PALACE IN MADRID)

For transporting the mineral, the same mechanisms were used and the only innovation at the time were the wooden barrows of ore pushed by the miners.

Vertically, transportation was by means of a whim driven by mules or horses. As many as eight mules were needed at any one time to turn the whim and these were changed every three hours. That meant a total of 35 or 40 mules, with a number of ostlers to look after them. Over a period of twelve hours, only about 3,500 *arrobas* (around 40 tonnes) of ore could be extracted.

Various systems were used to solve the big problem with flooding in the inside of the shafts and galleries, from simple winches used in the Roman age, passing through the *zacas,* to much more complex devices such as the piston-operated suction pumps made from oak wood, of which there were several variants, some of them capable of extracting as much as 200 litres of water an hour from a depth of 400 metres. For the first time, an invention of the technology of the age managed to outdo the Romans. These pumps were introduced by the Germans Stôrr and Hoppensack (RAIZOZ, José María, 2006).

In the middle of the 18th century, on January 7th, 1755, the most regrettable event in the history of Almadén and its mines began: the great fire that destroyed the installations of the Mina del Castillo, rendering it completely useless, and which continued to burn for two years. As a result of this event, changes were introduced in its operations, some of them direct (prohibition of using timber for shoring, and the obligation to build brick or stonework vaults), and some indirect: the creation in 1777 of the Mining Academy in Almadén by King Charles III, with the aim of training qualified personnel (ESTEBAN BORRAJO, Germán, 2006). Construction of the first rubblework arches for the shoring up of the mine instead of timber in 1790 (IRAIZOZ, José María, 2006). At the end of the 18th century, in 1799, the San Teodoro shaft was created and technical improvements



001 065
FRONT COVER OF BOOK BY DR. PARÉS: *DESCRIPCIÓN HISTÓRICO-PHYSICO-MÉDICO-MINERALÓGICO-MERCURIAL DE LAS REALES MINAS DE AZOGUE DE LA VILLA DE ALMADÉN DE 1785 (HISTORICAL-PHYSICAL-MEDICAL-MINERALOGICAL-MERCURIAL DESCRIPTION OF THE ROYAL MERCURY MINES OF THE TOWN OF ALMADÉN IN 1785) (LIBRARY OF THE MINISTRY OF FINANCE* AND INLAND REVENUE, SPAIN).

were introduced into the San Aquilino shaft, among others.

It must be remembered that, in addition to the dangers of the mine, Almadén was also exposed to the harmfulness of mercury vapours. One of the improvements introduced by the German experts was to equip some of the shafts with separate ladder shafts, thus considerably increasing the safety of the mine workers (MINAS DE ALMADÉN Y ARRAYANES S. A., 2007).

The 18th century shows a level of development in Almadén that transcends merely technological improvements. Alfredo Menéndez points out that the provision of health care facilities in production centers is not a measure originating in or exclusive to Almadén. However, the degree of sophistication and breadth achieved by these resources in these mines – particularly during the 18th century– makes them a case without parallel in preindustrial Europe.

There are three key features that can be extracted from the study of medical care at Almadén during the modern period. First, the primarily utilitarian aim of the introduction of medical and health care into the work setting, conceived as instruments to recover the productive capacity of the workforce. In this regard, Almadén illustrates this aim more clearly than other contemporary cases owing to the convergence of two centuries-old conditions. On one hand, the use of a production process extremely hazardous to health such as that employed to obtain mercury brought to the forefront the biological deterioration of the workers and the difficulties that they faced to find a means of subsistence once they were declared unfit to work in the mine. On the other, the collective importance of the health problems caused by the mine went beyond the individual problems of each miner and his family to become one of the determining factors in labor relations at Almadén and a major obstacle for achievement of the production goals of the mines.

Second, the study of medical care at the Almadén mines allows us to explore in exceptional detail the process of conversion of the workplace into an area of legitimization of new knowledge and practices related to the health and illness of workers. In other words, a setting where physicians, surgeons, nurses and attendants claimed new competencies for restoring health to the workers' body and deciding on their fitness for work. In a particularly significant and pioneering way, these competencies extended to regulating the workers' living habits and moral behaviors to maintain the productive order, with medical science claiming the regulatory function carried out in modern societies by religion until then.

Third, the close and prolonged contact between workers and health professionals in the care setting fostered the birth in Almadén of a richer and more original school of thought in the study of work-related diseases in the Hispanic world. A school that for the first time questioned the traditional dominant role of Central European countries in this area (MENÉNDEZ NAVARRO, Alfredo, 2006).

As result of the care-provision policy described above, the Saint Raphael Royal Miners' Hospital was built, partly financed by the construction of the second bullring in Spain, hexagonal in shape and with housing incorporated. The bullring also became the new town centre as it was the venue for fairs, markets and all manner of meetings of the local residents. The hospital started operating in 1774 and was most active between 1780 and 1808, although it did not close down completely until the 20th century.

The sad face of the mine is its use of forced labour. Following a design by Silvestre Abarca, a military engineer, 1751 saw the construction of

the Cárcel Nueva (New Gaol) to replace the old Crujía (Gangway). This was an extraordinary building that was demolished in the 20th century.

At the end of the 18th century, Almadén experienced fast demographic growth, going from about 2,800 inhabitants in 1752 to 4,700 in 1787 and over 7,000 in 1800. In addition, some years saw the influx of 1,500 seasonal workers to the mines on search of employment during winter.

Although the most important mine in the district was that at Almadén, it is not the only one. Other mines included those in Las Cuevas (underground operations), El Entredicho (open cast) and the Vieja Concepción and Nueva Concepción mines in Almadenejos. All of these were in operation around 1800, but they were subsequently closed down as they could not compete in yield with the mine at Almadén. Prior to these returns to operation during the 18th and 19th centuries, some of them had been worked by Romans and Arabs, as attested by some remains located in the surroundings (MINAS DE ALMADÉN Y ARRAYANES S. A., 2007)

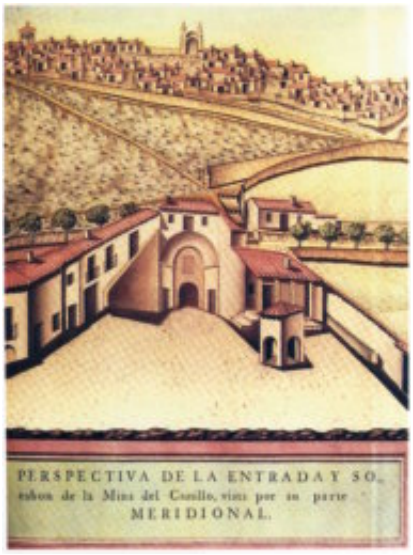
The Mine at Almadén was getting deeper and deeper and towards 1780 at least 72 men were needed to keep it drained of water. That is the reason for so many tests with pumps, albeit unsuccessful, as they stopped working well after a short period of time and it was necessary to go back to the tried and tested techniques. As a result, several engineers were commissioned to build one or more machines to solve the problem. These engineers included one Tomás Pérez Aragonés, who was sent to London in 1786 to check the machinery used for draining mines in Germany, Britain and France. His report was enthusiastically favourable and recommended the installation of one of these machines at Almadén, with a budgeted expense of two men and two carts of firewood or forty *arrobas* of pit coal.

It took several years to build the pump, as it was still only in 1790, at the proposal of Mr. Tomás Pérez, that his brother Manuel set off for Vizcaya in northern Spain to produce in an ironworks there the parts for the steam-powered machine that began to be installed in Almadén. The assembly lasted from 1797 to 1799, although it was not commissioned until 1805.

The amount of water being taken out of the mine at the time was calculated to be about 30 cubic metres a day, with a very high extraction cost as it was necessary to pump it up from level 50, located at a depth of one hundred and seventy metres.

This steam-powered machine, known popularly as the "fire machine", was the first of its kind to be installed in Spain for drainage of mines and contributed, without a doubt, to the increase in production achieved by the mine at Almadén (IRAIZOZ, José María, 2006). It was installed on the brink of the San Teodoro shaft.

The stopes method was kept until 1803, when Diego de Larrañaga was appointed Director of the mines and introduced an unprecedented method of working in Spain's metal mining history.



001 066
ETCHING OF THE PITHEAD OF THE SHAFT AT MINA DEL CASTILLO (CASTLE MINE) WITH ITS ADJOINING BUILDINGS, ACCORDING TO A DRAWING BY JOSÉ MOROTE DE VARELA, FROM THE YEAR 1804 (NATIONAL MUSEUM OF SCIENCE AND TECHNOLOGY IN MADRID)

Diego de Larrañaga, trained at the Almadén Mining Academy, was the draughtsman of the Mina del Castillo plan that bears his name. The Mina del Castillo, discovered around 1700, was approximately 150 metres deep at the start of the 19th century, the date of the said plan.

19th and 20th centuries

The Larrañaga System was used for over 100 years. His method consisted in obtaining the ore through vertical work faces in three stages, with the foundations being built on a rubble wall and brickwork arches as the ore was removed. A considerable sector of what later became known as the "Mine Branch" was worked using this method, specifically levels 5 to 12. The introduction of the Larrañaga method represented an absolute revolution in the techniques for working the mine, as it allowed the planning regular pace of work and ensured a more or less constant level of production. In order to keep production flowing, San Teodoro was used as the main shaft and two others were deepened and prepared as auxiliary shafts, one to the east, the San Miguel shaft, and another to the west, where the former Torno de la Grúa (Crane Winch) was renamed the San Aquilino shaft. Work faces produced using the Larrañaga method are currently accessible on level 5 of the mine (IRAIZOZ, José María, 2006).

In 1855, the first geological study of Almadén was published by Casiano del Prado and allowed a detailed understanding of the site and therefore better planning of the mines' activities.

Engineers Fernando Bernáldez and Ramón Rúa Figueroa published a Memorandum in 1861 to set out improvements in the system for working the ore.

In 1914, for the first time were was a reference to infill works in the mine and the installation of a compressed air system was prepared.

It was at the beginning of the 20th century that the lighting inside the mines saw any considerable improvement, with the oil candles being replaced by the new carbides, also called acetylene gas lamps.

Now the miners were beginning to go up and down inside the mine in cages with the subsequent increase in speed and safety. Ore began to be extracted in iron hutches or trolleys placed inside the cages.

At the beginning of the 20th century, an infill method began to be used at the workface. In 1914, while work was progressing between levels 11 and 12, Larrañaga's method was replaced by the Cut and Fill method, the one most widely used in the mine and reaching down to level 21.

001 067 + 001 068
ALMADÉN AT THE BEGINNING
OF 19TH CENTURY



In 1918 and coinciding with the creation of the Almadén Mining Council, the process to convert the operations to use electricity, a Diesel power group and a 240 volt alternator were acquired (IRAIZOZ, José María, 2006).

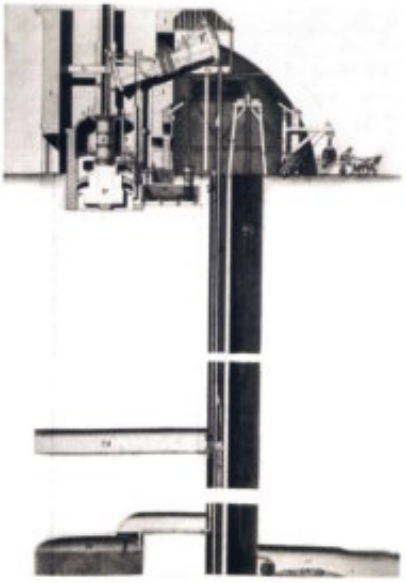
During the Spanish Civil War, agreements were reached so that the mining installations would not be bombed and, after it was over, the old prison for forced labourers was used to house political prisoners; this subsequently led to its demolition to prevent it bearing witness to such shameful events (GARCÍA DE MIGUEL, José María, 2006) and, in its stead, the buildings for the Mining Engineers and Industrial Engineers Schools, now the School of Mining and Industrial Engineering of Almaden, were put up in the 1960s, probably the most aggressive constructions anywhere in the town. During the nineteen-nineties, the remains of the old gaol were excavated and the tunnel through which the forced labourers entered the mine from the prison was revealed.

In 1955 there was a regrettable accident in the San Aquilino shaft due to the poor working conditions below level 9, leading to the closure of this shaft, initially below that level. This event made it necessary to consider the construction of a new shaft at the western end; work on the San Joaquín shaft started at the end of this decade and it was brought into service in 1961. Coinciding with this change there was a major re-organization of the mine as a whole that took place throughout the 1960s. (IRAIZOZ, José María, 2006)

On the one hand, the height of the work faces was increased to 50 metres and no more even numbered levels were built after level 15. there was also a change in the system for loading and transporting the ore inside the mine and the San Teodoro and San Miguel shafts were widened, strengthened and deepened. In the first of these a new extraction machine was installed and the second was left almost entirely for ventilation with the addition of powerful ventilators. With this new infrastructure, the part between levels 15 and 19 were exploited using the cut and fill method.

In the sixties, attention turned once more to the "South Branch" to explore the possibilities of finding ore beneath the levels abandoned at the start of the 18th century. The results were positive, and several faces were worked using the cut and fill method at the end of this decade and in the seventies between levels 12 and 13 and between levels 7 and 9.

At the end of the 1970s, levels 21 and 23 were developed with the in-



001 069
ETCHING OF THE S. TEODORO STEAM ENGINE AT TRIAL PHASE, DRAWN BY JOSÉ MOROTE DE VARELA IN 1804.



troduction of pneumatic loaders for earth movement inside the mine, although the cut and fill method was maintained for the extraction of the ore. It was in this same decade than a sloping plane was constructed to link level 19 with levels 21 and 23, thus avoiding further deepening of the San Teodoro and San Miguel shafts (IRAIZOZ, José María, 2006).

The system used in the mine at Almadén between 1950 and approximately 1980 was "cut and fill", whereby it was possible to achieve the total exploitation of the mineralized mass in practically absolute safety for the workers. Once the upper and lower tunnels had been cut in the mineralized mass, extraction began from the bottom up in horizontal slices, at the same time as the filler material was inserted from the upper level to maintain the distance between the roof and workface floor.

The most modern method used in the mine has been VCR, an acronym for "Vertical Crater Retreat". This method requires the opening of two tunnels, one above and one below, in the direction of the ore. Later, the mass of mineral is drilled between the two tunnels and finally exploded from the bottom up. Thus, this method has better performance aspects as, in addition to requiring fewer personnel and less material, it includes improvements in health and safety.

The mine at Almadén has therefore been in operation, with a few interruptions, since the time of the Romans until 2001 and the town of Almadén has grown up around it. The maximum depth achieved in the operations is 550 metres, corresponding to level 21, although the San Joaquín shaft, the deepest, goes down to 675 metres. Over the last 30 years, other mercury deposits have been exploited in the mining district of Almadén: El Entredicho and Las Cuevas. This is why mining operations have continued into the 21st century (MINAS DE ALMADÉN Y ARRAYANES S. A., 2007).

The adoption of incipient restrictive measures within the European Union's policy on mercury, together with the low level of profitability in the mines due to operational difficulties, the age of the installations and the decline in yield rather than the depletion of the mine itself, led to a stoppage in the mining activity following a cave-in at the lower workface on level 9 in June 2001 and subsequently the definitive suspension of operations in the mine at Almadén. Mercury production continued until July, 2003, when all mining and metal processing activity came to an end after an uninterrupted presence in Almadén for two millennia (CARRASCO MILARA, Javier, 2006).

Evolution of the ore deposit at Almadén

PALERO FERNÁNDEZ, Fernando J.

The outset of the Mine: the Southern Branch:

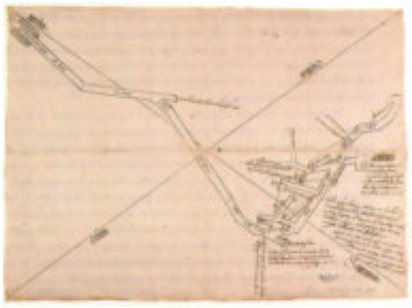
As in all cases of old mines, the earliest works at the Almadén deposit started with the outcropping material, which must have been located on the eastern part of the ore deposit. For many years, the operations were limited to levels very close to the surface. Initially, they would have been in large holes, from the bottom of which, as it became necessary to go deeper, tunnels were dug at a slope, or in the best cases, manways to be able to rip out further ore. In this first period, the work must have been fairly rudimentary and only very shallow levels were attained. It must be remembered that in these early days, the ore was only being used for pigments and the amounts extracted would have been small. This rudimentary mining at the levels closest to the surface of the deposit would continue throughout the medieval period.

It is only from the 16th century on, following the discovery of the application of amalgamation to obtain

noble metals, when we can speak of the start of large-scale exploitation of the Almadén ore deposit. The mines quickly began to go deeper and it became necessary to prepare new accesses that were more operational. Taking advantage of the deposit's situation on a crest running East to West, it was possible to excavate transversal accesses from the South, known as the Pozo and Castillo mines, and from the North, called La Contramina. All these entrances were used to serve what would end up as the first level of the current mine, located at a depth of about 45 metres.

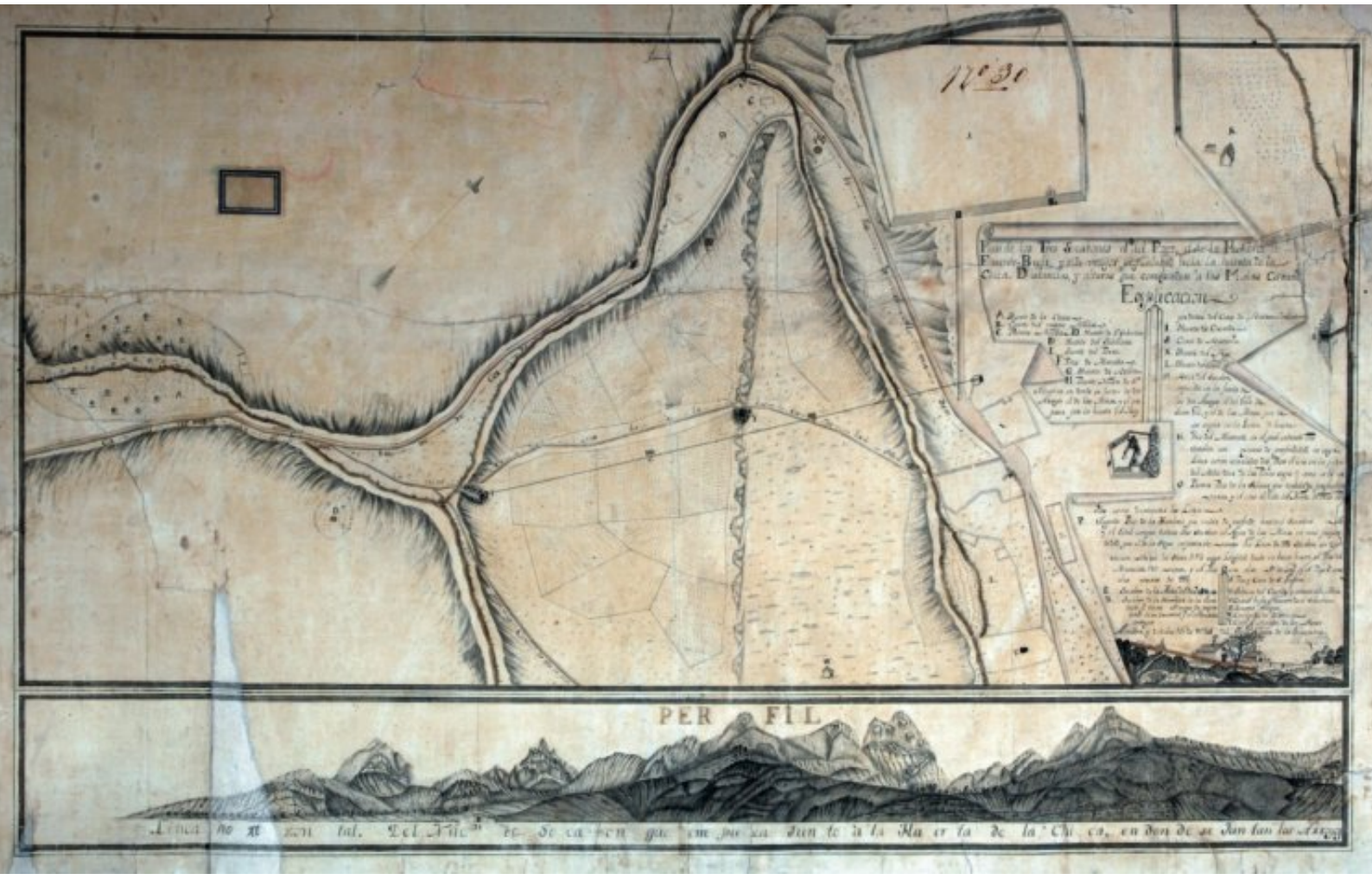
Towards the end of the 17th century, depths of about 150 m would have been reached in the western part of the deposit, and exploitation became very difficult. In addition to the problems inherent to the depth of mines, it would probably have been necessary to add the sterilization of the metal ores, leading to the need to find additional ore at the end of the century. Until then, all of the known exploitation efforts had been at the western part of the deposit, in what has come to be known as the Southern Branch. This was the area mined in the times of the Függer family.

In this first stage of large-scale mining, the ore was extracted using the picking method which, as its name suggests, was a slightly unorthodox method that involve picking off the ore wherever it was accessible. This kind of work tended to generate untidy and irregular gaps that were held up with an abundant supply of timber to ensure the stability of the sides and



001 070
MAP OF THE MINA DEL POZO MINE FROM THE YEAR 1560
(SIMANCAS GENERAL ARCHIVE)

001 071
PLAN OF THE COUNTERMINE IN 1631
(FÜGGER ARCHIVE IN DILLINGER-DUNAU, GERMANY)



the roofs. Unfortunately, due to their instability and the fires that affected this area several times, no work faces using this method are preserved.

This part of the site had been in exploitation using the Pozo and La Contramina mines, with access to the deeper levels by means of manways and sloping tunnels *(cañas agrias* or "foul shafts"). The Eastern tip of the operations at the time was the so-called Torno de la Grúa, a ventilation chimney that would later become the San Aquilino shaft. Regrettably, this part of the mine has been inaccessible for many years, since the cave-in of the Pozo mine to the east of this Torno.

The discovery of the Mine Branch:

After the discovery, in 1697, of a new ore-bearing area to the east of the part worked previously, the western areas were gradually abandoned because of the difficulties encountered. The new veins, part of the great ore deposit that did not break the surface, were found in the area of Torno de San Antonio (at the foot of the Castillo del Retamar and very close to the current San Miguel shaft) at a depth of around 15 metres.

As the operating conditions were much better and the quality and abundance of the ore promised a great future, the processing activities gradually shifted to this new sector of the site and in the early years of the 18th century the western part of the deposit (the South Branch) was abandoned. A new entrance, completed in 1706, was quickly built and named the Mina del Castillo (Castle Mine) to facilitate the extraction and evacuation of water. In the meantime, the Mina del Pozo (Well Mine) was kept operational and further tunnels were opened up until eventually both entrances were connected underground. In the sector between these two access points, further ore deposits were also found, and it is possible to see remains of the oldest mine works, for which reason it is known as Mina de Las Hoyas (Hollows Mine). At this time, the Torno de La Grúa became the westernmost point of the mining activity, while there was another ventilation shaft to the east called Torno de Castro. This part of the works between these two shafts is what later became known as the Mine Branch.

The picking method was still used for extraction and the vertical arrangement of the ore meant that the level of the access pit for the Mina del Castillo was soon exceeded. Thus it was necessary to prepare more shafts and *cañas agrias* to access the new resources. On this occasion, however, an interior shaft was built to provide service to the deep part of this mine, called San Andrés, and was fitted with a whim extraction system and the structure to accommodate the horse-driven windlass is a true jewel of mining infrastructure that we have had the good fortune to inherit. Through this shaft it was possible to access below level 3 of the mine, approximately 70 m deep and a little over 100 m from the surface.

The first re-organization of the mine

The large amount of timber used in the picking areas meant it was easy for fires to start and one large fire that started in 1755 lasted for 30 months. This incident caused very considerable damage to the installations that existed, making it necessary to close down many of the faces that were operational and re-organize the mining activities.

Since most of the known veins still accessible after the fire were westward-facing and quite distant from the San Andrés shaft, a couple of other shafts that had previously been used for auxiliary purposes but were now at the centre of the productive area were prepared for operation. They were the San Miguel and San Teodoro shafts, which were dug down to

level 4 and, unlike San Andrés, were opened up at the surface for the installation of whims for the extraction operations. Water was pumped out through San Teodoro until the level of the entrance to the Mina del Pozo was reached, where the water flowed out from the foot of the mine. From then on, it could be said that the San Teodoro shaft was the main mine, a rank reaffirmed after the installation of the first steam-driven engine in 1799 (HERNÁNDEZ SOBRINO, FERNÁNDEZ APARICIO, 2005. Quoted Palero, 2006). San Teodoro's consideration as the master shaft in the Mine at Almadén was retained until well into the 1960s, when this position was taken over by San Joaquín.

Another important modification, after the catastrophic consequences of the fire, was the change in the production methods. Initially, some of the old picking works affected by the fire were recovered and new ones were opened up and rubble-based supports began to be used. But the picking method was still seen to be not very effective and, although attempts were made to avoid the use of timber as far as possible, wood was irreplaceable in places. The true change came about a few years later with the arrival of the German engineers who introduced the stope or *testeros* method in 1784. This technique worked on a vertical face and a horizontal surface and required very little timber; in fact, timber was no longer needed once brick arch supports began to be used.

In this way, at the end of the 18th century, work had already started on level 5 of the mine, lower than at the South Branch. Fortunately, one of these *testeros* is preserved and has

001 072
MAP AND PROFILE OF THE ALMADÉN MINE DRAWN UP BY DIEGO DE LARRAÑAGA AND BRAULIO CORREAS IN 1792 AND ADDED WITH VARIOUS FORMER WORKS AND OTHERS PERFORMED UNTIL EARLY 1796 (MAYASA HISTORICAL ARCHIVE)



been prepared for observation at level 1 of the rehabilitated area.

The second re-organization: Larrañaga's method

The *testeros* method was maintained until 1803, when Engineer Diego de Larrañaga was appointed as Mine Director and designed a specific exploitation method for Almadén. His new method basically meant ripping out the ore using vertical faces in three stages, building a support base using rubble walls and brick arches as work progressed. This method, known by the name of its inventor, represented an absolute revolution in the art of the mine working, as it allowed planning and regular progress in the works and ensured a more or less sustained output. The feasibility of Larrañaga's method is evident from the fact that it was in use for over a 100 years, including while the mine was under the control of the Rothschild family.

A considerable sector of the Mine Branch of this deposit was exploited using this technique, particularly levels 5 to 12. In order to service the workfaces, San Teodoro was used as the main shaft and others were adapted or deepened as auxiliary shafts: one to the east, the San Miguel shaft that was already operational, and another to the west, the former Torno de La Grúa which was renamed as the San Aquilino shaft. The San Andrés shaft was no longer used and the entranceways at the Pozo and Castillo mines were kept as auxiliary accesses. The stone and rubble needed for the base walls were brought in through the Mina del Castillo to the San Miguel shaft, from where it was taken down to the level of the workface. Drainage continued to operate through the Mina del Pozo entranceway, where the water was pumped up through the San Teodoro shaft.

Workfaces created using Larrañaga's method were easily accessible on level 5 of the mine until its definitive closure.

2.b. 3. Specific historical background of Idrija

Mercury was discovered in Idrija in 1490. During its 500 years of operations, the Idrija mine produced 147,000 tonnes of mercury, accounting for 13% of the global output. Volume-wise it is only trumped by Almadén. The volumes and the outstanding purity of Idrija's mercury made it highly desirable and made the town one of the key origins of the mercury transportation route.
When mercury ore was discovered in 1490, Idrija was under Venetian rule; however mining rights were also given to the Germans, who brought their mining technology to the town. After the 1508-1514 war between the Venetians and the Habsburgs, Idrija was assumed by the Habsburg monarchy. It remained their property until the end of the World War I, with the exception of short periods at the end of the 18th and the beginning of the 19th century, when it was captured by Napoleon.

While having its own markets, mercury from Idrija was especially sought after when the Almadén mine failed to meet the demand for the metal in America. During these periods, Idrija mercury was first shipped to Spain and from there on to America, passing on the Mercury Route.

One such period was in the middle of the 16th century, when a fire at the Almadén mine caused its production to plummet, making Idrija's mercury a highly sought commodity on the western market. Trading in mercury from Almadén was at the time in the hands of the Fugger trading family from Augsburg. The Fuggers also maintained trade ties with merchants from Genoa, who happened to trade in mercury from Idrija. The majority of the mercury from Idrija made its way through Genoa to the Iberian peninsula and from then on to America. When the crisis in Almadén was over, the Spanish prohibited the export of

Idrija mercury to America, declaring it contraband.

It also needs to be pointed out that the Spanish and Austrian courts tried to conclude a secret deal in order to bypass the merchants and establish a monopoly over the sale of mercury. However, the court in Vienna withdrew from talks after the Spanish proposed to take over the mining operations in Idrija and offered too low a price. The ban on the exports of Idrija mercury would subsequently lead to its smuggling to America. This was carried out by merchants who bought the metal from the Herwarts in Antwerp as well as the Portuguese and French shipping companies that maintained special links with Brazil. The contraband trade prompted the Viennese court to try and re-establish talks with the Spanish king and propose that Spain buy a set amount of mercury from Idrija, which the Austrians had a lot in stock. The other option offered by Vienna was to allow mercury from Idrija to be exported to America in return for an export duty. The Herwart trading company, which knew nothing about the talks between the two courts, meanwhile sought its own ways to capitalize on its command over the trade with Idrija mercury. It significantly lowered the metal's price, causing the buyers to purchase it, despite the Spanish embargo. Idrija mercury was offered at a price that was substantially lower than Almadén's, prompting Spanish merchants to purchase it in Antwerp and then re-sell to America as Spanish mercury.

The next period of increased production came in the 17th century, when the mines in Almadén again failed to keep up with the greatly increased demand. This greatly boosted the demand for Idrija mercury on the western markets. Indeed, even though mercury production in Almadén was three times greater than that in Idrija, it barely sufficed to keep up with the demand in Spain and Mexico. Because Spain failed to produce enough mercury for the Peruvian kingdom, the Spanish court ordered large amounts of the metal from merchants selling mercury from Idrija.

This was the period that saw the rise of court councillor Abondio Inzaghi, who put forward in 1659 that the Inner Austrian Chamber take over as the manager of the Idrija mine and the seller of its mercury. It was Inzaghi who brought about resurgence in trade with Idrija mercury, after it nearly died down under the Balbi trading firm. Inzaghi realised that Amsterdam would become the main point of sale for the metal, rather than Venice or the Levant. His foresight was right as the sales in Amsterdam exceeded 10-fold the sales in Venice in 1668, despite a hiccup during the Anglo-Dutch wars. After Inzaghi was deposed, the court at Vienna again reverted to Trieste and Idrija as the only points of sale.

Emperor Charles VI tried to boost the trade in lands run by the Habsburgs in the early 18th century, mainly through the Habsburg port cities of Trieste and Rijeka. He closed down the export office in Venice, making in 1736 Trieste the main export port of the Habsburg empire for Idrija mercury. The decision also served to improve the transport links between Idrija and other parts of the Habsburg lands.

The mine's activities reached their peak after the monarchy paid off its debts to the Dutch in the final two decades of the 18th century. Advances in mining technology and newly-discovered ore deposits helped increase the amount of processed ore, while other factors helped raise the price of Idrija mercury.

Discovery of new ore deposits allowed the Habsburgs to enter into enormous supply contracts with Spain in 1785.

The first contract was concluded for a period of five years and com-

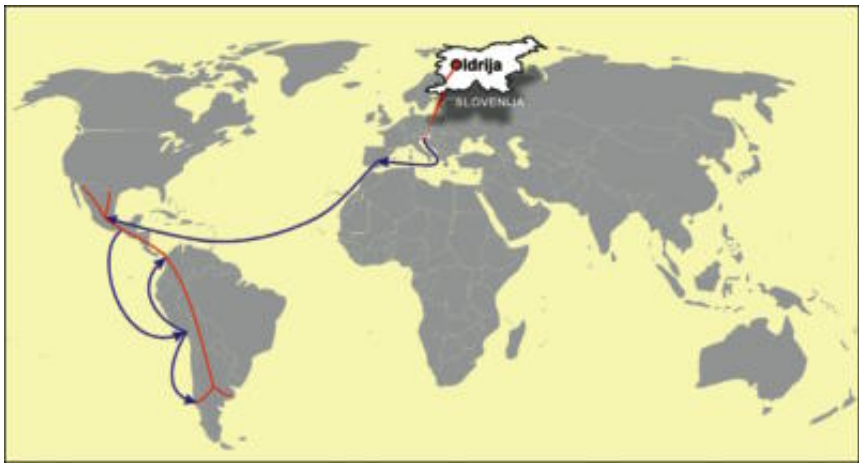
mitted the mine to delivering at least 4,480 cents of mercury per year. To answer the demand, the mine employed many new workers, also from the other mining towns of the monarchy. New shafts were opened and mining was modernised. The insufficient production of mercury in the Almadén mine and the closure of the Huancavelica mine caused Spain to ask in 1784 the court at Vienna to supply "German" (that is Idrija) mercury to the amount of 12,000 cents annually for a period of six years.

The contract on the supply of mercury from the Habsburg empire was signed on 27th August 1785 by the Spanish Minister for the Indias Jose de Galvez and Count Greppi, two days after Charles VI signed off on the deal. The court at Vienna (its high chamber) obliged itself to sell 36,000 Vienna cents of mercury to Greppi in the period, while, in case the mine's output would allow it, an additional 24,000 cents would be sold to the Spanish. The contract also prohibited the Habsburgs from selling mercury to other foreign buyers, even if they offered a better price. Moreover, the document tasked the Habsburgs to replace for any mercury that would get lost on the route between Trieste and the Spanish port of Cadiz. The metal was then stored on the island of Trocadero, an important traffic hub near Cadiz. The Vienna court monitored the packaging of mercury in order to minimise losses, while Count Greppi meanwhile bound himself to send documents attesting that mercury has been shipped from Trieste to Cadiz in good condition and that it was sent to America at the Spanish king's expense.

The contract stated that shipments of mercury should continue even if the Habsburg monarchy entered into war with Spain.

Despite several schemes between Greppi and the Spanish mercury importing company, aimed at raising the price of mercury, another contract between the courts of Vienna and Madrid was concluded in 1791 that further increased the annual supplies. This contract envisaged direct purchases by the Spanish crown, getting rid of the middleman. All Spain-bound mercury was exported from the port of Trieste to Cadiz and Carlos Lelis, the Spanish consul to Trieste, was tasked with overseeing the shipments as well as with organising its transport. The metal was to be transported on Spanish Royal Navy ships or on those of Trieste trading houses recommended by the consul. The mine's output reached its peak in 1789, when a record 78,329 cents of mercury were processed.

The supplies to Spain ended with the onset of the Franco-Spanish war, causing a sharp decline in the price of the metal. However, after the wars ended, the price of mercury began to



002 047
THE IDRIJA MERCURY ROUTE LINKED TO THE INTERCONTINENTAL CAMINO REAL

recover again. The Spanish showed a great deal of interest in continuing with the supplies even after Idrija was occupied by the French forces in the early 19th century. Spain's then finance Minister Pablo Barela thus proposed that the Spanish purchase all the mercury that the French confiscated in order to prevent grave consequences for the Spanish mining sector and the Royal Treasury. It seems that the Spanish government did indeed get preferential treatment as Lelis reported that the administrators of the Idrija mine had been given clear instructions to continue with the production of 10,000 Vienna cents to meet the requirements by Spain and its American colonies.

The demand for Idrija mercury increased again during the Spanish war of succession in 1836 and during a new crisis in the Almadén mine. The sale of the metal was managed by the Trieste trading station of the Directorate for the Sale of Mining Products, headquartered in Vienna. The good times reached their peak in 1844, but worker unrest, civil wars and financial anarchy in the world meant that the situation would eventually deteriorate. The mine's management meanwhile tried to be as rational as possible in exploiting the mine given the unfavourable developments in the world.

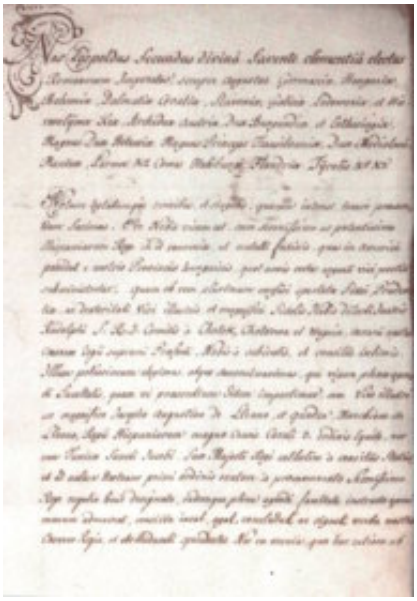
Even though the periods of sales of Idrija mercury to Spain and from there to America remain among the most profitable periods in the mine's history, the metal from the Slovenian town continued to be sold to other markets and enjoyed fresh periods of prosperity. Even before trading links were established with Spain, large quantities of mercury were shipped to Italy, Egypt, the Middle East, India and South America. While Venice served as the first major trading post for Idrija's mercury, the metal then went on sale in Antwerp, Amsterdam, Lisbon, Lyon, Marseille, Augsburg, Nürnberg, Cologne, Frankfurt, Salzburg, Regensburg and Vienna. Large merchants then also used Venice to transport the metal to Alchema, Constantinople as well as to Egypt and the Middle East.

Venice played a very important role in linking the mercury route from Idrija to the Camino Real and served as the most important market for the metal until the middle of the 17th century. The metal was shipped from Venice to Italy, Egypt, Cyprus, the Middle East and to the countries in the west. In the early 16th century, mercury from Idrija was also transported to Flanders. The high costs of insuring transport through Venice caused the trading routes to be established across land. Idrija mercury was subsequently often transported through Austria and Germany to Amsterdam and from there on to America.

The so called "Italian market" was meanwhile threatened by the Habsburgs' decision to make Venice instead of Trieste the main port for exporting mercury and because the mine had to supply mercury to the Netherlands for repayment of loans taken by the Austrians to finance their wars. The decision had grave consequences as it cut the supplies of mercury to the Mediterranean and the Middle East. This caused a big surge in the price of the metal in Vienna, Graz and Trieste, prompting the Habsburgs to return to the Italian market, while sales in Amsterdam fell due to the high prices.

The 1860s meanwhile saw the desire of private investors to acquire state-owned companies, including the Idrija mine. Indeed, the Rotschild group tried very hard to gain ownership, but failed in its direct acquisition attempts. It did manage to acquire the mine in the end using skilful financial transactions and also secured a global monopoly over the global trade in mercury.

Not long after, mercury mining underwent another boom, as the price of mercury rose sharply between 1871 and 1874, resulting in



002 048
CONVENTION BETWEEN SPAIN AND THE AUSTRIAN EMPIRE FOR THE DELIVERY OF MERCURY FROM THE IDRIJA MINE TO AMERICA, 1791

windfall profits, also a result of technical advances in the smelting mill.

The next turning point in the mine's history was in 1918, when the collapse of the Austro-Hungarian empire following the First World War allowed Italy to gain control of a part of Slovenian territory, including the mine. Trade in the metal continued after the war. Gaining control of the mine allowed Italy to conclude a six-year "Convenzione del Mercurio Europeo" contract with Spain on distributing the sales of the metal. The aim of the contract was to safeguard the mines during the economic boom and high prices from the dire consequences of a global depression and to prevent competition on the mercury market. However, the deal failed to completely offset the depression in the late 1920s. Mercury from Idrija was in that period sold to Germany, Japan, England, France and India.

The mine was privatised in 1940 and was then nationalised after the Second World War by the Socialist Federative Republic of Yugoslavia. After Slovenia gained independence in 1991, the mine was transferred to state ownership and control.

Mercury transportation routes

Various routes on land and sea were used to transport Idrija mercury throughout the mine's 500-year history. The ports of Amsterdam, Trieste and Rijeka served as important origins of the mercury route. While Venice served as the main market for Idrija mercury until the mid-17th century. Trieste took the banner after that, becoming the second-largest market for Idrija mercury after Amsterdam.

The transportation route began with mining the ore and ended when mercury was delivered to its final buyer. The ore was taken from the shafts to the smelter for processing. Mercury was then placed into special containers, which were originally made from animal skins, then took the form of barrels and finally of steel crates. The mercury was then stored in the town's castle, Gewerkenegg, from where it was later transported around the world.

Mercury was taken from the smelter located under the hill which houses the St. Anton church, through the Rožna ulica street to St. Barbara's church, now no longer standing but marked by a plaque, and from there on to the castle. The metal was stored in the castle and its flasks were numbered. Mercury was received at the castle and then taken on the Kosovelova ulica street, past Anthony's Main Road (on the right bank of the Nikova stream) to the stream's confluence with the Idrijca river. After crossing the Idrijca, the merchants could



002 049
TRANSPORT ROUTES OF IDRIJA MERCURY

then turn left or right, depending on which route they wanted to use.

They had numerous options to take the mercury from Idrija to Trieste or Venice. When trade was still officially controlled by Venetians (until 1509), mercury and cinnabar was transported through the town of Tolmin and the Friuli region to Venezia. The route hugged the Idrijca river until its confluence with the Soča river at the village of Most na Soči. There it joined a major medieval trading



002 012 THE MERCURY ROUTE INSIDE THE TOWN FROM THE WAREHOUSE IN THE GEWERKENEGG CASTLE TO THE WORLD



002 011 THE MERCURY ROUTE INSIDE THE TOWN FROM THE SMELTING PLANT TO THE WAREHOUSE IN THE GEWERKENEGG CASTLE.

route between the Hungarian lands and Venice that ran alongside the Soča river to St. Maur, Cividale and then on to Venice. The other route meanwhile led from Most na Soči to Kobarid and Cividale and then on to Venice. However, with the arrival of the Habsburgs, the route was abolished.

The Habsburgs occupied the Tolmin area in 1509 and banned the use of the route between Venice and the Hungarian lands. This meant that all of Idrija mercury and cinnabar had to be transported to Trieste across Gorizia and Duino, even though the roads were less penetrable than the previous ones. The hauliers could opt for the route across Podroteja to Črni Vrh and from there on to Vipava, Razdrto, Senožeče and Trieste; another took them through the Vipava valley to Sveti Križ, where it joined the Karst route towards Trieste; while a third, slightly longer route, crossed the Jeličnі vrh to Dole and Medvedje Brdo, from then to Ceste and Zaplana and Vrhnika where the hauliers joined the Karst trading route to Trieste, via Logatec.

The hauliers often complained about poorly maintained roads, which is why the Inner Austrian court chamber demanded from its regional lords to force their subjects to regularly maintain road links in the area. However, it took until the 18th century before the road to Vrhnika and there on to Logatec was able to allow carts on it. The road to Logatec, via Črni Vrh, was meanwhile built only in the mid-19th century.

The land route towards Amsterdam meanwhile went in another direction. The route went through Dole, Žiri, Poljane, Škofja Loka, Kranj, Ljubelj and to Carinthia's Klagenfurt, where a warehouse was erected for mercury and cinnabar. It then continued on to Salzburg and on to Bavaria where it forked into two different routes to Amsterdam. The inhabitants of the German lands were skilled in using their existing waterways, greatly cutting the costs of transport which could be quite expensive, due to regional tariffs and road tolls, lack of a common trade policy and various other problems.

Development of paths and roads

The paths and roads that linked Idrija to the outside world had to be upgraded as the growing town required fast links with its key markets. It must be stressed, however, that the roads were not used for cargo transport only, but also brought renowned experts from various fields to Idrija. These experts undoubtedly contributed greatly to the development and global visibility of the mine and Idrija.

The management of the Idrija mine became aware of its poor road links in the 19th century, during the time of the industrialisation. The key transport links connected the town with Trieste, the closest port and an important point on the large trading route that passed through Ljubljana and Postojna and Trieste. The management moreover wanted better links with Gorizia, either through the Vipavska dolina or the Dolina Idrijce valleys. The company was moreover thinking of building a road link through Razpotje to Žiri and Škofja Loka and then on to Ljubelj and Podkoren to Villach.

Idrija's main link with the outside world in the 19th century led through Jeličnі vrh, Dole, Trate na Medvedjem brdu and Ceste to Vrhnika. The road was upgraded in 1765 to accommodate carts during the chairmanship of Anton Sartori (mid-18th century), allowing the transport of vital supplies for the mine and the people. The supplies came by boat from Ljubljana to Vrhnika, where the mine operated a warehouse. The only obstacle for the route was the winter, when harsh condition often rendered the road impassable or made transports very difficult. The mining company was

therefore also thinking about constructing a shorter route alongside the Zala stream via Godovič to Kalce pri Logatcu, where it would meet the main Trieste road. The route was inspected by the mine and Logatec and Planina caretakers in the early 18th century. However, the idea was abandoned.

During the French occupation, the so-called French road that led over Razpotje to Žiri and over Ključe to Črni Vrh and from there on to Vipavska dolina valley, was widened.

After the railroad linked Ljubljana to Vienna in 1849, the company began thinking about a rail link as well. When the track was constructed from Ljubljana to Trieste, two options presented themselves. The first was to pass through the Poljanska dolina valley, Cerkno, Idrija and Most na Soči and the second was to cross the Ljubljansko barje marshlands to Borovnica and then across Logatec and Planina to Trieste. After the second option was selected, the mine's administrators started thinking about improving the road to Logatec. The 100-years old idea was tabled and the construction of the road began in 1857. The road was completed in 1859 bringing with it a golden age for transport companies from Logatec. The road from Idrija towards Želin was constructed somewhat later, while the road linking Most na Soči and Cerkno was already repaired earlier. This gave Idrija a good transport link to the Gorizia region through the Idrijca river valley.

A new opportunity for improving transport connections came when the Austrian government began thinking of a transport link between Trieste and Klagenfurt. The 1890-1900 plans envisaged the line to go from Klagenfurt across the Ljubelj mountain pass, through the Poljanska dolina valley, Srebotje, Veharše, Hotedrščica, Hrušica, Sežana and Divača to Trieste. The difficult terrain meant that the route was shelved and a much more expensive link through Jesenice, Bohinj and Baška grapa chosen instead. This was another good opportunity lost for Idrija, but a new opportunity presented itself in 1907, when the company used the Chamber of Commerce and Crafts to propose a railroad link that would link Vrhnika and Most na Soči, via Idrija. The proposal received strong backing from the then Ljubljana mayor Ivan Hribar and would have given Idrija a direct link with Ljubljana and Gorizia. The route was planned through Podlipa, Smrečje and the Račna and Osojnica valleys to Idrija, but was rejected in Vienna because of the high costs involved.

Things only changed during the First World War when the Austrian Army needed fast transport routes between the frontline and the rear. The military command called for a construction of a rail link from Logatec through Hotedrščica and Godovič to Črni Vrh. Works began rapidly and the Hotedrščica – Godovič link was completed first. The works were stopped by the front having moved further west, thereby cancelling the need for a fast connection.

After the war ended, the borders changed as well, and Idrija was ceded to Italy, which completely changed the situation and requirements. The new border between Yugoslavia and Italy severed Idrija's links with the east, causing the mine's output to be transported to Most na Soči and through Godovič and Črni Vrh to the Vipavska dolina valley. The Italian road administration widened and reinforced all road links in the border area and the Trnovski gozd forest. The administration upgraded the roadways, mitigated inclines, bolstered bridges and linked bordering areas with the main roads.

The Hauliers of Mercury

The outlined routes were used for transporting mercury by subjects of



002 054
TRANSPORT ROUTE AND LATER A ROAD FROM IDRIJA TOWARDS GODOVIČ, ALONGSIDE THE ZALA CREEK



002 055
HAULIERS, AS DEPICTED BY POLYHISTOR JANEZ VAJKARD VALVASOR, 1689.

the Tolmin, Loka and Logatec townships. The majority of mercury was transported by subjects from Logatec, who owned the most cattle as their hilly region did not allow them to produce crops. Moreover, three major routes crossed Logatec, making its hauliers one of the most affluent in the Carniola region and Logatec one of its richest towns. Carniola's ruler also decreed, based on the demand by Idrija entrepreneurs, that hauliers from Logatec have to carry out transports solely for Idrija's needs, at any time and under a fixed price. In the opposite direction, the hauliers carried the essential necessities for the town (grain, cattle, wine, salt) and the materials required for the mine (skins for packaging, sulphur, iron, hemp, oil for lighting the mine).

Mercury Traders

The first major merchants in Idrija mercury were Wilhelm Neumann from Villach and his associate Johannes Pflügel of Salzburg. The pair sold all of the mercury to Venice, where they operated a subsidiary. Neumann was appointed Idrija's first magistrate in 1509, but later gave up the job to concentrate on managing the mine and trading in mercury. He also began selling the metal to German lands by establishing links with the Höchsteter trading company from Augsburg, which later went bankrupt as trade in mercury plummeted in the mid-15th century. Others who became active in the trade were Hans Baumgartner from Augsburg, who exported the metal to Venice via Trieste and then on to Alchema and Constantinople, and the Herwart trading company, which exported mercury to the Middle East and Alexandria via Venice.



002 056
WILHELM NEUMANN, MINE'S MANAGER AND MERCURY TRADER, FIRST HALF OF THE16TH CENTURY

The Herwarts were also active in the mid-16th century, when Idrija mercury was shipped to America as contraband. The Herwarts sold the mercury to the Spanish (the Fugger trading company), which in turn sold it on as mercury from Almadén.

Nevertheless, trading in mercury presented huge risks and many a trader risked everything if he did not leave the market quickly enough, resulting in bankruptcies of numerous trading companies from Augsburg towards the end of the 16th century. Their place was taken by the Venetians and Italians, who lent money to the Austrian archduke and were given a sales monopoly in return. This ushered in the period of Italian traders (Bontempelo, Albertinelli, Balbi). Many of them were, however, driven out of the business by high excise duties and road tolls. High import and export tariffs for Idrija mercury and the high costs of insurance for transporting the metal from Venice to places further west eliminated overseas transports from Venice. This resulted in an increase in land shipments to Amsterdam from the mid-17th century onwards. However, Trieste was also gaining in importance as the principal port of export for Idrija mercury and was starting to compete with Amsterdam as the main mercury market. Indeed, all the trade in Idrija mercury was carried out through Trieste from 1736 onwards and even Venetians were forced to purchase their mercury there.

Another surge in the mine's activities came with the arrival of Austrian court councillor Abondio Inzaghi, who proposed that the state (Inner Austria Chamber) take over the operations of the Idrija mine and

the sale of mercury. It was also set that a quintal of mercury could not be sold in Germany for less that 100 Guldens or in Venice for less than 150 guldens. Inzaghi was credited with bringing the trade in mercury, which was in decline during the commercial rule of the Balbi family, back to life. He realised that the future main market for Idrija's mercury was in Amsterdam and not in Venice or the Middle East. He was a skilled supported of the Deutz trading company, a beneficial move that saw the sales of mercury doubling. Moreover, the sales in Amsterdam in 1668 exceeded by 10-fold the sales in Venice, despite a hiccup during the Anglo-Dutch wars. However, Inzaghi fell out of favour after being accused that he profited more from the trade than the treasury, and was eventually deposed. This caused a drop in sales and resulted in a proposal to allow mercury from Idrija to be sold in Idrija and Trieste only. However, it was soon realised that Amsterdam needs to remain the mercury's main market and all the trade in the metal was taken over by the Lackner-Mittermayer company.

As was already mentioned skilled financial transactions enabled the Rotschild family to take over the global monopoly over mercury sales at the end of 19th century, after acquiring the monopoly on sales of Idrija mercury in 1831. Control over the mercury from Idrija was upgraded with the monopoly over trading in Spanish mercury in 1835.

Quantity of Exported Mercury

The following quantities of mercury and cinnabar were exported from Idrija:

Between 1555 and 1821

- A total of 47.7 tonnes (902 Vienna cents) of mercury and 9.4 t (180 Vienna cents) of cinnabar were produced by 1528.
- In 1530: 1.05 t (20 cents)
- In 1535: 0.2 t (4 cents)
- A total of 1,764.2 t (33,540 cents) of mercury were exported between early 1539 and April 1573, putting the annual figure at some 52 t of mercury and 45 cents of cinnabar.
- A total of 114.1 t (2,171 cents) of mercury and 11.7 t (205 cents) of cinnabar were exported in 1579.
- A total of 364.6 t of mercury (6,932 cents) and 82.9 t (1,576 cents) of cinnabar were sold between 1575 and 1581.
- In 1599, the mine sold 70.2 t (1,350 cents) of mercury.
- In 1602, the figure stood at 1,446 t (1,350 cents) of mercury and 21 cents of cinnabar.
- A total of 132.184 t of mercury (2,542 cents) and 15,444 t (297 cents) of cinnabar were sold between 1603 and 1606.
- The amount of sold metal stood at 474.3 t of mercury and cinnabar (9,018 cents) between 1608 and 1613.
- Between 1614 and 1620 the mine sold 13,855 cents and 362 pounds of mercury as well as 1,229 cents and 297.5 pounds of cinnabar.

002 058
CINNABAR



In 1614, the Spanish Council of the Indies tried to sign a contract with Carlos Albertinelli, the Florentine merchant in Idrija mercury for 3,000 cents of Idrija mercury and an additional 2,500 cents per year for the next nine years. However, Albertinelli withdrew from the contract as it did not pay off.

- Sales between 1621 and 1627 stood at 955 t (18,414 cents) of mercury and 55.5 t (1,074 cents) of cinnabar.

After Albertinelli's death in 1620, the Spanish managed to conclude in 1621 a deal with merchant Friedrich Overholz for 16,000 cents of mercury over the next four years. This mercury was to be priced at 54 pesos per cent (40 ducats), including transport to Seville or Cadiz. This was the first contract that allowed the transport of mercury from Idrija to the American market. The majority of the mercury was shipped to Peru. The first major shipment of mercury to Peru was completed in 1622 with Overholz sending 4,177 cents.

Peru's Viceroy Guadalcazar cut the workforce at the Huancavelica mine and thus also reduced the quantity of the mine's output. Indeed, it is known the first large shipments of mercury from Idrija arrived at Peru between 1620 and 1630, allowing the Peruvian viceroy to reduce the number of Indians employed in the Huancavelica mine. The development resulted in the need to increase the imports and a new contract was concluded with Overholz, who was to supply them with 4,000 cents a year between 1626 and 1628. However, Overholz failed to deliver as he seemed to have had a cash shortage and the mercury was stockpiled in storehouses in Venice. Overholz's creditors tried to send the mercury to Spain as well as attempted to cause the Habsburgs to reduce the production in the Idrija mine to cause a shortage of the metal in the market and take its price higher.

Trade in Venice was controlled by the Haug, Langenauer and Link and Co companies between 1575 and 1593. The business was acquired in 1574 by traders Marti Antonio Moffet of Venice and Antonio Marenzi from Trieste.

They were replaced by Bontempelli del Calice from Venice. During his control over the mercury trade (1594-1606), 205 tonnes of mercury were exported to America.

Between 1607 and 1620 Carlo Albertinelli took over, exporting between 457.6 and 473.4 tonnes of mercury between 1607 and 1613. He exported 5,600 cents of mercury to Spain between 1604 and 1610.

- In 1629, the mine sold 222.5 t (4,231 cents) of mercury.

Because the Huancavelica mine was on the brink of collapse, the Council for the Indias proposed in 1630 that other sources of mercury be used. The council wanted a new contract for the "German" (Idrija) mercury to be signed and the same wish was also voiced by Philip VI, the king of Spain. The deal was signed in 1631 by Spain and trader Antonio Balbi. Under its provisions, the mine was to supply 6,000 cents of mercury between 1632 and 1634. The contract was renewed and tasked Balbi with supplying 16,000 cents between 1637 and 1641.

- The period between 1639 and 1646 saw sales of 1,280 t (24,334 cents) of mercury, with Balbi the trader that made the deals.

- According to some sources, the mine sold 808 t (15,365 cents), while H.V. Srbik floats an even higher figure of 854.5 t (16,480 cents) for the period between 1649 and 1658.

- Meanwhile, sales between 1659 and 1663 stood at 560 t (10,651 cents).

According to figures from P. J. Bakewell: Silver Mining and Society in Colonial Mexico: Zacatecas (1546-1700), the following amounts of mercury were sent to America:

1620 – 1625	16,000 cents
1626 – 1628	over 3,000 cents
1632 – 1636	6,000 cents
1636 – 1640	16,000 cents
1641 – 1645	16,000 cents

Antonio Balbi of Genoa, who traded with the Spanish through Cadiz and Seville, took over, earning 84 million "Maravedis« in the process. He exported 6,000 cents of mercury to Spain by April 1632 alone and sent 16,000 cents to America by 1640. He then sent 239.5 t (4,618 cents) of mercury in 1642/43 and another 96 t (1,850 cents) via Venice in 1646. He exported 4,935 t (93,783 cents) of mercury to Spain between 1648 and 1658.

Sales of mercury in cities (in barrels)

Year	Amsterdam	Venice	Other places	Together
1660-1670	4696	1727	78	6502
1671-1680	6134	3774	1148	10691
1681-1690	5174	3152	59	8628

No data exists for sales of mercury via Venice in the 1695-1706 period. However, data is available for sales via Amsterdam. A total of 5,921 barrels of mercury were sold. Sales in the period encountered a crisis and large stockpiles of mercury were made.

Mercury sales in barrels between 1691-1705:

Year	Amsterdam	Venice	Hamburg	Regensburg	Vienna	Trieste	Together
1691-1705	5607	3162	1581	470	335	1119	6667

Mercury sales in barrels between 1706 - 1713:

Year	Amsterdam	Venice	Hamburg	Regensburg	Vienna	Trieste	Together
1706-1713	2935	838	78	254	64	200	4377

The Habsburgs closed the mercury outpost in Venice early in the 18th century and redirected the shipments to Trieste and Rijeka.

Mercury sales in barrels between 1706-1743 (only up to 1720 for Venice, when the outpost was closed, and after 1719 for Trieste):

Year	Amsterdam	Venice	Regensburg	Trieste	Rijeka	Idrija	Together
1714-1743	14638	849	354	2542	1352	112	19847

002 059
BARREL AND LEATHER BAG FOR
TRANSPORTING MERCURY



The mine sold 3,735 t (71,323 cents) of mercury during the contracts with Spain (1786-1796). The metal was transported from Trieste on Spanish ships. The first Spanish contract (1785) bound the mine to send 235 tonnes (4,480 cents) of mercury, while the second contract (1791) tasked it with sending 294 tonnes (5,600 cents)

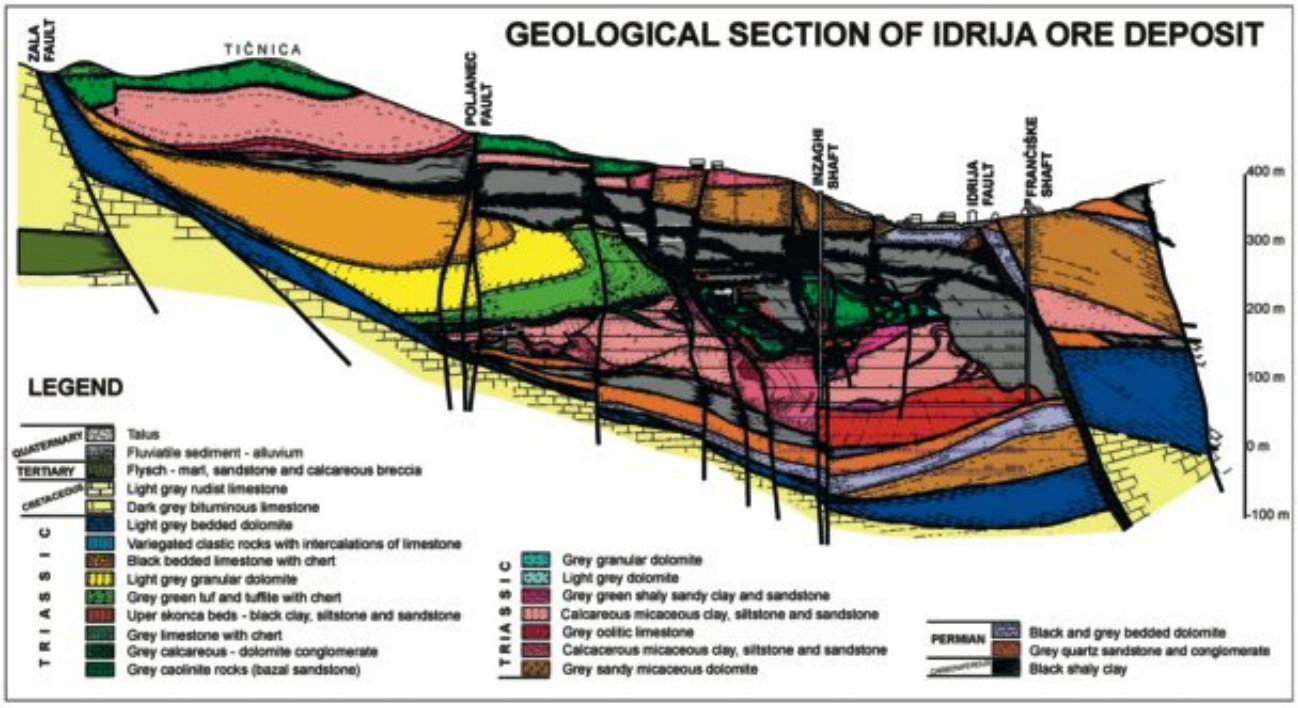
The sale of mercury from Idrija began fluctuating after the two contracts expired and a minor crisis in sales erupted during the French occupation. While there is no documents saying from where and to which destination mercury from Idrija was sold between 1797 and 1830, it is known that 3,556 tonnes (67,564 cents) were sold in this time.

History of the Ore Deposit

The Idrija ore deposit comes second in size after Spain's Almadén. However, the deposit is not only big in size among mercury mines, it is of global importance and significant because of the circumstances in which it was formed. Its exceptionally rich and unusual ores, geochemical and



002 060
STEEL FLASK FOR TRANSPORT
AND SALE OF MERCURY



002 061 GEOLOGICAL CROSS-SECTION OF IDRIJA ORE DEPOSIT

mineral composites and the uncommon transformation processes that make for its current state. Today's composition seems at first glance to be an incomprehensible and unsolvable geological chaos.

This explains the importance of the explorations by geologists, who managed to reconstruct the creation and the development of the mine throughout is geological history. The first geological data on the Idrija ore deposit was collected in the mid-18th century. The analyses of the ore deposit in the "modern" sense were carried out in the past 130 years.

The events during the formation of the Triassic composition of the ore deposits and the various mercury ores and the transformation of the former structure of the deposit to its current state are truly unusual and rightfully attract worldwide attention. The unusual story written below is supported by various geological data, preserved mainly in the ore deposits and the Idrija's surrounding. Further data on the processes taking place during the formation of the Idrija deposit can be found in Slovenia and abroad. Geological events are written in the rocks in the form of their mineral and chemical composition, their internal structure and texture, their position in geological strata and the changes in the vertical and lateral directions, relations of various rocks among themselves and the contacts between them (normal, erosion- or tectonics-induced).

Extensive material geological proof on the formation of the Middle Triassic structure of the ore deposit and the mercury ores and its transformation into its current state are preserved and presented as part of the mine's collection, on display in Francis's shaft.

Formation of the Middle Triassic Structure of the Ore Deposit

The first geologic events that gradually resulted in the big events in the Anisian and Ladinian subdivisions of the Middle Triassic and also caused

the formation of the Idrija ore deposit can already be seen at the end of the Paleosoic Era in the Early Permian Epoch, some 255 million years ago. The area that is now Slovenia was flooded by a sea at the end of the Permian epoch. The shallow and warm sea covered an extensive, mostly flat and somewhat raised underwater plateau, named by geologist Stanko Buser the Slovenia Carbonate Platform (SCP). The shallow and the warm sea covered Slovenia for long geological periods, but it goes without saying that, the conditions of rock formation on the underwater plateau were of course not the same in all of its parts. Rock sedimentation in individual areas depended on the changes in the depth, the water's energy and the amount of rocks deposited from land. While certain differences did exist, the entire territory of what is today Slovenia saw the formation of similar versions of shallow carbonate rocks, giving the name carbonate platform. These include limestones, dolomites, marlites and transitional rocks.

At the start of the Anisian –some 242 million years ago– the sediments from land stopped, most likely because the surrounding lands had been completely levelled and submerged. According to rocks from the era, Slovenia was in the period covered by a shallow (a few metres), warm and clean sea. Occasional pockets of land, probably in the form of very low islands were occasionally formed, while the extensive floodplains were submerged during high and dry during low tide (tidal plains).

The era of great changes began during the Middle Anisian (some 238 million years ago). The accelerated magma flows in the Earth's interior in the form of convection currents caused the Slovenian Carbonate Platform to start rising and expanding. Simultaneously with the rise and the expansion of the territory, numerous normal fractures (strike-slip faults) appeared that cut through the Slovenian carbonate platform, causing it to gradually disintegrate to several independent extensive chunks - smaller plates that slowly moved away from each other. The movements of the smaller plates also resulted in lowering tectonic trenches where new ocean crust usually begin to form upon further expansion, the process known as rifting. Slovenian Middle Triassic tectonic trenches, including the one in Idrija, did not serve to make new ocean crust as the expansion stopped prior to the splitting of the plates. What did happen was the formation of sediment rocks in the trenches, characteristic of deeper water environments. Such activities, i. e. the splitting of individual plates is still going on today, for example in the Eastern African trench, Iceland, and elsewhere.

The southern, independent plate of the former single Slovenian Carbonate Platform, called the Dinaric Carbonate Platform, bordered on larger tectonic trenches in its northern and southern sides. The trenches were filled with rocks that are usually found as sediment in deep sea. Coincidentally, deep sea rocks can today be found in the Cerkljansko area, which includes Idrija. Meanwhile, a relatively small, but uniquely shaped Idrija Middle Triassic Tectonic System (IMTTS) formed in the middle of the Dinaric Carbonate Platform. The area first rose above the sea level and simultaneously produced long and deep open fractures which are today mainly going from east to west, intersected by shorter fractures that take the north to south direction. The central part of the Idrija Middle Triassic Tectonic System which was sinking more rapidly along the east-west lines created the Idrija Tectonic Fault. In the lands to the north and the south, older rocks quickly disintegrated and were carried away by erosion as gravel and sand. The washed-off material formed a massive complex of conglomerate rocks that nowadays lie between the Kovačev Rovt and Rovte hamlets.

Even more unusual and complex activities meanwhile took place in the Idrija Tectonic Trench. This is where the Idrija mercury ore deposits were formed in upper Ladinian (Langobardic sub-division), some 230 million years ago. Its core was sunk and restricted by two raised blocks to the north and the south – the northern and southern ridge. This is where erosion removed some 750 metres of Anisian, Scythian and Permian layers, exposing the Carboniferous shales, the oldest rocks in the Idrija region. After a short period of dolomite deposits, powerful tectonic shifts combined with volcanic activity and a layer of volcanic ashes (pyroclastic material) quickly-filled narrow and deepest parts of the Idrija trench with random material (silt block breccias), formation of narrow marshy areas (kaolin rocks) filled up by slope gravel the occasional landslide and slides of older rock layers (sliding breccias) as well as alluvial sediments, formed sometimes very unique sediment rocks in the Idrija tectonic trench. Some of these sediments are unknown in other parts of the country and are also a rarity on the global scale. After the submerged parts were filled and tectonics partially steadied, the entire area of the filled-up Idrija tectonic trench was overgrown by a marsh rich in plants where the Skonca layers (bitumen shale, siltstone and sandstone) were deposited. The trench was then flooded by seawater and increased deposits of volcanic ash, creating tuffs and tuffites.

The Idrija Middle Triassic Tectonic Trench is the only such structure in the area of the Southern Alps, the history of which has been completely reconstructed.

Formation of the Mercury Ores

The Idrija ore deposit is rightfully admired around the world because of its rich and interesting cinnabar ores (HgS). The Idrija cinnabar ores were formed in two ways, an unusual occurrence for mercury ore deposits. The first method of forming saw the ore-bearing fluids trickling across the trenches and fractures through the older rocks of the Idrija ore deposit - the Carboniferous Permian, Scythian and Anisian rocks.

The hot waters dissolved the soluble minerals, especially calcite leaving numerous small holes in the rocks. Mercury (Hg) and sulphur (S) from the ore-bearing fluids were slowly combining into the mineral cinnabar (HgS) or non-crystallised cinnabar gel, as pressure was slowly released and the thermal waters cooled from 218°C to 160°C. The holes in the rocks, open fractures and fissures were in such a way gradually filled by cinnabar. If not enough sulphur was present, native mercury was excreted instead (shales impregnated with mercury droplets).

The ores formed in such a way are called epigenetic cinnabar ores. They are normal and well documented in other mercury deposits in the world. Idrija's uniqueness meanwhile lies in its syngenetic or sedimental cinnabar ores, found nowhere else. Their formation was caused by the outpouring of the thermal waters, enriched by mercury and sulphur, or directly with the cinnabar gel, into the then existing swamp where various marsh sedimentary rocks have also been formed, known as Skonca layers.

In short, epigenetic cinnabar ores were formed by supplementing older rocks, filling up of faults and cracks, while syngenetic are sedimental as they were formed at the same time as the rocks that they are located in. Some 158 ore deposits of various sizes and richness (areas of ore-bearing rocks) were formed as part of the creation of the Idrija Middle Triassic tectonic trench.

The fractures that limited the individual parts of the trench were very deep, seemingly cutting through the earth's crust and reaching the highest

parts of the Earth's mantle. They were the cause of the first surges of ore-bearing fluids that appeared in the early phase of the formation of the tectonic trench and appeared during the time when the trench was overgrown by sparse marshes. The surges appeared as unusual rocks were formed in the marsh, mainly in the form of the kaolinite mineral / The faults caused older rocks to be infused with cinnabar and partly with native mercury, creating the first epigenetic ores. Partially the ore-bearing flows emptied into marshy ponds and formed the first sedimental cinnabar (syngenetic) ores. However, the first phase of the ore-enrichment saw a relatively small amount of ore-bearing fluids coming to the surface, resulting in a small quantity of mercury ores.

Similar conditions meanwhile occurred at the end of the shifts of the Idrija Middle Triassic Tectonic Trench. At the time, the deeper parts of the trench were already filled up with various coarse sedimental rocks, while some parts of it were covered by a shallow, vegetable-rich marsh, where the famous Skonca layers – the miraculous layers of the Idrija ore deposit – were formed.

The second phase of hydro-thermal activities saw enormous amounts of mercury and sulphur making it to the surface, causing the formation of rich epigenetic cinnabar ores in the older rocks. The major part of the cinnabar gels meanwhile made their way directly into the marsh, creating unique sedimental ores. The lack of inflow of sulphur made a part of mercury remain in its native form, creating ore-bearing deposits with native mercury, mainly in the Carboniferous shales, Skonca layers and partly in some other rocks.

While the cross-sections of epigenetic ores look almost the same (mainly composed of small crystals), the cross-sections of syngenetic ores formed numerous beautiful sedimentary forms, called textures. The characteristic forms of the interior composition of sedimental ores tell us about the conditions and environment at the time of their formation.

The mining names for the rich Idrija cinnabar ores were mainly given according to their colour, internal structure and the percentage of mercury, but less by their composition. The richest ores have names such as jeklenka (steel ore), opekovka (brick ore), jetrenka (liver ore), while ores, characteristic for the Idrija ore deposit, are the karoli (coral) ore, , various types of sediment ores and the shale ore with a large percentage of native mercury.

The miners and metallurgy experts decided for the following divisions in relation to the percentage of mercury in the ore: Jeklenka (very rich in mercury), rich ore and the poor ore, or so called bašperh.

The Formation of Idrija's Ore Deposit as it Exists Today

After the Middle Triassic tectonics abated, the ore-bearing rocks were believed to have been covered by some 5,500 metres of younger rocks of the Upper Triassic, Jurassic, Cretaceous and Palaeocene and Eocene. The Alps mountain range meanwhile began forming in Oligocene and early Miocene, as the smaller Adriatic plate started pushing against the European plate. This caused extensive changes in Slovenia, gradually resulting in the geological situation that is present today. The Idrija Middle Triassic Tectonic Trench was also included in the changes and so was, of course, the ore deposit.

The transformation of the Triassic structure of the ore deposit into the one we know today cannot be explained in simple terms, as it resulted from numerous and complicated events, also linked to the transformation of the entire area of Southern Alps. The pushing of the Adriatic plate

under the European caused folds in several rock strata, creating an extensive fold. The part of the Earth's crust, where the Idrija Middle Triassic Tectonic Trench with mercury ore deposit was located was first concave in shape and later transformed into a vertical fold. Folding resulted in the fractures which caused parts of the ore deposit to move in a south-westerly direction. The continuing pressures caused the structure of the ore deposit to continue leaning towards the South. The old fractures ceased being active and new ones were created that caused individual parts of the deposit to shift northwards. The final transformation of the large fold with the Idrija ore deposit at its upper part, created folding lines, extensive nearly horizontal tectonic contacts alongside which the deposit was pushed some 35 kilometres towards the SE, where it remains until today. Another extensive system of fractures was created several million years ago, including the regional Idrija and Zala faults that cut the already greatly transformed Idrija ore deposit into individual chunks and moved them towards the SE and also vertically. The final result of the above mentioned events is the uniquely chaotic structure of the ore deposit.

History of Mining and Technology

Mercury trade routes also resulted in the transfer of the most modern technologies in acquiring the metal. These methods include the Aludel ovens for smelting the mercury ore, developed in Huancavelica in Peru. The ovens made their way to the Spanish Almadén mercury mine, where they were known as Bustamante furnaces, and then in 1751 to Idrija, where they were called the Spanish furnaces.

The special importance of the mine for the Habsburgs meanwhile guaranteed that the town would remain at the cutting edge of technological development and maintain its practice of innovation. Numerous devices were built and inventions implemented throughout the mine's existence. The large demand for mercury during the Spanish contracts, which called for large shipments from Idrija resulted in the opening of new entrances to the mine (Francis's and Joseph's shafts); the construction of the Leithner furnace (1787); and in 1886, the Čermak-Špirek's reverberatory furnace, a result of know-how by two of Idrija's experts (Joseph Čermak, Vincenc Špirek). The furnace operated successfully for over 100 years and presented the peak of mercury smelting technology when it was built. The furnace was also studied by Spanish experts from Almadén, who decided to transfer the technology and call it the Idrija furnace.

History of Mining

The beginnings of mining in Idrija go back to the turn of the 15th century, with famous Slovenian polymath Janez Vajkard Valvasor placing the date at 1497, while mercury was first discovered in its vicinity in 1490. The Mercury Mine Idrija was one of the oldest operational mines in Europe until 1988, when the process of gradual closure was launched.

The mine operated for 500 years without stopping and was mining the deposit that stretches for 1,500 metres in the NW-SE direction, is 300 to 600 metres wide and 420 metres deep. During the 500 years of mining, the town of Idrija was created directly above the deposit.

The first prospecting and mining activities were carried out in the NE part of the ore deposit, in the vicinity of the Church of the Holy Trinity, where shales with native mercury were located. Prospecting then followed the vein and some of the shale was dug out. Anthony's Main Road, entrance to the mine was constructed in 1500 and is still used as the entrance to the museum part of the

mine. The level at which Anthony's Main Road was dug contained a thin vein of native shale, forcing the miners to dig down. They had to dig out sloped shafts in the direction of the inclination of shale layers as well as dig vertical shafts to reach lower-lying ore deposits. The first shaft of St. Achatius was dug after 1500 on the location of the current "old square" and was followed by the St. Catherine's shaft in 1516, George's shaft in 1523 and finally the St. Barbara shaft in 1596, which reached to the IVth level (146.3 metres below the surface).

By 1730, the shale was almost exclusively dug out from the Skonca layers, as it acted as a carrier for the rich cinnabar ore. At the same time, the weak structure of the material kept the mining costs low. The miners meanwhile hit a dolomite breccia with very low contents of ore and believed they had reached the bottom of the ore-deposit.

Subsequent extensive prospecting and an increasing body of knowledge on the geology of the deposit later led to the discovery of lower-lying parts of the mine, which were also full of rich cinnabar ore.

The large number of dispersed mercury-bearing rocks across the Idrija ore deposit and the very uneven concentration of the mercury contents in the ore necessitated prospecting throughout the mine's operations. The prospecting found and proved numerous new pockets of rich ore-bearing rocks in the deposit. At the same time, the prospectors were looking for ore outside of the deposit.

Prospecting for new areas of rocks rich in mercury was greatly expanded with the introduction of deep cave drilling. The novelty in such drilling, first implemented by the head of the prospecting team at the Idrija ore deposit, was the so-called reverse circulation drilling, a technique later adopted by foreign drilling equipment manufacturers. This technique developed into a special drilling method in extremely unfavourable rock structure situations.

Advances in the drilling downwards and towards the SE part of the ore deposit resulted in the development of the drift mining method that included back-filling of abandoned parts of the mine and stages from the bottom up. The drift method was used for over 300 years in the Idrija mine At the start, all operations were done by hand, with drilling done by hammer and chisel, loading and filling up with a hoe transporting in Hungarian



002 070
FILLING THE MINE CART (TRUGCA) WITH THE ORE



002 071
DRILLING MINE BOREHOLES WITH THE AID OF A PNEUMATIC DRILL



002 072
EIMCO PNEUMATIC SHOVEL ON COMPRESSED AIR

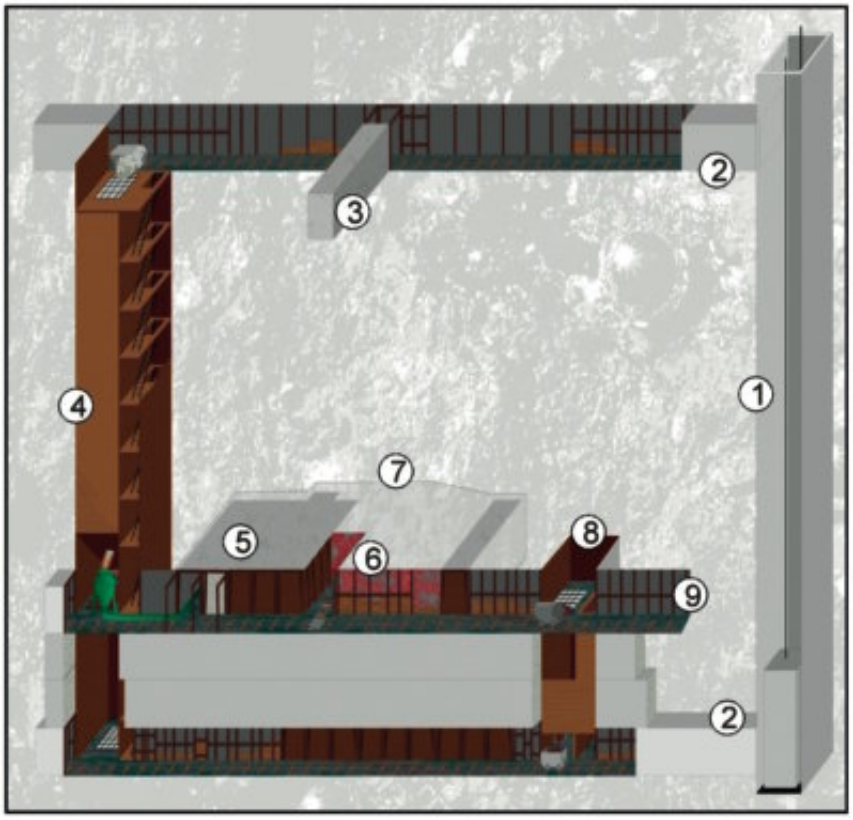
mining carts using planks instead of rails. The miners worked much in the same manner, apart from drilling, at the end of the Second World War.

Machinery was introduced to the mine gradually as drilling by hand was replaced by pneumatic drills, Hungarian carts replaced with swinging ones, called "Koreans", loading by hand was replaced by a pneumatic shovel on rail and was in turn succeeded by an autoloader on rubber wheels. In the end, filling up the disused corridors by hand was replaced by a blowing pot.

The extreme adaptability of the drift mining method meant that it was used for over 300 years, until the mine's closure, with modifications and increasing use of machines.

A specific issue was mining the cinnabar ore with native mercury in the soft Permian Carboniferous shales. The sublevel drift mining method from the bottom up was not suitable for mining ore-bearing shales. In order to get at these shales, the drift method with an expanded front, steels props and the Alpine AM 50 road header were used alongside dry backfilling with levels coming from the bottom up. Despite the huge efforts to guarantee the stability of the mining areas, the miners failed to make the high efficiency of the road header felt. The huge problems linked to the installation of supports resulted in the end to the use of such method.

A new method had to be invented that would guarantee the stability of the mined parts in the loose in the mine. The method had to at the same time allow for mining of vertical ore deposits of completely irregular shapes and reduce the harmful effects of native mercury on the cave and the miners working it. Based on the above points, the miners planned, tested and introduced a completely new sublevel method by using a reinforced backfill. The mining levels made by using this method are made from the top down (and allow for stability of the mined areas. This



002 073
THE IDRIJA DRIFT MINING METHOD:

1-SHAFT
2-MAIN LEVEL
3-TRACING WORK
4-BLIND SHAFT
5-BACKFILL STOPE
6-ACTIVE TOPE
7-MINING FIELD
8-SLIDING HOLE

also prevents the loss of the ore and, primarily, the native mercury in the backfill, reduces the surface of the freshly cut rock and thus lessens the evaporation of native mercury. The ceiling of the mined areas is made of a reinforced backfill (concrete), thus reducing or eliminating the need to reinforce the mined areas. The method allowed for higher efficiency and reduced the use of wood for supports, resulting in reduced costs. The sublevel mining method with the use of reinforced backfill and levels from the top down prevented the loss of ore and native mercury in the backfill and reduced the concentration of mercury vapours in the mine. It is a unique mining method for acquiring mercury ore with native mercury and presents an important heritage of the Idrija mine.

The common point of all the mining methods and modifications to the drift mining method is the need for selective acquisitions of very rich ore, rich ore and gangue, due to the different process of roasting the ore in the smelting plant.

The unique feature of the Mercury Mine Idrija is the presence of native mercury. Native mercury, which evaporates at normal temperatures, poisons the working area with an increased concentration of mercury vapours. Measurements have shown that the level of mercury vapour in the mine was usually 2 to 8 times, but even 10 to 20 times higher than the internationally set limit value. By using various safety precautions, developed during the 500 years of mining for mercury in Idrija, miners could work in the areas of the mine with increased mercury levels. The safety precautions as written down in the mine's documents include: chewing bacon, reduced working hours, limited number of consecutive working days (3 to 6, maximum of 10) in parts of the mine with an increased level of mercury vapours. The final years of operations at the mine (after 1965) meanwhile saw the introduction of yet additional measures. However, these too failed to effectively lower the concentration of mercury vapours in the mine. As a result, personal protection means and permanent occupational monitoring were instituted.

A half face mask connected to a filter with active coal, developed in the mine, allowed the miners to breathe purified air in the areas with excess levels of mercury vapours, but also meant that the miners had to use their breath to overcome the resistance of the filter to air. The protective helmet meanwhile kept the filter from active carbon fibres but had an electrically powered fan added. The fan, charged by the mining lamp's battery, was used to push the contaminated air through the filter. The protective clear plastic face cover allowed the miner to breathe in the purified air. The research for the adjustments to the protective helmet – filter for the use in an atmosphere with a high mercury content was carried out in the Idrija mine and represent a part of its heritage.

The next unique feature of the Mercury Mine Idrija was the steam-powered hoists in the Inzaghi and Joseph's (Delo) shafts. The two machines were disassembled and are kept in the Idrija Town Museum. The electric hoists in the Francis's (Borba) and Joseph's shafts are meanwhile still in place and well preserved. This allows the mine to showcase as part of its heritage the development of hoists in the mines from the early manual, horse-operated, steam, first electrical hoists (the early direct current engine - the Ilgner motor) and the modern hoists, equipped with alternative current motors. The hoist tower in the Francis's shaft is now equipped with the modern Koepe hoist, making Idrija the only mine with such a display of various hoists.

The mine's transport on the surface by a narrow railway to the sorting and smelting plant through the town is undoubtedly a feature of the mine. The transport of the ore with the cable



002 074
THE IDRIJA DRIFT SUBLEVEL MINING METHOD BY USING A REINFORCED BACKFILL – CONCRETE

car was meanwhile another unique feature of the Mercury Mine Idrija.

The water wheel with the largest diameter in Europe is well preserved and available to the visitors of the Idrija Municipal Museum. The visitors of the wheel are also explained in detail the operation of the pump. This system managed to draw water from the XI level, 283 metres below to the surface. The second unique machine for drawing water from the cave is the steam-powered Kley's pump in the Francis's shaft, also displayed as a museum piece. Both pumps present a special feature that needs to be emphasised as part of the mine's heritage. In order to draw water from below the XIth level, special pumping stations were constructed on the XIVth and later on the XVth level. Both pumping stations were equipped with centrifugal electric pumps. When the breakthrough to the Ljubevč ore deposit was made in 1970, including a mine rail on the level of the XIVth level, a new automatic pumping station was constructed.

The station was able to pump out 6 m3 of water per minute for the entire mine, while the lowest, XVth level was equipped with a special submergible pump. After the launch of the closing works and submergence of the mine in water, the pumping station on the XIVth level was taken out and replaced with new pumps of a smaller capacity. After the mine was flooded to the IXth level the pumping station at that level was also dismantled. Two completely automatic submergible water pumps now maintain the level of the water in the mine. They are located in the Francis's shaft. The mine's rail tracks on the IXth level were meanwhile transformed into a water reservoir. Pumping stations in Idrija also make for a valuable feature of the mine. The visitors can see the pumping stations that were used before steam machines, steam-powered pumps, manually operated and automatic centrifugal electric



002 157
OIL LAMP

pumps and submergible pumps. Another specific feature of the mine is the presence of electric drilling hammers, which, however, never caught on in the mine. One example of such hammer is, however, preserved in the museum.

The air compressor is not operational any more, but all the compressors have been preserved as an important source of energy (piston compressors of the Tosi, Chicago, Mavag, Atlas and Copco brands). They are waiting to be restored before being showcased as another feature of the mine's heritage.

The early 20th century also saw the oil lamps ("ripsovke") replaced with carbide (acetylene) lamps, which were much brighter. The special feature of the carbide and acetylene lamps was their different shape from the ones used in other mines. The carbide lamps were also of distinct shape and available in a size for miners to carry in the hands or on their protective hats.

Another unique feature of the Idrija mine was the transport, storage and preparation of the wood used in the mine. The mine used large quantities of wood. This necessitated the construction of the "klavže" water barriers They were used for damming the streams, before releasing the water and with it the wood down to the town where special rakes were installed on the bridge Wood was later also transported by carts and trucks. Sufficient stocks of wood were meanwhile guaranteed with a wood storage house, which was also used to cut the wood into the sizes needed for use in the mine.

Roasting

Mercury ore was processed into mercury at different locations, at the beginning located in the vicinity of the entrances to the mine and later in various locations in the vicinity of Idrija due to the high demand for wood. Over 20 such places have been documented and studied so far (Pront Lenštat Pšenk etc).

The first real covered smelter was built in 1641 on the left bank of the Idrijca river under St. Anthony hill (Prejnuta). It was 45 metres long and 11 metres wide and was succeeded in 1746 by a new smelter, 100 metres in length and 14 metres wide, built at the same location. Roasting at this location was carried out in various ovens until 1880, when a new smelting mill was erected on the right bank of the Idrijca river. The move to the new location created more room for the smelting plant, allowed the damming of the Idrijca river and use of hydro power, made it easier to transport firewood and facilitate the removal of the remains of roasting. The move was also necessitated by the antiquated nature of the old smelting plant.

The smelting mill remained at the location until the end of the mine's operations in 1995 and was then protected in 1997 as a monument of

002 075
THE COMPRESSOR STATION AS THE MANUFACTURE WAS BEING CANCELLED



technical heritage and in 2001 as a monument of national importance.

A high and constant temperature (some 800°C), an adequate quantity of air and successful catching of mercury vapour are required for the production of mercury. The improvements throughout history tried to achieve the goal.

However, the early smelters knew no theory regarding the production of mercury, as natural sciences were but poorly developed in the period. It was their innovative spirit, desire to learn and improvisation abilities that led to a number of inventions that raised them among the world's best.

The beginnings of mercury production were very simple. Ore containing native mercury was simply washed out under running water through ever finer sieves from iron or copper wires.

A method of smelting ore on heaps was in use until 1508, a procedure similar to the way that charcoal can still be produced today. Heaps were substituted with kilns. The procedure that was used until 1656 was described in detail by the renowned mining expert Georgius Agricola in his 1556 work »De re metallica«.

However, Idrija began falling behind Spain's Almadén mine in terms of smelting technology, prompting the court chamber in Graz to invite innovators from other countries.

The results of the efforts by the invited mining experts, pharmacists and alchemist were soon visible as Hans Steinmann introduced the first furnaces and Konrad Widerholt von Widenhofen (a doctor) replaced the ceramic retorts with cast iron ones.

The period between 1508-1656 also saw Idrija become the world's leading producer of mercury for those periods of time that coincided with the problems in Spain's Almadén mine.

The furnaces were additionally enhanced during the time of manager J. F. Stampfer, who in 1715 replaced cast iron retorts with forged ones and made modifications to the entire furnace.

The mine's director Anton Hauptman had new furnaces installed in 1751. The »Spanish furnaces« were developed in Peru's Huancavelica mine and arrived in Idrija via Almadén, a proof of the links and exchange between the mines. The furnaces were known in Almadén as the Bustamante furnaces.

Over time, the furnaces were upgraded and in 1770 L. Passetzky introduced covered channels.

The increasing market demand for mercury and the large supply contracts with Spain prompted the management to seek new ways of smelting the ore. Court councillor Josef von Leithner, living in Idrija at the time, designed and installed in 1787 new vertical flame furnaces called Leithner furnaces in his honour. These furnaces remained in operation until 1860 and were also used in Almadén.

Six vertical furnaces were reconstructed in 1825. Two had their chambers joined into Francis's furnace and the remaining four into Leopold's furnace.

The next invention in the field of smelting came in 1842, when mine manager Martin Glowatsky constructed a new type of furnace, called " fortšauferica". These furnaces required the workers to use shovels to turn the ore, a very difficult and hazardous process.

The smelting plant was moved to the right bank of the Idrijca between 1870 and 1880. At the end of the move, 21 various furnaces operated in the area. The most important modernisation in the construction of the new smelting mill was the new joint smoke stack and a chimney at the top.

What followed was a period of great improvement and inventions. Numerous respected experts came from the excellent school in the vicinity of Prague at the time, with Joseph Čermak, Vincenc Špirek in Adolf Exeli the most important in terms of Idrija's history. The three engineers arrived in Idrija after completing their education and managed to radically improve the smelting procedures. The trio also made Idrija the world's leading know-how and innovation centre in ore smelting.

The Čermak-Špirek reverberatory furnace (1886) was in use, with slight modifications, until 1974 and at its development presented the pinnacle of mercury ore roasting. The fame of the Idrija furnaces spread all the way to Spain, bringing experts from the Almadén mine to look at how they worked. They later built the same furnaces for use in the Spanish mine. The quality of the Čermak -Špirek design can be seen in the fact that it operated for nearly 100 years. The Čermak-Špirek furnace in Idrija is the only furnace of such design that has been preserved.

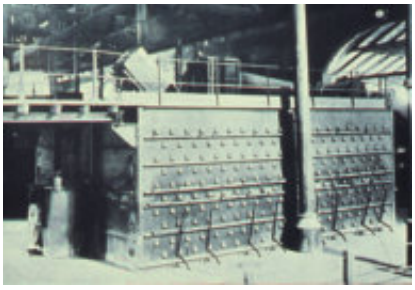
The last upgrade of the smelting mill took place in 1961, when a modern rotary furnace of the SAIMA company was installed. Engineered by G. I. Gould, the Idrija rotary furnace is the largest preserved furnace of the kind in the world.

While three rotary furnaces were in operation between 1965 and 1977, the fourth and the fifth were never installed, due to the crisis on the mercury market. After production was restored in 1984, only the no. 3 furnace was operating. It was shut down for good in 1995, when the last 8 tonnes of mercury were produced.

Development of the Town

Idrija is the oldest Slovenian mining town. Its beginnings are linked to the discovery of mercury. Its growth and scope is linked to the development of the mine.

There is no data on the original settlement, but accounts show that the main area of mining in the 16th century was located between the Church of the Holy Trinity and the original watercourse of the Nikova stream. The wooden church and the St. Achatius chapel were located on the spot of the future Idrija castle. In 1500 Anthony's Main Road l already served as the entrance to the cave.



002 077
ČERMAK-ŠPIREK'S REVERBERATORY FURNACE



002 079
ROTARY FURNACE AT THE FINAL ORE SMELTING IN 1995

In the areas of Gasa and Riže, where there was no mining, the first settlement was formed.

The mine's administrative centre, the Gewerkenegg castle, was built between 1522 and 1533 and also served as the storage for mercury. Numerous other buildings were built for the mine: Achatius' Shaft (1508), Catherine's Shaft (1512), George's Shaft (1523), water channel to Achatius' Shaft, rake at the Lenštat (1537), Barbara's Shaft l (1588–1596), wooden channel to the town. A total of 200 people worked in the 170-metre deep mine at the end of the 16th century. They mainly lived in wooden houses.

The new St. Barbara's church was built in the 17th century (1628) as well as St. Anthony's church at a hill above the entrance to the city. The vicarage was built in 1665. The town housed numerous pubs and a large number of newly constructed mine-related devices and buildings at that time, including: a new rinsing and sorting plant (1644), a smelter (1652) and a water-powered ore crusher at the end of the century. Idrija was at that time depicted by the famous Slovenian polymath J. V. Valvasor in his famous Slava Vojvodine Kranjske (The Glory of the Duchy of Carniola). The town was then inhabited by just fewer than 3,000 inhabitants of whom 330 were miners The mine reached 200 metres in depth.

The development of the mine and the town in the 18th century can meanwhile be seen from the surface and mine maps by F. A. Steinberg, A. Haubtmann, J. Mrak, B. Hacquet. The town is defined in the 18th century by the technical buildings and devices. Several other mine-related objects were constructed in that time: Teresia's Shaft (1736–1748) Joseph's Shaft (1786), Francis's Shaft (1792), the Kamšt water pump (1790), a new smelting plant(1746) and a new cinnabar factory (1782) on the right bank of the Idrijca. The city gets an upgraded church of the Holy Cross in 1782, the miners meanwhile get a barber surgeon (Padarija) in 1744, pharmacy (1750), the mine's warehouse and the Slovenia's first theatre house made of stone (1769).

Idrija houses 3,600 people at the end of the 18th century, with 1,350 employed in the mine. The town has 306 mostly wooden houses. Idrija was given town rights in the mid-18th century and its coat of arms with the symbol of mercury. The depth of the mine reaches to between 226 metres and 253 metres.

The mine continues to expand in the 19th century, both above and below ground. Ferdinand's Shaft l is built in 1836, Inzaghi's ventilation shaft in 1889, Florian's Shaft l for pumping out ground water between 1846 and 1854, a new smelting plant is built between 1870 and 1880, as well as a new cinnabar sublimation plant. The town got a new public bath in 1806 and a sizeable part of the castle is given a French-style makeover. Moreover, the primary school is built in 1876, the town hall in 1898 and the first larger apartment flats for miners in 1872.

Idrija still looked as a town from the pre-industrial age at the time. The Lenštat and its rake continued to be used for catching the floating wood and store large quantity of materials. The area around the sorting plant is used for sorting, crushing, rinsing and transporting the ore to the smelting mill. The central part of the town becomes the administrative, trading and the residential area, with the Old and New Squares. The town's street grid has no structure and adapts to the configuration of the terrain and Idrija expands towards the edges of its basin.

At the end of the 19th century, Idrija has 5,538 inhabitants and 491 houses, making it the second-largest town in Carniola. The mine employs 1,250 workers and is 283 metres deep.

The first half of the 20th century brought no great change in to Idrija's centre. Some of the buildings were abandoned, while the secondary school was built in 1903, alongside several apartment blocks. The Italian authorities also constructed flats and barracks (today Idrija's hospital). The damaged church of St. Barbara in Idrija's main square is torn down in 1952 and blocks of flats are constructed on Rozmanova and Rožna ulica streets in the 1950s and 60s. A new administrative and trading centre is built on the location of the old sorting plant in the 70s and 80s. The last major upgrades are undertaken by the mine in that time. These include the installation of three rotary furnaces in the area of the smelting mill in the 1960s, while new electronics companies started operating in the area at the turn of the 20th century.

Today the mine is shutting down but will never close its doors completely. It has retained the control over the area that it had exploited for 500 years, reaching a depth of 420 metres at its closure. The termination of the mine's activities resulted in the flooding of the deepest parts of the mine, while other tunnels and shafts are being backfilled. The most important and telling examples of architectural and technical heritage are being preserved and bear witness to the rich history of mining and life in general in the town:

- The Gewerkenegg Castle, home to Idrija Municipal Museum. The Museum received in 1997 the prestigious Micheletti Prize for »the best European Museum for Industrial and Technical Heritage« for its presentation of the 500-year history of the mercury mine and the town of Idrija;
- Anthony's Main Road – the oldest preserved entrance to the mine, with presentation of different methods of mining, also open for tourists;
- Francis's shaft;

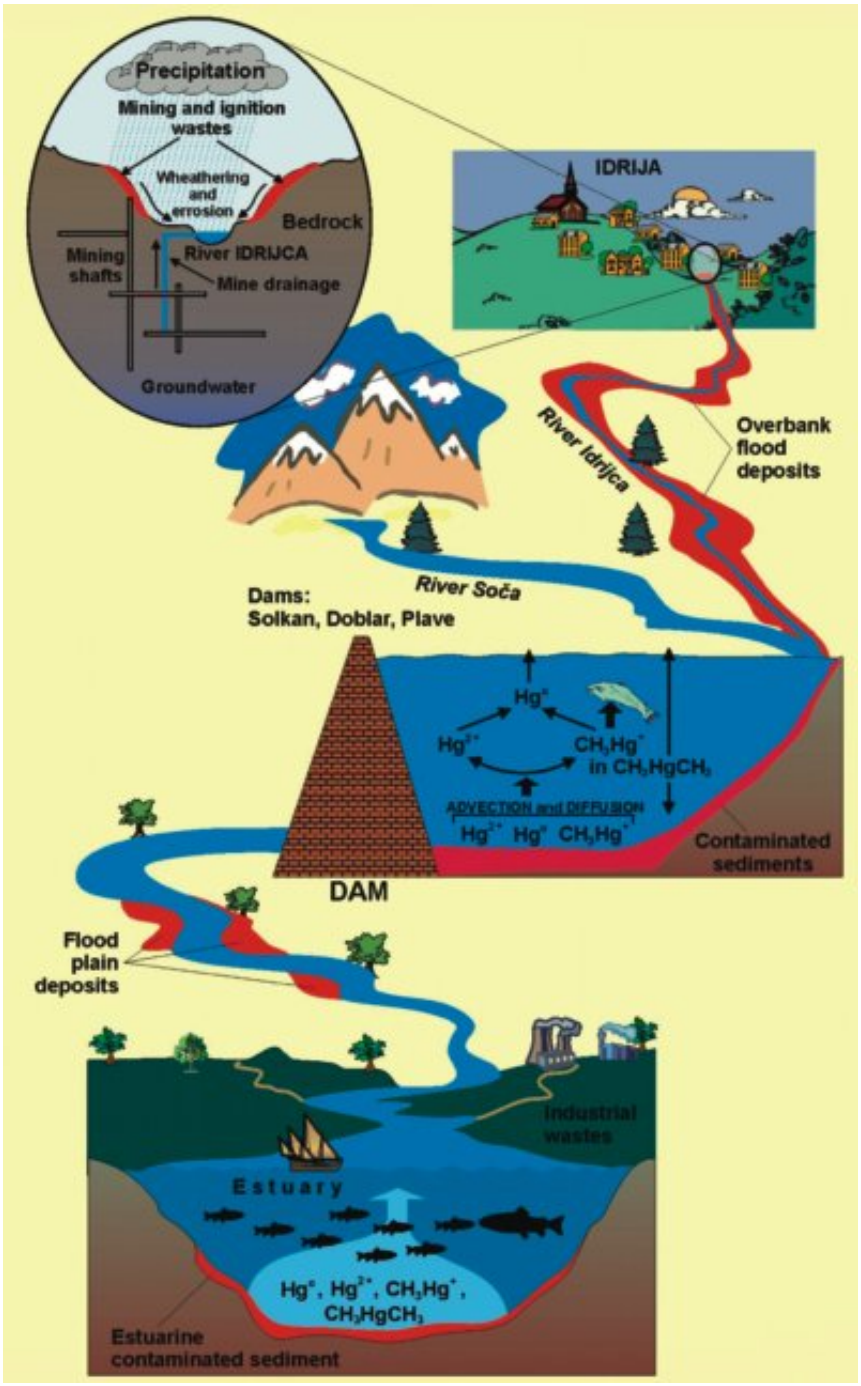
- Inzaghi's ventilation shaft;
- Kamšt water pump;
- "Rake" water channel
- Smelting plant
- Theatre,
- Warehouse;
- Miners' houses, etc.

The mining tradition also represents the essence of Idrija's values. In addition, a research and education facility on mercury is being established and new modern companies, Hydria and Kolektor, are now successfully operating in the town. The two companies employ over 2,700 people in Idrija and operate plants and offices around the world. Idrija is the centre of the municipality that has 11,930 inhabitants, while the town itself has 5,878 residents.

The end of mercury production in Almadén and Idrija

As is well known, economic and environmental issues marked the beginning of the mercury crisis during the 1970's. The restrictive environmental measures adopted by the European Union regarding this metal, together with the diminished profitability of the mines and the prevailing market conditions in 2006, spelled the end of mining activities at Almadén and Idrija, and the emergence of issues having to do with waste treatment, pollution, and diseases linked to the history of mercury.

In Almadén, mercury exploitation and production lasted for over 2000 years, in Idrija for 500 years. From the estimated 759,000 tons of mercury consumed throughout human history, one third is from Almadén and one eighth is from Idrija. At the Idrija mine, mining activities were stopped in 1994 and mercury production in 1995. Mining activities were stopped in the Almadén mine in 2001, but mercury production carried on till 2003. Environmental pollution caused by ore extraction and mercury production began to be systematically investigated in the 1970's. Since then, mercury in air, water, soil, plants, animals and humans has been observed. The findings of many research works conducted in the last 40 years have resulted in certain actions derived from both mines within the already established Technological National Centre of Mercury Decontamination in Almaden and the Information and Research Centre for Mercury in Idrija.



002 160
HG CYCLE IN THE WIDER IDRIJA REGION AND THE GULF OF TRIESTE

2.b. 4. General Chronology

12th to 14th CENTURIES

1151	Immediately after the Reconquest, King Alphonse VII assigned Almadén to the Order of the Knights Templar. The order was later unable to defend the area effectively against attacks by Arabs, so the control of the deposits was returned to King Sancho III.
1168	King Alphonse VIII assigned half of the rights in the mines at Almadén to the Order of Calatrava. This assignment was subsequently consolidated twice more by King Alphonse XI in 1218 and 1251.
1282	The Order of Calatrava acquired control of all of the deposits at Almadén.
1308	King Ferdinand IV established the Crown's monopoly over the sale and marketing of mercury.
1348	The deposits at Almadén, still controlled by the Order of Calatrava, were leased to the King.

15th CENTURY

1417	The Order of Calatrava granted Almadén the title of town (villazgo).
1487	During the reign of the Catholic Monarchs, all of the assets belonging to the Order of Calatrava were transferred to the Crown, including the Mines at Almadén.
1490	Likely discovery of native mercury by a local tub maker, according to legend, in Idrija.
1492	The Catholic Monarchs ratified to Almadén the title of town (villa).
1493	The first written documents on mercury mining in Idrija by the Cividale-based company. The Cividale town council is also being informed that German miners have arrived at Idrija.
1500	The digging of Anthony's Main Road, the second oldest preserved mine entrance in Europe, begins in Idrija.
1508	Mining is centred around Achatius's Shaft alongside the Nikova creek in Idrija, where an exceptionally rich vein of cinnabar ore is discovered at the depth of 42 metres on 22 June.
1509	Idrija comes under Austrian authority. Emperor Maximilian distributes half of the stakes in the mine (72) he had taken from the Venetians among his nobility and advisors
1521	Conquest of Mexico.
1525 – 1527	The mines at Almadén were leased to the German banking house of Antonio Fúcar (the Függer family).
1525	Monopoly over trading with Idrija mercury and cinnabar is handed over to the Hochstetter company from Augsburg in Idrija.
1526	Start of the New Spain Fleet (Carrera de Indias).

1533	Start of the Southern Sea Fleet (Naos de Tierra Firme).
1533	Idrija mine´s castle Gewerkenegg is finished after 11 years of construction and serves on as a storehouse for mercury at the starting point of its route.
1535	The Royal Mint was created in Mexico.
1537	First smelting of mercury at Idrija, using clay containers.
1537 – 1541	Second lease of the mines at Almadén to Fúcar
1542	The Viceroyalty of Peru is established.
1543	The mine at Compostela, belonging to New Galicia (Mexico) was discovered.
1545	The exploitation of silver at the Peruvians mines of Potosí, Hatunsulla, Chumbilla, Pasco and Oruro was begun by Diego de Villarroel and others.
1546	The silver mines were discovered at Zacatecas, Mexico, and the Road to Zacatecas began to be built (after the Inland Road, Camino Real de Tierra Adentro).
1547	The Santa Bárbara silver mine was discovered in Mexico.
1547 – 1551	Third lease of the mines at Almadén to the Fúcar family.
1548	The silver mines at Taxco, Sultepec and Temascaltepec were discovered in Mexico.
1548 - 1558	The Guanajuato veins were discovered in Mexico.
1549	The silver mine at Porco was discovered in Peru.
1550	Fire in the mine at Almadén. It causes a long term surge in global demand for Idrija mercury.
1552	The silver mines at Pachuca and Real del Monte were discovered in Mexico.
1552	The mine at Almadén is again operated by the Crown.
1554 - 1555	Introduction of the yard processing technique for amalgamation of the silver with mercury by Bartolomé de Medina at the Purísima estate in Pachuca.
1557 - 1558	Mercury was found in Tomebamba, Cuenca, nowadays in Ecuador.
1559	Royal Deed to incorporate the deposits of gold, silver and mercury under the Spanish Crown. The monopoly over quicksilver was reserved for the Indies. The lessees of Almadén were obliged to deliver their production to the Crown. Almadén became the official supplier of mercury for New Spain
1559	The labour requirements at Almadén to increase productivity led to the approval of sending forced labour there, thus making work in the mine equivalent to a sentence to serve as a galley slave.
1559	Bartolomé de Medina was officially acknowledged as the inventor of the Yard Processing technique.
1560	The Spanish Crown established new regulations for the mercury monopoly, adapted to new demands.

1560 - 1570 The silver shipments from America began to exceed those of gold.

1563 - 1564 Discovery of mercury deposits at Huancavelica.

1565 The port of Arica, in modern Chile, is opened up.

1566 First prison in Almadén.

1566 Monopoly trading in Idrija mercury is taken over by the Haug and Langenauer trading company from Augsburg (until 1574).

1569 Mercury production in Almadén is insufficient to meet requirements, so the area is repopulated with Moriscos (converted Moors) in order to increase the available labour force.

1570 The transportation of quicksilver through Arica began.

1570 Viceroy Toledo expropriated the mines at Huancavelica in favour of the Crown.

1570 In Peru, Fernández de Velasco applied the Yard Processing method developed by Bartolomé de Medina in Pachuca. Development of the box amalgamation method.

1571 Foundation of the Pueblo Rico de Oropesa (Huancavelica).

1572 The distribution of mercury in New Spain is ordered to be under the Crown's control.

1572 The Royal Mint was founded in Potosí.

1573 The distribution of mercury in Peru is ordered to be under the Crown's control.

1574 Viceroy Toledo ordered the transport of mercury from Huancavelica to Potosí through the port of Arica.

1581 The Carniolan Protestant nobility opens a Protestant state school in Idrija. The institution operates until the end of the 16th century.

1581 Huancavelica was granted the title of town with the name of Villa Rica de Oropesa.

1587 Carlos and Juan Andrea Corzo created the cold amalgamation method in Huancavelica using iron.

1588 The Puesto de San Luis is built in New Galicia.

1589 The first wooden "klavže" water barrier in Idrija is constructed on the Zala creek.

1590 Álvaro Alonso Barba devised his pot heating method in Peru.

1592 Silver was discovered in the Cerro de San Pedro by Captain Caldera near San Luis Potosí.

1592 Foundation of the Town and Mines of San Luis.

1596 A dam is constructed at the "Kobila" and a 3,439-metre-long "rake" wooden channel is constructed to supply water to the devices at Barbara's and Achatius's shafts, in Idrija.

17th CENTURY

1608 First cave-in at the mines in the Cerro de San Pedro.

1609 A Royal Decree ordered the expulsion from Spain of all Moorish converts to Christianity or Moriscos. This decree entailed a considerable loss of labour force at Almadén and a reduction in its production capacity. To try to remedy this situation and attract new inhabitants, taxes were eliminated for residents in Almadén.

1613 The tax exemptions in Almadén were increased and extended to neighbouring towns, but only for those people who decided to work in the mine.

1615 The Függer family was authorized to import mercury from other deposits in Europe in order to meet demand.

1628 Foundation of the Royal Exchequer (Real Caja) in the town of San Luis Potosí.

1630 The fall in silver production began at San Luis Potosí and Zacatecas.

1633 Lope de Saavedra Barba built an aludel furnace at Huancavelica.

1640 Alonso Barba: "Arte de los Metales" (Art of Metals).

1645 Control of the mine by the Függer family comes to an end. Almadén's mines are taken over by the Exchequer Council.

1645 New wage improvements and social advantages were introduced at Almadén to attract workers into the district.

1646 Juan Alonso de Bustamante introduced aludel furnaces into Almadén.

1652 The Idrija mine is believed to be the most technologically advanced such facility in Inner Austria.

1657 European quicksilver bound for Peru is offloaded in Buenos Aires.

1665 English traveller Gualterus Pope describes the conditions in the Idrija's mine and the settlement. He admires the "kamšt" water pumping and ore hauling devices, as the wheel located at Achatius's Shaft has a diameter of 7.5 metres and the one at Barbara's Shaft measures 9.5 metres across.

1665 The first recorded data on the Idrija mining music band.

1679 Cádiz, official departure point for mercury en route to America.

1696 First known record on Idrija lacemaking.

1698 Gunpowder explosive charges were used for the first time in Almadén to advance the mine face and speed up ore extraction.

18th CENTURY

1701	The deposit at La Concepción, located in the town of Almadenejos, near to Almadén was discovered and started to be exploited.
1708	Almadén began to be run by the Council of the Indies.
1717	Transfer of the "Casa de Contratación" (Trade House) from Seville to Cádiz.
1719	The sales of Idrija mercury in Venice are stopped and moved to the port cities of Trieste and Rijeka. Only 546 barrels of mercury are sold this year in Amsterdam.
172...	Policy to stimulate mining in New Spain.
1724	The galleons Nuestra Señora de Guadalupe and Conde de Tolosa were shipwrecked. The fleet of Baltasar de Guevara disappears.
1728	F. A. Steinberg founds the Idrija mine surveying and mapping school.
1732	The small-scale trading in mercury from Idrija began.
1736	Trieste became the only port for the despatch of mercury from Idrija.
174...	Peru stops sending remittances to the metropolis.
1746	Epidemic among the forced labour in the mine at Almadén.
1750	The old smelting plant is abandoned for the new 100-metre long facility that houses 12 improved Stampffer's retort furnaces in Idrija.
1751	Three double "Spanish" (Aludel) furnaces are installed by the end of the year in Idrija.
1752	The Royal Hospital for Miners was founded in Almadén.
1754	The new prison for forced labour was built in Almadén.
1755	Fire in the mine at Almadén.
1757	The hexagonal bull-ring was built in Almadén.
1761	The first edition of Scopoli's book on Idrija mercury De Hydrargyro Idriensi is published in Latin.
1765	The old trading route between Idrija and Vrhnika (via Kovačev Rovt, Dole, Žibrše and Zaplana) is upgraded into the first transport road between the two towns.
1767	At the request of the miners in New Spain, a drop of 25% in the sale price of mercury was ordered.
1767	The stone Belške (Brusove) and Putrihove "klavže" water barriers on the Belca creek are constructed in Idrija.
1767 to 1783	Notable growth in the minting of precious metal coins in New Spain.
1770	The mercury production crisis started in Huancavelica.

1770 Idrija's town centre is changing considerably around 1770. The mine's large granary and theatre are built. The theatre is the oldest preserved such building in Slovenia.

1776 At the request of the miners in New Spain, a drop of 33.3% in the sale price of mercury was ordered.

1776 The building was constructed in Almadén for the Saint Raphael Royal Mining Hospital.

1777 Start of the activities of the Mining Academy in Almadén.

1778 "Free trade" was decreed between Spain and America.

1778 The "main school" (basic elementary school) with three classes is established in Idrija. The school has 225 pupils at its opening. The education supervisors of the day assess the school as one of the best in the land.
Pope Pius VI accepts the incorporation into the Spanish Crown of the "Dehesa de Castilseras" property entrusted to the Order of Calatrava. This estate covering 9,000 hectares is then used as another stimulus to increase the residents living in and around Almadén, and thus the number of miners available.
Suspension of the contract signed between the Spanish government and the Emperor of Austria for the annual purchase of ten to twelve thousand quintales (hundredweight) of quicksilver at a price of 1,100 reales each.

1779 The mining journeyman Pedro Sánchez Aparicio discovers the Concepción Nueva mine in the municipality of Almadenejos. This mine produced 117,000 flasks of mercury between 1795 and 1808, with a mean yield of 12.4% of mercury.

1781 The second book of Oryctographia Carniolica by Balthasar Hacquet is published in Leipzig. The book brings a comprehensive description of Idrija and the mine.

1782 The smelting plant introduces dry sublimation of cinnabar in Idrija.

1783 Mining Ordinances in New Spain.
The engineer Agustin de Betancourt from the Canary Islands is commissioned to visit the Mines at Almadén and then writes three magnificently concise and brilliantly written reports, accompanied by excellent drawings. In these he put forward numerous technical improvements for pumping out water, operating the mines and treating the mercury.

1783-1810 Tax transfers from the American colonies represented 25% of the recurring income of the General Treasury of the Spanish Crown.

1784 Mining Engineer Hoppensak, of German extraction, is appointed Director of the Almadén Mines and introduces the bench and stope system in the mine workings.

1785 Idrija. The first five-year contract is concluded with the Spanish government for supplying mercury.

1785 The building for the Royal Mining Academy was constructed in Almadén.

1786 The ore is smelted non-stop in 13 Spanish furnaces for 9 months in Idrija.

1786 The supply of quicksilver from Huancavelica is suspended.

1788 Fausto de Elhúyar travelled to New Spain to run the Royal Mining Tribunal, accompanied by German experts.

1790 A new “kamšt” water pump is erected below the new Joseph’s Shaft in Idrija. The massive wheel with a diameter of 13,6 metres works flawlessly for 158 years. The device draws about 300 litres of water per hour from a depth of 283 metres (XIth Gallery level).
Introduction of the first rubblework arches for the propping-up of the mine to replace timber as a new variant in the method for operating the Mine at Almadén.

1791 The second contract between Spain and the court at Vienna is concluded for the supplies of mercury from the Idrija mine to Spain.

1791 The deposit known as “Antigua” or “Vieja Concepción” in Almadenejos was shut down due to depletion.

1793 For the first time in the Almadén Mines, the mercury is packaged in iron flasks instead of being wrapped in leather sacks; the new method is definitively adopted in the course of the 19th century.

1795 The King Charles IV Gate was built in Almadén.

1795 The deposit named “Nueva Concepción”, also located in the surroundings of Almadenejos, was discovered and began to be exploited.
Dr. José Parés y Franqués is appointed as the Medical Officer for the Royal Quicksilver Factory and Mines in Almadén, the Royal Forced Labour Gaol and its Hospital; the start of research into the illnesses affecting the Almadén miners.

1797 The last two ships laden with Idrija mercury depart Trieste for Spain.

End of the 18th century Discovery of new mines in Almadén and Almadenejos.

1790s and 1800s Record levels of mercury production were achieved in the mines at Almadén. (Approximately 20,000 quintales per annum).

1800 New Spain exported 60% of the world’s total supply of silver. Dependency on the mercury from Almadén increases.
Repeal of forced labour and slavery at the Royal Forced Labour Gaol in Almadén.
The old Concepcion mine in Almadenejos is exhausted

19th CENTURY

1801 The Almaden Prison is closed

1803 Diego de Larrañaga is appointed Director of the mines at Almadén.

1804 Construction started on the road from Veracruz to Mexico.

1805 The steam-powered machine for the pumping begins to work in Almadén mine. It is installed in the Pozo de San Teodoro shaft to pump out the water in the mine, the first time such a device is installed in a Spanish mine.

1806 The furnaces from Idrija were introduced into Almadén.

1810 The in Idrija’s mining company is taken over by a monastic order, established by Napoleon.

1810 Start of the War of Independence in Mexico.

1810 Occupation of Almadén by Napoleon's army. Stoppage of all work for two years.

1813 Idrija is retaken by the Austrian troops as French rule ends on 1 October.

1813 The furnaces were re-lit in Almadén and mining activities started up again.

1821 Independence of Mexico and Peru

1835 Implementation of new regulations for carrying out the work at the Almadén Mines, with differentiation of outsourced works and those performed by the Public Exchequer.
Signing of the first agreement with the Rothschild bankers for the marketing of the mercury from the Almadén Mines.

1837 A Royal Order is issued to remedy the effects of mercury poisoning, with the result that the Almadén miners with incurable diseases can receive financial aid for their care.

1855 The first geological paper is published on Almadén by the Mining Engineer Mr. Casiano del Prado, the Director of the Almadén Mines.
The old El Entredicho mine (Almadenejos) begins its exploitation

1859 The construction of a new road between Idrija and Godovič results in the cancellation of floating the wood on the Zala creek.
All quicksilver mines within a 14 league radius of Almadén are declared to be possessions of the Spanish State.

1860 Idrija's main link with the world runs on the new road between Idrija and Logatec (train station). The road runs alongside the Zala creek.

1861 The old El Entredicho, Valdeazogues and new Concepción mines are closed, all in Almadenejos

1872 The mine gets under the Agriculture and Mining Ministry. Representatives of the Spanish Almadén mine visit Idrija and are impressed by the smelting plant and the "amount of money used for investments and the fuel used".

1876 Building of the mine's school (1874-1877) in Idrija. The lacemaking school is established and still operates today.

1893 The Kley's water pump, E. Skoda is constructed in 1895 in Francis's Shaft. This is the largest mining device of the Idrija mine and the largest preserved steam-powered machine.

1886 Idrija's smelting plant gets modern Čermak-Špirek reverberatory furnaces.

1893 The smelting plant gets electricity.

20th CENTURY

1901 The first Secondary School for Natural Sciences in Slovenia starts educating the students in Idrija.

1905 The Almadén and Čermak-Špirek reverberatory furnaces are introduced into Almadén.

1906 In Idrija, the steam-powered hoist at Francis's shaft is replaced by electric hoist. The machine is still in working order today.

1908 Superintendent Waldo Ferrer creates the Primary School for the Children of Almadén Mine Workers, so as to eradicate child labour in the mines and illiteracy.

1912 The Czech mining expert Josef Kropač publishes his take on the geological composition of the Idrija ore deposit. This is used for mining until 1955.

1914 The infill works and the use of compressed air begin in the Almadén mine

1916 The Almadén Mines Council is created and begin its works in 1918.

1918 Austrian rule, which has lasted for four centuries, ends as Idrija mine comes under the control of the Italian forces.
The use electricity starts in Almadén

1924 Mechanical drilling is introduced into Almadén and a new system of minimum payments is established with bonuses for increased production.

1928 A cartel agreement on the sales of mercury around the world between Italy and Spain enters into force in 1928 and is valid until 1934. Idrija mercury is exported mainly to Germany, Japan, England, France and India.

1941 Best world record of annual production in Almadén: 82.000 flasks

1947 The Idrija's mine becomes property of the Yugoslav state after a peace treaty is concluded with Italy after the WW II.

1952 Construction of the San Joaquín shaft is begun to replace the San Aquilino shaft and reaches a depth of 750 metres.

1953 The Idrija Municipal Museum is established.

1954 The Pacific furnaces are introduced into Almadén, the Almadén and Čermak-Špirek furnaces are definitively stopped

1957 In Idrija, the outdated sorting plant at "Bašerija" is abandoned for a modern facility, located above the smelting plant. The transport of ore from the Joseph`s Shaft to the separating plant is carried out by a cableway.

1961 In Idrija, the smelting plant launches the first rotary furnace, the largest furnace of that type for smelting mercury ore in the world.
The new shaft San Joaquin of Almadén mine is brought into service

1965 The international quotation for mercury hits a peak of 571 dollars.

1967 The mercury market enters into a crisis, soon reflected by the business operations of the mine.

1974 The 1st International Mercury Congress is held in Barcelona.

1977 Temporary cessation of Hg production at the Idrija Mercury Mine

1979 The Bullring in Almadén is declared a National Historic Monument.
The El Entredicho mine (Almadenejos) is started to be exploited

1980 In the area of Las Cuevas (Almadén), a mineralized mass is discovered under the former mine works with a large mercury content and will immediately be brought into operation.

1981 Almadén Mines introduces the latest mining operation method known as Vertical Crater Retreat (VCR).
The Las Cuevas mine (near Almadén) is started to be exploited

1982 The Mining Society of Almadén and Arrayanes, MAYASA is created

1986 Decision on the final termination of Hg production and the gradual shut-down of the mine

1987 The Slovenian National Assembly passes a decision to gradually close the mine by 2007.
Discovery of mercury deposits at New Entredicho in Almadenejos. This mineral never was exploited

1988 The Francisco Pablo Holgado Historic Mining Museum is set up in the Polytechnic University School in Almadén.

1995 The end of the mercury ore exploatation in Idrija.
The final smelting of the ore in Idrija was carried out in October

1997 Idrija Municipal Museum is awarded the prize of the Luigi Micheletti foundation as the best European museum of technical and industrial heritage.
The El Entredicho mine (Almadenejos) is closed

1999 The Las Cuevas mine (near Almadén) is closed
The Almadén Francisco Javier de Villegas Foundation is created

21st CENTURY

2001 The mine Almadén is closed. The end of the mercury ore exploitation in Almadén

2003 The final smelting of the ore in Almadén was carried out in July.

2004 "Act on the Prevention of Effects of Mining Activities in the Idrija Mercury Mine" (Slovene National Assembly)

2005 EU Strategy for Mercury

2006 The idea of establishing European Meeting point for Mercury in Idrija

2008 The Almadén Mining Park is inaugurated
Establishment of Information and Research Centre for Hg at the Idrija Mercury Mine
The Almaden Mines were declared BIC (Property of Cultural Interest deserving the highest legal protection) in the category of Historic Ensemble by the Government Council of the Autonomous Community of Castile-La Mancha on 25th Novembre 2008.
Restoration of the thousand-year-old rubble tips and full decontamination of the old dumpsite used for waste of mining material by the Almaden mining company MAYASA.

2009 Restored Kley's Pump is placed »in situ« in Francis's Shaft

2009 Completion of the shut-down works in the Idrija Mercury mine

2009 Decision of the Government of the Republic of Slovenia of 24 December 2009 (60th regular meeting, Decision no. 47701-16/2009/6 on initiation of regular liquidation proceedings of the Rudnik živega srebra Idrija d.o.o. company)

2010 Establishment of the Idrija Heritage Center by the Municipality of Idrija

2010 Decision of the Government of the Republic of Slovenia confirming the starting points of the programme of comprehensive protection of cultural heritage and high natural values related to the Idrija ore deposit, in Idrija, Ministry of Culture, no. 6221-23/2009/41, 27 October 2010

Chapter 3

Justification for Inscription





3.a. Criteria under which property is nominated

(ii) exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design.

The exchange of influences is evident on the heritage created by the production, transportation and use of mercury along history. These influences are scientific, technical and technological, linked to the production of mercury but also to other issues related to mining activity. The very use of mercury in the amalgamation process is noteworthy as it generated an extraordinary and prolonged dispatch of metal from Europe to America, and, for example, technological contributions such as Bartolomé de Medina's method and aludel furnaces that went from America to Europe by the same channel through which the reciprocal cultural influences have flowed.

The wholesale mining production of precious metals began on the American continent with the arrival of Europeans and the establishment of the Spanish Empire in America. Large-scale silver production in America required the application of technologies capable of responding to this demand. One of the most significant contributions to metalworking in America and the technology that allowed massive production of silver was the application of amalgamation to metal refining. It should also be emphasized that amalgamation was the driving force that changed the mentality of society of that time, first in the American viceroyalties – where it drove the foundation of new settlements– and later in the areas of Europe where there was a tradition of mining and metalworking

During its history, mercury mining brought nations closer and influenced global changes and development through trading, know-how, economy and culture.

The creation of academies, the promotion of studies abroad by scholars in different countries of Europe and the importation of foreign scientists enabled the construction of scientific and technical community, which, although incipient, showed its ability to work under difficult conditions in both Europe and the American territories.

There are influences in terms of the means and system used for transportation, with a noteworthy contribution from ship building on both sides of the Atlantic. Other influences can be seen in architecture, formal patterns in cities, the immaterial heritage and in technological exchanges.

The transmittable and exportable nature of the mercury mining knowledge would last even after the end of the Spanish dominion in America. Mining cities show generic urban features that clearly distinguish them from other types of cities, such as defining the boundaries between urban and rural areas and the internal structure of the mining establishments.

The development of mining is not an isolated and exclusively technical element, but a whole, a way of giving form to the different elements making up the environment of the mine, ranging from the way of working to way of living of its inhabitants. The model had such value that it was exported to other locations virtually unchanged, as can be seen on the other side of the Atlantic.

There is clear material evidence at both sites of the exchange between Almadén and Idrija and with other parts of the world. This includes: the mine-works, Bustamante's furnaces, Čermak-Špirek's furnaces and other elements. The urban morphology is noteworthy in this sense and even specific functional and technical-formal traits of the civil engineering and architecture.



The importance of both sites has been historically recognized and tribute has been paid, even to the extent of naming two mining settlements in the United States New Idria and New Almaden respectively. Hereby it was not the origins of the founders that were honoured, but rather the discovery of deposits by means of which it was hoped to emulate the most important in the world.

(iv) be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history;

The mines at Almadén and Idrija are the world's largest natural deposits of their kind, as well as the most significant collections of technology related with mercury production and therefore the most representative of this industry in the history of mankind. From the standpoint of civil engineering, they have been the paradigm of a mercury mine throughout history, thanks to the construction systems used. Both mines complemented each other in sending mercury to America and in the development of science and technology, as witnessed by the exchange of know-how and equipment.

Innovations and technical or technological contributions have occurred in both sites throughout history, that is to say, there is not only an illustration of their evolution but the very elements comprised in mining production enshrine value in themselves, as they have been the fruit of innovative discoveries and solutions allowing the satisfaction of the growing needs of production or improvements in working conditions.

This latter aspect made it possible to open up the range of contributions not only to the direct production of mercury but to the development of systems and building methods and, in general, for the execution of works and also planning.

Technological development is shown not only in the mines, but also in the work carried out by miners, and mining engineers and architects that contributed to shaping the mining territory and also the urban appearance of the towns, with emblematic and singular buildings, demonstrating the complete technical training possessed by professionals of that time and their skillful use of materials, spaces and forms of use.

The development of mining is not an isolated and exclusively technical element, but a whole, a way of giving form to the different elements making up the environment of the mine, ranging from the way of working to way of living of its inhabitants. The model had such value that it was exported to other locations virtually unchanged, as can be seen on the other side of the Atlantic.

(v) be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment specially when it has become vulnerable under the impact of irreversible change;

The geological specificity that gave rise to the mercury deposits and their subsequent use in silver production means that the mines at Almadén and Idrija represent exceptional examples of human interaction with the environment that has now become vulnerable through the closure of the mines, following the restrictive policy in place with regard to mercury.

Together with other material aspects, these mines developed a very special and significant inmaterial culture, the culture of mining, and in particular that of mercury production. In general, the hard life of miners has throughout history produced certain manifestations of a culture with characteristic features.

One particular case is all of the culture, of extraordinary dramatic impact, developed in connection with the work of the mine's forced labour in Almadén. In the case of the Idrija mine, although it did not have the characteristics of forced labour, it does coincide with the othe case in that the culture responded to the harshness of mining life and as regards the resources that were developed by the population to transform their lives in a triumph over adversity.

In both cases, the intangible culture and craftwork (Idrija and Almadén lace, music, choir-singing and artistic manifestations) were largely the direct product of the work of the miners' family-members or tributes to their daily heroism and therefore symbols.

This serial nomination provides physical evidence of both the development of science and technology and also the spread of preventive medicine and health-care provision to help with diseases derived from mercury exploitation, all of which are supported by the work carried out in the fields of interpretation and display for museum purposes. In Almadén and Idrija, the mines and their installations are more than enough to show the evolution of science and technology in the fields of geology, mineralogy and metallurgy, as well as in civil and mechanical engineering applied to mining. In both locations, there was notable development in education at all levels, largely as a result of the development of civilian values based on historical example.

3. b. Statement of Outstanding Universal Value

It is the processes of history that truly give significance to places or monuments, the historic fabric that gave rise to the interconnection of this serial nomination. Individual peculiarities in terms of age or size are not the only significant factors for the recognition of universal value.

Mercury is a metallic element that has certain particularities of interest for man. It is the only heavy metal that is a liquid at room temperature, and its most common ore, cinnabar (HgS) is bright red in color, a color that was highly prized in remote times for personal adornment. On the other hand, both mercury and most of its compounds are toxic substances, and some of them cause serious human health disorders (particularly in the nervous system). This led to a progressive reduction in the industrial uses of mercury and to the European Union having established the year 2011 as the date from commerce of this metal will be banned within the community setting.

Mercury is already a thing of the past and, therefore, it is not just a matter of preserving vestiges of history or even of an evolving past. It is a matter of putting into relief something that will have to be preserved as universal heritage from the very moment at which its era came to an end.

The serial nomination includes as distinctive feature its historical links and common integration in a historic framework. Furthermore, it is a group of mercury mining and related industrial assets that are without a doubt not represented in the World Heritage List and, in addition, have an evident impact on the molding of cultures on both sides of the Atlantic.

The importance of history and its processes is highlighted. It shows an advanced scientific approach to history, thus giving an outstanding universal value to this series that serves to exemplify the significance of mercury.

This serial nomination contains such exceptional cultural values from the standpoints of history, science and technology that its significance transcends the borders of countries and becomes of universal importance, both for the present generation and for those to come.

These values are as follows:

- They are key elements articulating a process lasting for centuries and linking several parts of the world. This process made a significant contribution to the shaping of cultures on both sides of the Atlantic. This cultural fertilization was bilateral,

as there were exchanges in both directions, thus adding value to all of them as part of the historic process mentioned above.

- These exchanges were mainly scientific, technical and technological, and they provide evidence of significant moments in the history of humankind.

- With respect to their uniqueness, the mines at Almadén and Idrija are the world's most important natural deposits of their kind, as well as the most significant accumulations of technology in the production of mercury in the history of humankind. This is evident from the production volume achieved – the greatest in history – and also from the material evidence that has been maintained there in an exceptional degree.

- On the other hand, it can be said that, regardless of its uniqueness, Almadén and Idrija are the world's most representative example of historic mining sites producing mercury, as these sites made use and retain material expressions of all the processes, methods, techniques and physical components for the production of mercury ever used.

- The sites proposed served as main points during the centuries of mining for mercury. Their trade, know-how, money and culture joined nations and influenced the changes and developments on a global scale.

- The components of this serial nomination provide a lesson in the evolution, over centuries, of the scientific, technological and technical methods and procedures directly linked with the production and distribution of mercury. At the same time, they demonstrate how mining activities gave rise to particular cultural expressions and determined specific intangible and unique characteristics whose main value is the conservation of the spirit of the site as manifested by the community's commitment to its history.

- They are unique examples of the man's relationship with his surroundings over centuries. The very mining, itself a predatory activity, developed a kind of stratification through history that we can now view today as a catalogue of variants and alternatives of this relationship with the environment. But at the same time, the functional relation between the towns and mines clearly shows the physical integration between both.

- The componentes of this serial nomination are characterized by a high degree of integrity and authenticity, derived in part from the communities' awareness of itheir great significance, from their roots and a sense of ownership, as evidenced by the quality of the handling of heritage, based on a commitment with culture.

3. c.
Comparative analysis

The World Heritage List includes 24 transboundary properties, of which eleven are cultural and one is mixed. Some are formed by continuous territories between two borders but some are serial properties even when have been inscribed as extensions. Of the cultural properties that are registered under this name, the following belong to different states but do not constitute a continuous territory: Jesuit Missions of Guaranis (1983, 1984), Frontiers of the Roman Empire (1987, 2005, 2008) Struve Geodetic Arc (2005), Belfries of Belgium and France (1999, 2005) and Prehistoric Rock Art Sites in the Côa Valley and Siega Verde (1998 - 2010). All of the latter are serial properties whose shared characteristics are that they belong to the same historic-cultural group and are related to a particular historic moment. In the case of the missions and belfries, the typological criterion is of fundamental importance.

PROPERTY	COUNTRY		CATEGORY	YEAR
Jesuit Missions of Guaranis	Argentina	C	iv	1984
	Brazil			1983
Fertö/Neusiedersee Cultural Landscape	Austria	C	v	2001
	Hungary			
Belovezhskaya Pushcha / Białowieża Forest	Belarus	N	vii	1992
	Poland			1979
Struve Geodetic Arc	Belarus	C	ii, iii, vi	2005
	Estonia			
	Finland			
	Latvia			
	Lithuania			
	Norway			
	Republic of Moldova			
	Russian Federation			
	Sweden			
	Ukraine			
Belfries of Belgium and France	Belgium	C	ii, iv	1999
	France			2005
Kluane/Wrangell - St Elias/ Glacier Bay/ Tatshenshini - Alsek	Canada	N	vii, viii, ix, x	1979, 1992, 1994
	United States of America			
Waterton Glacier International Peace Park	Canada	N	vii, ix	1995
	United States of America			
Talamanca Range - La Amistad Reserves/ La Amistad National Park	Costa Rica	N	vii, viii, ix, x	1983
	Panamá			1990
Mount Nimba Strict Nature Reserve	Côte d'Ivoire	N	ix, x	1982
	Guinea			1981
Kvarken Archipelago /High Coast	Finland	N	viii	2006
	Sweden			2000
Pyrénées - Mont Perdu	France	M	iii, iv, v, vii, viii	1997 1999
	Spain			
Stone Circles of Senegambia	Gambia	C	i, iii	2006
	Senegal			

Frontiers of the Roman Empire	Germany	C	ii, iii, iv	2005
	U.K.			1987
Muskauer Park / Park Muzakowski	Germany	C	i, iv	2004
	Poland			
The Wadden Sea	Germany	N	viii, xix, x	2009
	Netherlands			
Historic Centre of Rome, the Properties of the Holy See in that City Enjoying Extraterritorial Rights and San Paolo Fuori le Mura	Holy See	C	i, ii, iii, iv, vi	1980
	Italy			1990
Monte San Giorgio	Italy	N	viii	2003
	Switzerland			2010
Rhaetian Railway in the Albula - Bernina Landscapes	Italy	C	ii, iv	2008
	Switzerland			
Caves of Aggtelek Karst and Slovak Karst	Hungary	N	viii	1995
	Slovakia			2000
Curonian Spit (Cultural landscape)	Lithuania	C	v	2000
	Russian Federation			
Uvs Nuur Basin	Mongolia	N	ix, x	2003
	Russian Federation			
Prehistoric Rock Art Sites in the Côa Valley and Siega Verde	Portugal	C	i, iii	1998
	Spain			2010
Primeval Beech Forests of the Carpathians	Slovakia	N	ix	2007
	Ukraine			
	Sweden			
Mosi - oa - Tunya / Victoria Falls	Zambia	N	vii, viii	1989
	Zimbabwe			

Being prepared:

Argentina, Bolivia, Chile, Colombia, Ecuador, Peru	Main Andean Road – Qhapaq ñan
China, Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan, Turkmenistan	The Silk Roads
Kenya, Ethiopia, United Republic of Tanzania, Israel + others	Great Rift Valley
Iceland, Germany, Denmark + others	Viking Culture
Denmark, Canada, United Kingdom, USA, Germany, South Africa + others	Moravian Heritage
France, Italy, Switzerland, Austria, Germany, Slovenia, Monaco and Lichtenstein	Alpine Arc
Austria, Croatia, Germany, Hungary, Slovakia and United Kingdom	Frontiers of the Roman Empire
Global	Astronomy
France, Germany, Italy, Slovenia, Austria and Switzerland	Pile Dwellings. (In nomination process)

There are also other cases in tentative lists like for instance the Architectonic and Urban Work of Le Corbusier.

The methodological value of the Heritage of Mercury nomination is that it belongs to a dynamic historic-cultural group, i.e. based on the historic process and its continuity. It also has the particularity of highlighting the value of an interactive historic phenomenon on an intercontinental scale, in which mercury mining, in close collaboration, played a decisive role in the social, economic and cultural transformation of Europe and America.

A frequent practice in the analysis of the value of a cultural property is to consider that its significance stems solely from the virtues of the asset itself, for different reasons: aesthetics, historic issues, etc. Comparative studies define uniqueness in almost competitive terms; however, it is the processes of history that truly give significance to places or monuments.

This serial nomination offers the particularity that both sites constitute a whole whose value is derived from the dynamic character granted by the historic function on which their origin is based. Because this function is a continuous engine, its historic functionality generates a cultural dynamic which ensures a cross-fertilization of the affected sites in space and time, through the interactive influences of their values, uniqueness and diversity, as reflected both in their tangible and intangible heritage. Individual peculiarities in terms of age or size are not the only significant factors for the recognition of universal value.

As regards the mining ensembles proposed in this serial nomination, a comparison with other mining sites or towns has been made. The following table identifies:

- Type of mining production.
- Age of the mine, in order to detect the greater or lesser historicity compared to other proposed sites.
- Integrity/ authenticity.
- Main values present.

The above criteria allow drawing up a comparison of Almadén and Idrija with other mining sites already inscribed on the World Heritage List or on the Tentative Lists.

Comparative table with historic mining sites or towns

CULTURAL PROPERTY	AGE	FUNCTION	INTEGRITY - AUTHENTICITY	CRITERIA
Wieliczka Salt mine. Poland (1978)	Since 13th century	Salt mine	High	iv
Main values: The mine itself opened in the salt, with more than 300 m. of galleries				
RØros Mining Town and the Circumference. Norway (1980, 2010)	Since 17th century until 1977	Settlement linked to copper mines	Very high, photographic and recorded proof.	iii, iv, v
Main values: The historic settlement made of wood. Endangered because of closing of mines. Great location. The extension includes the area of privileges granted to the mining enterprise				

Historic Town of Ouro Preto, Brazil (1980)	Late 17th century	Centre of gold mining in Brazil until the 17th century.	Problems with natural catastrophes, poor management, etc.	i, iii
Main values: Baroque architecture and sculpture. Works by Aleijadinho				
Royal Salt works of Arc – et – Senans France (1982)	17th century, designed by Ledoux	Industrial	Very high	i, ii, iv
Main values: As model of ideal city. Aesthetic value.				
Ironbridge Gorge. United Kingdom (1986)	18th and 19th centuries.	Production of iron and steel. Early days of the Industrial Revolution	High	i, ii, iv, vi Inscribed as a site , but it is a cultural landscape
Main values: Symbol of Industrial Revolution. Ironbridge, the first iron bridge in the world				
City of Potosí, Bolivia (1987).	16th century	City linked to silver mining but also includes mines and mitayo (draft labourer) neighborhoods.	Endangered, but not included on the Endangered Heritage List. Lost value with new insertions.	ii, iv, vi
Main values: The most important silver mine in the 17th century				
Historic city of Guanajuato and Adjacent Mines, Mexico (1988).	16th century	City linked to silver mining but also includes mines and engineering works.	High but only in central areas, not in surrounding landscape. Some alterations and tergiversations.	i. ii., iv, vi
Main values: The most important silver mine in the 18th century				

Mines of Rammelsberg and Historic Town of Goslar and Upper Harz Water Management System, Germany (1992, 2010).	3rd Century BC. First references, early 11th century	Silver, copper, zinc and gold mines. The city played an important role in Hanseatic League.	It did not suffer destruction in World War II. Unquestionable authenticity in mines and industrial works. Most of the city is authentic	i, iv
Main values: There is evidence of the existence of the mines between the 10th and 20th centuries. One of the oldest mining-metallurgical complexes in the world and the only one in which the industrial operations have been maintained for such a long period. The 2010 extension includes the Upper Harz water management system				
Historic Centre of Zacatecas, Mexico (1993)	16th century	City linked to silver mining	High, at least at time of registration.	ii, iv
Main values: Architecture and irregular city layout that follows the mines' pattern				
Historic Town of Banská Štiavnica and the Technical Monuments in its Vicinity Slovakia (1993)	Since 13th century	City that evolved from mining territory, mostly silver mining.	Unquestionable in the city. The mining facilities have undergone reconstruction work for museological reasons.	iv, v Category: site
Main values: Unique complex of settlements developed in a technological cultural landscape. Includes mines, facilities and the largest draining canal in the world				
Kutná Hora: Historical Town Centre with the Church of St Barbara and the Cathedral of Our Lady at Sedlec Czech Republic (1995)	Since 13th century, although there were previous settlements.	City that evolved organically from silver mines	Archaeological prospecting missing at time of registration. Some transformations from modernity.	ii, iv Category: group of buildings
Main values: Outstanding example of a medieval city that developed around silver mines				

Las Médulas, Spain (1997)	1st century AC	Roman gold mines	Landscape has undergone scarce changes over the course of the centuries	i, ii, iii, iv. Site, cultural landscape.
Main values: Innovative technology, mining and domestic landscape that has survived				
Historic centre of the Town of Diamantina, Brazil, (1999)	18th century	Historic settlement linked to diamond mines. Capital of one of the three main diamond-producing regions in the world.	Few changes, new constructions are harmonious. As well as the historic centre, the character of the old city has been maintained	ii, iv Category: group of buildings – living cultural landscape
Main values: Specific nature of the mining and typological characteristics. Adaptation of European models				
Neolithic flint mines in Spiennes, Mons, Belgium (2000)	5th millennium BC	Flint production	Mines opened to public conserve original conditions.	i, iii, iv
Main values: The largest and earliest-dated concentration of old mines in Europe. Testimony to early human creativity				
Mining area of the Great Copper Mountain in Falun, Sweden (2001)	Since 13th century. Planned city of Falun, 17th century	Copper production	Evidence throughout landscape	ii, iii, v Category: cultural landscape
Main values: Largest copper producer in 17th century. Technological influences. Entire landscape dominated by remnants from copper production. It clearly shows history				

Zollverin Coal Mine Industrial Complex in Essen, Germany (2001)	Since 1847. Buildings in industrial complex: 1932.	The entire infrastructure of an historic coal mine with movements from Modernist Movement.	High	ii, iii. Category: Group of buildings - cultural landscape
Main values: Evidence of the evolution and decline of the coal industry over 150 years				
Historic centre of the Town of Goiás, Brazil (2001)	18th century	Gold mining	Maintains integrity because the new additions are harmonious in terms of materials and typology. Church reconstructed in early 20th century.	ii, iii y iv Category: Group of buildings.
Main values: Evidence of the colonization of Brazil during 18th and 19th centuries. The mining settlement is an example of organic adaptation to a site. Vernacular architecture				
Humberstone and Santa Laura Salt peter Works, Chile (2005)	Since 1880	Salt mines and company town.	On the List of World Heritage in Danger. High authenticity despite the fragility of the ensemble.	ii, iii y iv Category: site
Main values: Greatest salt deposit in the world. Importance of social struggle traditions. Cultural exchange. On the List of World Heritage in Danger since 2005				
Sewell Mining Town, Chile (2006)	Early 20th century	Copper mine	Sufficient	ii Site – cultural landscape
Main values: Example of global phenomenon of company towns in remote locations				

Cornwall and West Devon Mining Landscape, U.K. (2006)	18th century until late 19th century	Copper production	High, but landscape is difficult to protect because of its enormous extension, especially because of the possible impact of development on the territory	ii, iii, iv Categories: site – cultural landscape.
Main values: Two thirds of the world's copper production. Exportation of technology and procedures all over the world. Impact on industrialization in the world. Clear testimony				
Historic Silver Mine at Iwami Ginzan, Japan (2007)	16th century	Silver mines.	Good state of conservation.	ii, iii, v Serial property of 14 sites in a cultural landscape.
Evidence of the Japanese mining industry between 16th and 19th centuries. A preservation and management system implemented in the context of the whole property, and a World Heritage Management Committee				
Camino Real de Tierra Adentro, México (2010)	16th century	Silver mines.	State of conservation, integrity and authenticity are diverse depending of the characteristics of the different places.	ii, iv
This is a part of a northern stretch of the International Camino Real. It comprises old mining settlements which gave path to modern towns or cities and other elements related to the colonization process and mining				
Mining and cultural landscape, Germany	For more than 800 years	Ore mountains	Coherent evolution.	On Tentative List since 1999 Criteria ii, iv, vi Cultural landscape
Main values: development of mining sciences				

Historic Town of Álamos, Mexico.	17th century	Mine production (silver and gold) (Real de la Limpia Coticepcii or Real de los Frailes)	Different stages but harmonious ensemble.	On Tentative List since 2001. Criteria ii, vi
Main values: Urban landscape, characteristic architecture, arcades				
Historic Town of San Sebastián del Oeste, Mexico	16th century	Silver and gold mines	Coherent evolution	On Tentative List since 2001. Category: Mixed Criteria iii, iv, v, ix, x
Main values: Landscape values				
Historic Town of the Eleven Thousand Virgins of Cosala, Mexico	16th century	Silver mines. Became the capital of the North-West in the 18th century	Coherent evolution. Presence of traditional materials.	On Tentative List since 2001. Criteria ii, iv
Main values: Particularities of mining towns in the North West				
The Industrial Complexes at Ostrava, Czech Republic	19^{th}-20^{th} centuries	In a single locality, coal mines, coking plants and blast furnaces.	Acceptable	On Tentative List since 2001 Criteria i, iv, v Serial nomination
Main values: representing the complete and concentrated technology of anthracite-based production of iron. One of the most important centers of coal mining and heavy industry in Europe, a reason why its universal value is not evident				

Bassin minier du Nord-Pas-de-Calais, France	200 years	Coal mining	Conserved in good condition. Too large for management.	On Tentative List since 2002 Criteria iii, iv, v Heterogeneous cultural landscape.
Main values: a truly cultural and structuring the territory for a period of a century and a half				
Iron Trail with Erzberg and the old town of Steyr, Austria	Since Middle Ages to 20th century	Ore mining and smelting region	Conserved in good condition.	On Tentative List since 2002 Criteria i, ii, iii, iv
The most prominent ore mining example in Central Europe. Impressive cultural landscape. Outstanding regional value				
Lavrio (Formerly Laurion). Greece	Since 3200 BC	Silver, lead and copper mines	The various stages are well protected	On Tentative List since 2003 Criteria ii, iii. iv
Main values: Largest mining centre in Antiquity. During the Bronze Age (2800 – 1100 BC), they supplied the other cultures in the Aegean region with silver, lead and copper In classical Greece, they were a significant source of funding				
Pulacayo, Industrial Heritage site, Bolivia	Since the 18th century. Era of splendor in 19th century	Centre of silver mining	Abandoned but conserved in good condition. Surrounding landscape well conserved.	On Tentative List since 2003 Criteria iii. iv, vi
Main values: Important 19th century mining centre that includes Huanchaca, the second silver mine in the world				

The Klondike, Canada	From Neolithic to 20th. century	Poly-metallic, gold, coal, sulphur, lead, silver, mercury, iron, salt, galena, industries, towns, railroads, etc.	Sufficient degree of authenticity. The state of conservation varies depending on the different cases.	On Tentative List since 2007. Criteria iii, ii, iv A series of 17 components or single nominations of mining sites or landscapes
Main values: historic continuity, the last and most renowned of the world's great 19th century gold rushes				
Mining Historical Heritage, Spain	From Neolithic to 20th. century	Poly-metallic, gold, coal, sulphur, lead, silver, mercury, iron, salt, galena, industries, towns, railroads, etc.	Sufficient degree of authenticity. The state of conservation varies depending on the different cases.	On Tentative List since 2007. Criteria iii, ii, iv A series of 17 components or single nominations of mining sites or landscapes
Main values: a clear exponent of the evolutionary process of mining in Spain. Elements complementary to protected mining areas in other countries and different geo-cultural areas				
Sites miniers majeurs de Wallonie, Belgium.	Since 18th century.	Coal, iron. It includes mining exploitations, industries, cities and specific workers' villages.	Well preserved, not integrity as a whole.	On Tentative List since 2008 Criteria ii, iv Series of four ensembles.
Main values: Four ensembles showing the Belgian mining saga and its associate sites. Their universal value is not very clear				
Site of Ancient Copper Mine: Site of Ancient Copper Mine in Tongling, China	From 2nd Millennium BC, bronze culture	Copper mine. Archaeological site.	Integrity	On Tentative List since 2008 Criteria ii, iii, iv
Main values: ancient specific technology				
The Sado complex of heritage mines, primarily gold mines, Japan	400 years. Until current times.	Gold and silver mines	Not enough proved	On Tentative List since 2010 Criteria ii, iii, iv
Main values: a cultural tradition based on an evolving set of mining technologies and mine management system.				

The most represented mining properties in the World Heritage List are silver mines but an increasing number of coal mining assets has been inserted in the Tentative List, sometimes presented as cultural industrial landscapes or serial nominations and, according to relatively recent studies, this number could even be increased (HUGHES, Stephen, 2002).

Apart from the geological, geographical and geomorphologic aspects, Almadén's and Idrija's outstanding universal value derives from their historic significance, from the values present in the mines proper, in the surrounding landscapes and to a large extent, in the towns.

Almadén's and Idrija's mercury mines can be compared with other sites included on the World Heritage List. The main differences are given by their historic functionality as the suppliers of a basic raw material that was the foundation of the dynamic of mercury, thus explaining its transcendental significance that was its driving force. These differences with other mines are based, first, in the specificity and uniqueness of the mercury extraction process that explains unique fixed machines or unique furnaces, certainly an unique chemical treatment and some specific issues of management of the mining territory and are also shown in their economic, scientific and technological importance for the history of humankind, as the greatest mercury producers of all time. The production of mercury at Almadén throughout history has been almost four times greater than that of the third-largest (Monte Amiata in Italy), and Idrija almost twice.

Furthermore, a very peculiar characteristic of Almadén and Idrija is the degree of integrity and authenticity of the mines and also the town centre and its landscape. Special mention must also be made of the inhabitants' identification with the town's history, as well as the varied manifestations of the intangible heritage associated with the transmission of historical and cultural significance and the values of its citizenry, through different artistic manifestations and other features of its lifestyle.

There are no other mercury mines on the World Heritage List or in the Tentative Lists. Nonetheless, this must not be the only criterion for deciding on their exceptionality, but rather, as has been said above, the historical significance of Almadén and Idrija as part of the mercury heritage. Nonetheless, following the criteria habitually applied a comparative study of the historic mining sites proposed with other areas, sites or settlements included on the World Heritage List or on Tentative Lists would lead to the following conclusions:

The oldest mines, at least with some degree of scientific certainty, are the Neolithic Flint Mines in Spiennes, Mons. Of the mines operating in antiquity, the only ones that continued with their historic function down to the modern day were the Mines at Rammelsberg, which are as notable an example of stratification with educational potential as those here proposed. Of the mines shown on the Tentative List, those older than Almadén and Idrija, are Lavrio, formerly Laurion, in Greece and the Río Tinto Mines, in Spain (on the Spanish Tentative List as part of the "Historical Mining Heritage"), but these have not operated without interruption for over 2,500 years as the Mines at Almadén have.

The Iwami Ginzan Silver Mine and its Cultural Landscape, inscribed in 2007, coincides to a certain extent with Almadén and Idrija in time and might have been proposed as part of a cultural route, which would lend additional value to the property.

From the viewpoint of the function's universal transcendence, Ironbridge is of great importance as the symbol of the Industrial Revolution in Britain, as are the Neolithic Flint

Mines as an expression of a crucial stage in the evolution of humankind. So too is Cornwall, not only for the production of copper but also its technological exports.

Among the historical cities of mining character inscribed in the World Heritage List in America, the city of Potosí in Bolivia is founded in the first half of the 16th century after the discovery of the enormous silver location in the Cerro Rico de Potosí. It was such its wealth that the mining camp soon became a city with an orthogonal urban trace, whose virtues made possible to grant it the title of "imperial city". The productive area was one of the biggest in the Spanish America, provided of a hydraulic system formed by preys and aqueducts moved by the mills that grinded the mineral. However, the irrational extraction of the mineral during the 16th century, made the city decay very soon, stagnating its development for the 18th and 19th centuries, in spite of being located in an important point for the trade between Lima and Buenos Aires.

With regard to the above-mentioned, the mining cities of Guanajuato and Zacatecas were both affected by the decline of the mining of the silver and by the policies of development that were established in Mexico.

In contrast, the citizenship of Almadén and Idrija carried out their daily life during centuries, not only basing their development on the mining, but with the creation of handcrafts and other activities and products, originating an ideology of the economic and socio-cultural development through those centuries

There are other American silver mines in the Tentative Lists and also some important mines not included such as Cerro de San Pedro and Real de 14 in Mexico but it would be necessary to continue research in order to find material attributes that prove the use of amalgamatiion with mercury..

The cities of Diamantina, Goiás and Ouro Preto in Brazil, belong to the Portuguese conception of creating populations, all their urban patterns respond to the adaptation of the mountainous landscape, creating in some cases like Goiás an organic urban development.

The wealth produced in these three cities has its relevance in the world economy during the 18th century mainly. All of them are testimony of the Baroque, and in the case of Ouro Preto, it shows the exceptional talent of the Baroque sculptor Aleijadinho. Also, none of them makes patent the utilized technology for the extraction of metals, and in the case of Diamantina whose vocation was the extraction and production of diamonds, the mining process was different.

It may be said that the properties linked to mining that are already included in the World Heritage List are generally in a good state of conservation. However, it should be noted that Humberstone and the Santa Laura Saltpeter Works has been in the List of World Heritage in Danger since its inscription in 2005. The Mexican sites are in a good state of conservation, but in Brazil, a monitoring process at certain intervals has been required in the cases of Ouro Preto and Goiás. At Potosí, various scientific missions have assessed conditions at Cerro Rico.

The urban-mining ensemble of San Luis Potosí, inscribed in 2010 as part of the Camino Real de Tierra Adentro, constitutes a fundamental piece of it through the specific ways of transportation and distribution of the mercury and the silver, to represent the rich cultural exchange that was carried out through this road, intending to expose in a same way, the diversity and reciprocal influences of the tangible and immaterial heritage between Europe and America in a considerable period of time of the history of humankind.

Almadén and Idrija are also an example of selection of the area to be proposed. They are mining sites not only closely connected but really immersed in their environment and respective human settlements so that they include all the necessary attributes to explain history and to convey values. Notwithstanding their dimensions fit very well the exigencies of adequate management, a characteristic which is not shared by some industrial landscapes already inscribed on the World Heritage List or in the Tentative List since they may be too large for a comprehensive management. In the same way, it is to be said that the selection of both components of the series, based on a mutual cooperation history, guarantees not only the universal value as a whole but also the coherence of a common management system based on the particularities of the production of mercury and the development of a particular mining and scientific culture.

Other elements of significance related to the heritage of mercury

In Spain, apart from the territory surrounding Almadén, Almadenejos, a possible future extension once rehabilitation is concluded.

In Peru, Huancavelica, as well as the possible remnants of the mercury mine at Tomebamba in Cuenca, Ecuador. Other locations in America also had a specific function related to mercury.

Huancavelica

In 1563, and in view of the strong demand for mercury, quicksilver deposits were discovered in Huancavelica, Peru, and were used especially for the demand from the Potosí silver mines, providing mercury to New Spain when Almadén was unable to do so, just as Idrija did at different times. The aludel furnaces were developed at Huancavelica for the distillation of mercury, using a technology that was later taken to Almadén, where they were known as Bustamante furnaces, and to Idrija.

The city of Huancavelica is located only four kilometers as the crow flies from the Santa Bárbara mines, although the mule paths and roads that join them together run for several kilometers more. The district of Santa



001 073 BARITEL OF MINA DE LA CONCEPCIÓN, ALMADENEJOS. POSSIBLE FUTURE EXTENSION OF THIS NOMINATION

Ana was traditionally where the furnaces were established to smelt the mercury ore before being transported to the port of Chincha.

Quicksilver from Huancavelica was transported to several different silver-producing areas, but the most important destination was the mines at Potosí and Oruro, where it arrived only after a long sea crossing and a tiresome journey through the high, abrupt Andes.

The mines at Santa Bárbara were exploited in the very distant past, although the chronicles record 1564 as the date of their discovery by the Indians led by Amador de Cabrera, holder of the *encomienda* for Acoria and Huando. The mines were worked freely by their discovers in the first few years. In 1570, however, Viceroy Toledo expropriated the mines on behalf of the Crown and established a system based on an administrative overseer, the mining *mita* (levy) and the association of miners and Indians. The governor had to negotiate with the miners and the Indians recruited under the levy. At Santa Bárbara, with over 300 Indians coming from places as far as Andahuaylas and Tarma, the levy made it the most important forced labor site after Potosí.

Mercury production amounted to 6,800 *quintales* in the best years, dropped considerably at the end of the 18th century, when it was only 180 *quintales* per annum. The average for the 17th century had been 5,200.

The mines at Santa Bárbara provided very considerable revenues for the Spanish Royal Exchequer. Applied to total production, and due to the difference in sale and purchase prices, the Crown enjoyed a monopoly over the quicksilver trade, purchasing *quintales* at 58 pesos in Huancavelica and selling it at 79 in Potosí. The "rough and ugly-looking crag" of Santa Bárbara generated wealth equivalent to over 200 million pesos in its first 125 years of operation (CASAVILCA PACO, Paúl, 2006).

The territory of the mine at Santa Bárbara in Huancavelica comprises elements of different types and scales including geological, geographical and geomorphologic aspects, landscape, paths, mines, other engineering works and some civil, religious and domestic works. The mine at Santa Bárbara still preserves important elements of the mining heritage, as does the city of Huancavelica, with constructions clearly reflecting the characteristics of the site and the significance of mining culture.

Almadén and Idrija are enough to explain by themselves the significance of Mercury but Huancavelica could add the peculiar characteristics of the American context. Unfortunately Huancavelica does not seem to present nowadays the conservation, integrity and possibilities of management conditions which would allow its incorporation to this series. Further more, it is not even included in the Tentative List of Peru and though the Santa Barbara Mines and several assets of the historic centre of Huancavelica are included in the Immovable Cultural Properties Inventory, there is no evidence of conservation, management or valorisation projects shown at the Peruvian Ministry of Culture website.

In the case of Mexico, in connection with mercury trading, the World Heritage List already includes the Historic City of Guanajuato and Adjacent Mines (1988), as well as the Historic Centre of Zacatecas in 1993, Historic Centre of Mexico City in 1997, where both mercury and silver were distributed, and Historic Centre of Puebla in 1987. The Camino Real de Tierra Adentro, a segment of one of the northern branches of the Intercontinental Camino Real was also included in 2010. The list of sites linked to the use of mercury is very extensive and would include, apart from those mentioned, the Historic Town of Ála-

mos ("Real de la Limpia" or "de los Frailes"), the Historic Town of Sebastián del Oeste, Real de las Once Mil Vírgenes de Cosalá and Taxco, all included on the Tentative List for Mexico, as well as other mining settlements such as Real del Monte and Pachuca. There is also a manifest historic trace of the mercury route in the Mexican ports used for its transportation: mainly Veracruz, and Acapulco for its links in the Pacific.

More recent mining sites in the United States of America bringing homage to Almadén and Idrija should also be mentioned. These are New Almadén and New Idrija, both in California. Cinnabar from New Almaden was used by aborigines before the mineral ores were discovered in 1820. It is one of the oldest and most productive mercury mines in the United States. It helped ensure the California Gold Rush could take place. It has been inscribed as National Historic Landmark in 1961. Now part of Almaden Quicksilver County Park: "There are also remnants of mining structures throughout the park. All mines and components have been sealed. However, the San Cristobal mine may be viewed from behind a locked gate" (Santa Clara County Parks, Almaden Quicksilver County Park). Exploitation of New Idrija began in 1854 and became the second mine in mercury production in the United States, following New Almaden. Both the mine, closed in the 70's and its close working settlement are abandoned, and therefore the state of conservation as well as the integrity of the site cannot be calified as good.

Monte Amiata

The Monte Amiata mercury mine was located close to the hill of the same name in Sienna province in the region of Tuscany (Italy). It is the third mercury mine in history after Almadén and Idrija. The Roman writer Pliny the Elder already mentions the existence of cinnabar ore on a hill he called Tuniatus (now known as Monte Amiata). Although there is also a written reference to its existence in 1217, the mine ceased to operate until the 19th century.

In 1839, in view of the decline in mercury production at Almadén, consideration was given to the possibility of beginning operations again with numerous prospecting and research efforts, leading in 1846 to the start of the search for more mineral but this was again abandoned. The research activities got under way again in 1873 and quickly advanced to several mines located in towns close to Monte Amiata: Abbadia San Salvatore, Santa Fiora, Castell'Azzara and Piancastagnaio.

The quality of the ore varied greatly although the mean yield was around 1% of mercury. Extensive use was made of the over cut and fill system similar to that used in Almadén. In the later stages of the mine's operation, yields fell to 0.4 and 0.6%.

The metallurgical facilities were expanded after 1887 with Čermak-Špirek furnaces, already in use at that time in the mines of Idrija and Nikitowka (Russia) and Špirek towers for the gross ore, one of which is still preserved in perfect conditions at the Siele mine, although the same cannot be said for the Čermak-Špirek. In 1914, experiments began with rotating furnaces in order to fit Gould rotating furnaces and, in 1955, a small Pacific furnace (with multiple layers) similar to those in Almadén. In the 1970s, a multi-level NESA furnace was installed; it is like the Pacific furnaces used at Almadén, but with double the capacity. Both the rotating and the multi-level furnaces are in perfect condition. Due to the very serious crisis in the mercury market, the mines were closed in 1976.

The Amiata Mining Museum Park was created in 1993 at the urging of the municipalities, the regional gov-

ernment of Tuscany, the provinces and communities of Siena and Grosseto, as well as Italy's Ministries of the Environment and Culture.

There are currently two museums, one in Abbadia San Salvatore, with a very realistic tunnel added recently, where the tour guides are former miners, and the other in Santa Fiora. At Siele Mine, an authentic mine shaft is being recovered in order to receive visitors.

Although its historical continuity is debatable, the importance of the Monte Amiata mines, thanks to their antiquity and their significance over the last two centuries, is undeniable, as is the impressive museum presentation, even though it is not possible truly to speak of integrity and authenticity comparable to those of Almadén and Idrija, particularly with regard to the tunnels.

It would be very interesting for the research under way in China into the protection of heritage, often not yet disclosed, to give rise to the identification, conservation and recovery of historic mercury mines.

There is now only one known mercury mine in the world which continues to sell its output abroad: Khaidarkan, in the remote mountains of southern Kyrgyzstan. What will happen to the "kombinat" (the mine, smelter and all the associated installations are known together as "the kombinat") is still far from clear. For the international community, continuing mercury mining – business as usual, even if brought up to international standards – raises significant concerns.

By most standards Khaidarkan is remote, wedged in the precipitous mountains of south-west Kyrgyzstan and reached by a narrow road over a 2,300-metre pass. The mercury mine and smelter date from 1941, from the days of the Soviet Union. The mine equipment and infrastructure were located at Khaidarkan following evacuation of industrial facilities from Ukraine during the Second World War. The Khaidarkan region had exploitable mercury deposits and it was unthinkable that the enemy could reach Central Asia. The remoteness of the mine, which was an advantage during the war, is now considered a challenge to the further economic development of the region (UNEP-UNITAR, 2009)

Research currently under way or subsequent projects may allow greater significance to be assigned to the items mentioned above, as well as others of importance related to the production, transportation, distribution and use of mercury, as well as manifestations of immaterial heritage.

Almadén and Idrija are outstanding for the importance of an event that transformed the world economically and culturally, an event in which played a key role. They are also outstanding for their functional specificity and exceptionality in production, all linked to diversity, authenticity and integrity of their material heritage and the permanence and transcendence of cultural values.

This means that, more than the uniqueness of the components, the important aspect is to understand how Almadén and Idrija complement each other as part of a historical process of exceptional significance for humankind: the heritage of mercury.

Almadén and Idrija differ in terms of the type of mercury in the deposit and each one is the most important deposit in the world in its class. In the case of Almadén, it is the largest in absolute terms and because it offers massive cinabrium. In the case of Idrija, because it is where the highest proportion of native mercury (in liquid form) is. It is of the most importance to understand how Almadén and Idrija collaborate as part of a historic process of outstanding significance for humanity.

3. d. Integrity and /or Authenticity

Almadén and Idrija are outstanding for the importance of an event that transformed the world economically and culturally. They are also outstanding for their functional specificity and exceptionality in production, all linked to diversity, authenticity and integrity of their material heritage and the permanence and transcendence of cultural values.

The components of this serial nomination are characterized by a high degree of integrity and authenticity, derived in part from the communities' awareness of their great significance, from their roots and a sense of ownership, as evidenced by the quality of the handling of heritage, based on a commitment with culture.

Although the historic function of the mercury route has disappeared, the effect of cultural exchange is evident on the historic vestiges and many elements comprised in it, as well as with regard to the culture of mining. The historic functionality serving a specif and well determined goal created an identity of its own. When history transformed the relationships between the components of the original historic phenomenon, the product resulting from the dynamics of mercury, that is to say, cultural heritage generated by this phenomenon kept it in place down to the present day. Equally important, all of the culture created around and by the production of mercury, instead of disappearing, continued to consolidate its existence and gave rise to scientific methods, technical procedures and immaterial culture.

Its significance can also be seen physically in different components of the heritage of Almadén and Idrija, which are physical expressions of these to and fro models, such as, for instance, the *aludel* furnaces that went from America to Almadén and on to Idrija, some types of construction work used in the mines, the towns and the architecture, as well as the Idrija kilns that were used at Almadén, etc.

The attributes bearing testimony to this are:

Historic function

The historic function of Almadén and Idrija has ceased to exist due to international decisions with regard to mercury. Nonetheless, the steps taken for the recovery of heritage have made it possible for that function, originally productive (mercury mining), to be transformed into an educational and scientific function on the basis of the original function as the starting point.

Dynamic relations in a living setting:

As there has been a cultural continuity with respect to the impact of the original function, the surrounding settlements, historically dependent on the mines, have now enough vitality or are in the process of recovering it for the most part, on the basis of the community's identifying with the historic processes like the mining culture and all of the scientific and educational development derived from the latter.

Shape, design, materials:

Both components clearly express their history through the system of the mines and the characteristics of the settlements.

Traditional techniques

The mines have evolved over time, as corresponds to a productive process carried out on a single site. Nonetheless, due to the characteristics of the mining operations, it is possible to understand clearly how the techniques have evolved since the 16th century. The construction techniques used in the architecture have evolved, but nowadays, recent restorations of historical and artistic buildings have been carried out under the clear intention of recovering the old techniques of construction, understanding completely the substantial value of the use of these traditional constructive systems, for the conservation of the memory of the inhabitants and due to practical reasons based on sustainability.

Relationship with the environment

The mining deposit itself is the means for Almadén's and Idrija's cultural development; therefore the mines and the settlement have an absolutely organic relationship with the environment. In this case, unlike the sites located in picturesque landscapes, their authenticity and the expression of its integrity is that it is possible to understand the history of a mining activity pursued over centuries.

Spiritual aspects

Despite the fact that the history of the sites proposed are awash with terrible events of sad memory, a considerable feeling of belonging has been generated over the centuries, closely linked to the work in the mines and has been transmitted down through generations.

The nominated series include all of the necessary elements (mines, relevant segments of road and settlement) to identify clearly the outstanding universal value of them.

The dimensions of the areas included in the nomination are sufficiently large to represent their main relationship with history. The territory included is all the part where the shafts and tunnels are located as well as part of the settlement, the town centre.

Thanks to management plans, as well as the high degree of commitment by the citizenry, both sites will not suffer from the so-called "pressure of development".

This degree of awareness with respect to conservation can already be verified thanks to the extraordinary work carried out for the interpretation centers and the display of items in museums, as well as the archive documentation prepared in both sites. Moreover, the extraordinary archive documentation corresponding to the history of Almadén and Idrija, listed in chapter 7, bears testimony to the authenticity of the sites.

It must be outlined that management coordination of both sites, based on the establishment of scientific and educational cooperation is substantially aimed to guaranteeing the continuity of mercury culture.

We shall now explain in detail the degree of authenticity and integrity present in the components of each of the components of the series.

001 Almadén

Diversity is the hallmark of Almadén, not only because of the historic importance of the mercury production and its technical and technological contributions, but also for its role as the articulating force behind the mercury route and for the importance of its components, including the intangible aspects of certain contributions to history such as the social value of the Saint Raphael Miners' Hospital and the scientific contributions to the development of the health system, as well as its management through history.

The mine is characterized by a stratification starting with Roman remains and passing through different periods of history in which there were technological changes in engineering or stylistic changes in architecture. In the case of the tunnels, their history can be understood through a vertical slice. The shafts have retained the different strata, part of which can be seen with the naked eye.

As José María Iraizoz (2006) explains, unfortunately there are no remains of this kind of picking work, due to the inherent instability of this activity and to the various fires affecting this area. The only works remaining are some of the infrastructure used in a later period, such as the Socavón de la Mina del Pozo (the "Well Entry", used to drain the mine) and the shaft used to raise and lower

001 074 AUTHENTICITY IN MATERIALS SHOWN IN GALLERIES



the miners and their ore, originally an auxiliary shaft at the eastern end of the work area. Part of this has recently been recovered in the Mining Park at Almadén.

In other words, the physical manifestations of the mine works corresponding to the Roman era are not preserved but there are tunnels and shafts dating from the 16th, 17th and later centuries. For example, it is easy to understand which of the tunnels were built following the design concepts of Diego de Larrañaga from the beginning of the 19th century.

From the point of view of the interpretation of the elements as a whole, the historic sequence is clear and, although it is not possible to appreciate the entire mine system from the outset to the present day, in itself an impossible and unnecessary task, the existing mines are more than enough to show their history and, therefore, guarantee their integrity. In some cases of shafts and tunnels, there is evidence of earlier periods but with the logical transformations arising through mine working and, in particular, consolidation. Therefore, it can be said that the integrity and authenticity are self-evident, not only through the survival of the material evidence but also through their physical documentation of the processes of history.

The additions and transformations essential for the purposes of consolidation and protection or for the interpretation project show that they correspond to the current moment. Overall, the display and tour shows a high quality of design, discretion, good

001 075 THE DISPLAY SHOWS A HIGH QUALITY OF DESIGN AND NO CONCESSIONS TO HISTORICISM



taste and no concessions whatsoever to historicism, misrepresentation or kitsch for the sake of tourists. Some movable elements have been reproduced, such as San Andres' wooden winch, but it is very well explained that it is just for interpretation.

The facilities on the surface have suffered hardly any changes. There is an extraordinary correspondence of each element to their age, without transformations or false interventions. The shafts and other elements dating from the 20th century are perfectly defined as well as having value in themselves as examples of technical and technological evolution.

Some of the specific assets of high heritage value are analyzed individually below:

Bustamante furnaces

There is currently one pair of Bustamante furnaces in the Cerco de Buitrones and they have been totally restored by the Spanish Historic Heritage Institute. The criterion adopted was to follow the concepts in the Charter of Venice. There was sufficient material evidence and it was only necessary to replace some *aludel* pipes, a regular event in the history of their usage. The parts replaced are clearly evident.

Tile Kiln

It has been restored by means of consolidation and liberation as it was buried too deeply, a situation that did not correspond to the historic evidence but to relatively recent changes.

The wall of the palisade area

This has undergone transformations throughout its history. The most significant was the combination of the two working areas into one. Nonetheless, the remains are of sufficient magnitude for the wall to be understood as historic evidence.



001 076 THE RECENT INTERVENTION ON THE PUERTA DE CARLOS IV

The Cart Gate

This was recently restored following the classical criterion for liberation as it was walled up. Its interpretation is unaltered and, although visually it can be seen to be too well finished, this contributes to visitors' understanding that the intervention has been recent.

The King
Charles IV Gate

The recent intervention on the *Puerta de Carlos IV* is a hindrance to the reading of its history as it introduces an element, fortunately reversible, in frank contrast with its historic model. In other words, the metal gate, albeit necessary and without eliminating a historic element, for reasons of authenticity, should have marked its correspondence with current times, but always subordinated to the old design, a feasible goal without the need to reproduce the original.

The Tip at the Cerco de San Teodoro

The rubbish tip at the Cerco de San Teodoro was restored for the sake of environmental protection but at the same time it represents a way of *mise en valeur* from the standpoint of history and the landscape, as its visual expression has been recovered without affecting the surroundings.

For centuries, this tip has received sterile waste from the mine workings as well as the slag produced in the metalworking processes, amounting at the present time to a volume close to 3.5 million tonnes and a surface area of 10 hectares. (CARRASCO, Javier, 2006) This is an element making an innovative contribution to the understanding of the evolution of mining processes in history.

Stretches of the Road

The stretches of the road to Seville vary in terms of their integrity and authenticity. The first 100 metres from

001 077 PREPARING THE TIP AT THE CERCO DE SAN TEODORO



the King Charles IV Gate connecting the historic path with a today's roadway have been recovered and are clearly evident and included on the core zone. Further on there the layout of the historic road, both the parts corresponding to the mercury route's old paths and those coinciding with current roadways, allows the route to be interpreted and retains the road space although there has been stratification in the road materials. Bridges and other civil engineering works, in general, are preserved in an acceptable state.

The Town of Almadén

The current morphology of the town of Almadén clearly expresses the stratification of its urban layout from the original distribution around the Castillo de Retamar tower to the new residential areas added in the 1960s. The historic town centre retains its layout intact and an exceptional degree of homogeneity in its morphology.

It has remained practically unaltered and it is possible to find there examples of architectural types from a variety of ages. Perhaps the most interesting is the overlapping of settlement and mine, giving the town an additional value. At Almadén, history can be read in a vertical stratification in the mine and horizontally in the town. The streets of the old town converge on the mine as their focus, establishing guidelines that help to understand how the settlement has evolved.

As the urban sprawl has come about mainly through additions to the existing layout, a reading from west to east is very clear and even, although the areas corresponding to the 18th century expansion have suffered some modifications and replacements in their architecture, it is still possible to interpret it as the layout has been preserved, clearly distinct from older area. The modifications and replacement do not alter the consistency of the elements as a whole and maintain the contextual reference of the buildings of greatest value such as the Bullring and the Saint Raphael Miners' Hospital. (ROJAS, 2006)

Retamar Castle

This has been profoundly transformed over time although it is still possible to appreciate its historic significance. The added elements are evident.

The Chapel of Saint Michael

Its characteristics are quite clear although the state of conservation is poor. It must undergo rehabilitation and partial restoration work.

Mine Superintendent's House

Regrettably only the portal remains standing, with its historical and architectural value.

New Church of Saint Sebastian

It can be recovered as the transformations are reversible. The possibility of understanding its elements as a whole has not really been affected and its essence has not been modified.

The Mining Academy

Building of great significance and presence, in a relatively good state although it requires some rehabilitation. There is a plan for it to be recovered for academic purposes, thus contributing to maintain its role in the continuity of teaching in Almadén. Funds have been provided to start rehabilitation works in 2011.

House of the Inquisitor

This has already been rehabilitated as rural accommodation. The func-

tion assigned is consistent and very necessary from a management standpoint.

Archaeological remains of the Royal Forced Labour Gaol

The demolition of the building put up by Silvestre Abarca in 1754 has probably been the greatest aggression against the heritage of Almadén. The attempt at imposing "modernity" led not only to the loss of one of the most valuable elements in the architectural heritage of the site but also it replacement by a building that is aggressive with its setting. In the 1990s, the Polytechnic University School of Almadén (today School of Mining and Industrial Engineering of Almaden) was enlarged by the addition of a discreet building in a contemporary expression with a high quality design. During the building works the remains of the former gaol were disinterred and have been included in the work's functional and spatial discourse. The "Centro de Interpretación de La Real Cárcel de Forzados de Almadén" is currently finished and constitutes an excellent example of how to recover the memory of history.

Real Hospital de Mineros de San Rafael

The Almadén History Museum has been installed at the Royal Saint Raphael Miners' Hospital, following its rehabilitation, with a function of great importance as it is the depository, at the Historic Archive, of a large part of the knowledge about Almadén. Furthermore, by means of a great team of museum specialists, it is possible to convey to the population and visitors the history of the mine, the town and the hospital.

The Bullring

One of the most outstanding elements of Almadén, the bullring has undergone few transformations over time. The current use of the Bullring is its original function, in addition to the hotel accommodation in the residential area, compatible therefore with its historic function.

There are no signs of errors or mistakes in the rehabilitation, and the quality of the design for the areas is very high, without concessions to being merely picturesque.

Movable heritage

The movable heritage related to the production of mercury is extraordinary. It is housed in the various centres and museums in Almadén and like the documentary base, constitutes a source that guarantees authenticity.

Traditions

Traditions related to mining had been preserved in form of Almaden's choir, traditional food preparation, education, traditional "fiestas", clothes, and crafts workshops.

002 Idrija

The Idrija mine and the Idrija town with the surroundings have a rich geological and mining tradition. The valley in the heart of geologically-diverse hilly lands was mined from 1490 all until recently. The Idrija deposit is situated below the center of the town of Idrija, and extends in the directions north-west - southeast. It is 1500 m long, 400-600 m wide and 450 m deep, whic means that the lowest part was below sea level. The whole network was around 700 km long. Due to the rarity of mercury and specialities of the ore deposit the mining operations in Idrija had global importance.

The heyday of mining in Idrija brought new water-propelled systems and technology for the floating of wood on local creeks. Idrija bore witness to numerous innovations in mining methods, equipment and machines. Many of the machines and other equipment used for mining in this time have been preserved to this very day and are now exhibited, telling an important story of the evolution of mining processes in the town. Some of them are unique or extremely rare. Despite constant improvements in mining equipment, the mine paid attention to tradition and preserved many of the machines, which have either been restored and are now exhibited or are awaiting restoration.

The gradual closure of the mine, which began in 1988, resulted in great care being paid to sustaining the extensive mining tradition of the town. Systematic preservation of old machines and equipment has been going on for more than 90 years, while the mine has been subject to heritage protection standards since 1952. Today, the protection of technical heritage is part of Idrija's development plans. What is more, the Idrija mine was always at the cutting edge of mining technology. It was also the place where many important scholars worked, contributing to the technological advancement of Idrija and Europe as a whole. Their work is manifested in the early development of education, the arts and science in the town. Mining had a major impact on the development of culture, forestry and architecture in Idrija. It also led to the creation of bobbin-lace making, which like mining put Idrija on the global map.

The evidence, described in the nomination, has been preserved in Idrija in all of its authenticity and integrity that includes:

- The already described expansion of the mine, new shafts and mine buildings that were constructed during the years of cooperation or contracts with Spain in order to aid in the mercury trade across the Camino Real to America as well as to Europe, Middle East, Egipt and Asia. These buildings were preserved and maintained throughout history; presently are being monitored by the responsible conservation services. The traditional function of the buildings, closely related to the life of miners, is also mostly preserved;
- The material evidence of the mercury route consists of the preserved machinery and equipment, which reflect the technology that arrived to Idrija from America via Spain.
- Evidence of technology invented in Idrija that had been applied (used) later also in Spain, had stayed preserved in Idrija together with its original plans until today. The lucrative contracts with Spain are reflected by the preserved machinery and equipment, which were the most advanced in the period or are of exceptional value. These machines and equipment are authentic in their design and materials and are often still operational, even though they were superseded by newer equipment and removed from operation;
- The period of contracts with

Spain also resulted in expansions to the mine, necessitated by a surge in the demand for the metal. Expansions to the mine and the increases in its output also resulted in the higher demand for wood, which was delivered to Idrija by water. This was the period when the klavže water barriers, exceptional also on the global scale, were constructed. According to International standards, the water barriers are authentic in form, design and materials and are preserved in situ;

- The authenticity of the mercury routes leading out from Idrija –mainly towards the ports of Venice and Trieste from where mercury was shipped towards Spain, as well as north towards Amsterdam– is reflected by today's roads that mainly follow the same course. Their authenticity is thus reaching all the way to modern times. The paths that led from Idrija were in constant use and were already modernised in the time when they were used for transporting mercury in one direction and the other necessities in the other, especially during the time of the highest demand (e.g. in the 18th century);
- The 500 years of mining history in Idrija is reflected in an extensive collection of authentic machines and equipment (Kamšt Water Pump, Kley's Pump and Rotary Furnace, well-protected, maintained and preserved;
- During the times when Idrija was experiencing periods of wealth, caused by the trade on the mercury route, numerous public buildings were built in the town. These buildings are well preserved and maintained in line with international guidelines as well as conform to these guidelines and authenticity in terms of their form, design, use, function and materials;
- Apart from the tangible, several intangible aspects also point to the linking and exchange of technologies. These include the naming conventions for pieces of technology. For example, the Bustamante furnaces, transferred to Idrija from Spain, were in Idrija named the Spanish furnaces;
- Traditions related to mining had been preserved in form of traditional food preparation, lace workshops, health care (mine occupational physicians), and education reflecting the authenticity in the realm of intangible heritage.

The credibility of the above mentioned elements that testify to the dynamic trading and development is further strengthened by original historic sources and documents that list the routes, quantities and prices of the precious liquid metal as well as document the cooperation between the ruling royal houses of Spain and Austria through contracts, agreements and letters, alongside cooperation with Mexico. The documents, linked to Idrija, are mostly held in Vienna, Graz, Leoben (Austria), Venice, Udine, Cividale (Italia) and partly held in Idrija, Seville (Spain) and in Mexico.

The town has been transformed as a result of an evolving process through time but keeps many evidences of the town/urban system (space organization and structure, water, landscape, paths). The Idrija old town and its surroundings contain a wealth of man-made and natural features which witness of the town's rich history.

Idrija is a living site, where authenticity is represented in everyday life (use, function, setting, location). Despite the fact that the Idrija mine is closed, mining still defines the character of the town and mining traditions are still present. Its technical achievements, heritage and ever-new ideas have resulted in Idrija being a developed town, which can today boast of new business activities, including some which are yet again in the very top of the world.

Chapter 4

State of conservation and factors affecting the property





4.a. Present state of conservation

In explaining the state of conservation of the series, the departure point is marked by the criteria on which the statement of outstanding universal value is based.

1. State of conservation of the elements of proof that bear testimony to the exchange of influences based on the heritage of mercury. This is the guarantee of compliance with criterion II of the list of criteria to be met in order that the property may be considered to possess outstanding universal value.

(001) Almadén

The most important elements of proof currently present in Almadén are, at the Almadén Mines, the Bustamante Furnaces and the Idrija (Čermak-Špirek) Furnaces. Also, the gates, the stretches of the road and movable heritage: furnaces, containers, pipes, etc.

The Bustamante furnaces are in perfect condition following a recent restoration. The movable heritage is in excellent condition for protection at the Museum of the Mining Park in Almadén. Only one chimney remains at the Čermak-Špirek furnaces and it is in a good state of conservation, although the rest of this structure was demolished decades ago.

In 2004, the work to restore the Puerta de Carlos IV (King Charles IV Gate) was carried out. The restoration of the aludel furnaces and the Puerta de Carros (Carriage Gate) was also completed during this year. In the case of Puerta de Carlos IV, it would be convenient, in the interest of harmony, to replace the steel gate that completes the structure. The mercury-laden carts headed for Seville departed from both of these gates, which were the starting point of the Almaden's mercury towards America.

The road leaving from Almadén has been recently restored by relaying of the cobblestone in the first one hundred meters, meaning that this section is in perfect condition. Further on, there are sections that have been converted into roads and other sections that are conserved unchanged, where the original cobblestone is perfectly visible.

The Royal Mining Academy is proof of the development of teaching on mining. Its current state of conservation is average on the inside, but good as regards the façade and the structural elements. There is already funding for the implementation of the rehabilita-



001 078 BUSTAMANTE FURNACES DURING REHABILITATION

001 081 PUERTA DE CARROS AND FIRST SECTION OF THE ROAD





001 079 BUSTAMANTE FURNACES TODAY

tion project that will convert it into the Almadén International Environmental Geo-mining Practices Centre.

The works planned are for the consolidation and restoration of the building's original structure, respecting the traditional construction system and maintaining its spatial organization while adapting it to the new conditions for its use, without altering its architectural structure. The cost is budgeted at 800,000 euros, of which the Ministry of Public Works will provide 600,000 euros out of its 1% cultural fund. The planned use is as a university residence and the institute of applied geology within the University of Castilla-La Mancha. The works will begin in 2011.

(002) Idrija

The most important elements of proof currently present in Idrija are Idrija Mercury Mine, the Čermak-Špirek furnace, roads and also movable properties preserved in the Idrija Municipal Museum collections.

The Idrija Mine is proof of the development of technical improvment and exchange of knowledge.

The Idrija Mercury Mine company is currently in process of restructuralisation as Information and Research Centre for Mercury within Idrija Heritage Centre which will also house the Mercury Heritage Information and Interpretation point.

The mining tradition also represents the essence of Idrija's modern values. In addition, a research and education facility on mercury is being established and new modern companies, Hidria and Kolektor are now successfully operating in the town.

As the mine and its various manufacturing plants were located in the centre of the town, the same routes were also used for other activities, only individual sections were limited to mercury. The routes were modernized during the centuries, but the directions remained unchanged. Individual sections were abandoned after mining was discontinued: abandoning individual shafts, ore crusher and separation plant in the town, stop-

ping the wood floating with the aid of the klavže water dam etc. The mercury route is today a visitor path in the town. The road links the heritage of the mine, the heritage that is preserved, protected and on display for visitors (castle, Anthony's Main Road, old town centre, miners' house, Francis's Shaft, smelting plant). Individual parts of the path are extremely telling and authentic and are still used for transporting and maintaining the values of the mercury heritage.

The Čermak-Špirek's Furnace:

The furnace was disassembled and its component parts placed under the rotary furnace. In august 2008 the restoration plan for its long-term upkeep was prepared and conservation – restauration project is a part of it.

2. State of conservation of the technological facilities and engineering works at the mines. State of preservation of mine machinery and equipment. State of conservation of architectural and civil engineering monuments or important buildings. Guarantee of compliance with criterion IV of the list of criteria to be met in order that the property may be considered to possess outstanding universal value.

Almadén

The mine itself illustrates, at its different levels, the evolution of mine working systems. In its early days, the pickers took what they could wher-

001 080 PUERTA DE CARROS BEFORE REHABILITATION





001 082 STATE OF CONSERVATION OF MINE MACHINERY. SAN AQUILINO

ever they could, following the veins of mineral and abandoning them as soon as they became depleted. The evidence of such activities prior to the 15th century have disappeared due to the subsequent work at the same locations, albeit executed more rationally so as to achieve lower levels in the deposit.

From this point on, and in areas with mineralization in vertical banks or veins, as is the case in Almadén, the progression in the exploitation of the resources requires reaching ever deeper levels, so there is an inverse relationship between the depth of the workings and the age of their exploitation.

Now that the mine has been abandoned, it is the deepest and most recent workings that are affected, as the mine begins to be flooded from the lowest levels up. In the case of Almadén, only the two lowest levels have been flooded.

The second factor affecting the destruction of the workings is the cave-in due to the pressure of the terrain. This pressure also increases with depth so, in the absence of other considerations, the lowest levels are also the worst affected in this regard.

It is therefore evident that there has been a transformation in the site proposed in the present nomination over the years. Nonetheless, the heritage conservation process carried out since the close of mining operations has resulted in the maintenance of a large part of the mine's system of shafts and tunnels, as well as the superstructure, installations and buildings.

In March, 2003, the definitive Master Plan for the Almadén Mining Park was submitted. This Plan is the instrument for designing, planning and monitoring the transformation of the mining and metallurgical installations of the Mines at Almadén into a Mining Park, understood as a centre for the transmission of cultural, educational and quality tourism values based on the conservation and recovery of its industrial, scientific and technological heritage.

Following the Plan's guidelines, the preliminary architectural and museological projects were drawn up for the Mining Park and, in the course of 2003 and 2004, these were put out to tender and some of the works included in the Mining Park project, such as the "Rehabilitation and adaptation of the underground installations and external infrastructures of the Mine at Almadén" and the "Rehabilitation of the Entrance to the Mina del Castillo shaft and the Forced Labour Tunnel in Almadén" were started. With the conclusion of these works it has become possible to visit the mining installations of Mina del Pozo and Mina del Castillo (16th to 18th



001 083 MERCURY MUSEUM DURING REHABILITATION

centuries) which contain a number of elements of great mining interest: access mouths, tunnels, shafts, ore picking faces, underground winches, etc.

A considerable part of the galleries, shafts and tunnels has been conserved, bearing testimony to the historical work carried out in the indoor ensemble. These elements are all practically in a perfect state of conservation as the majority of the Almadén Mining Park has been completed. There is sufficient presence of constructive and reinforcement typologies that represent the evolution of the mining ensemble.

As regards the outdoor ensemble, there are several works that are in the process of being rehabilitated, while others have already been completed and are serving the Mining Park. They shall all be rehabilitated as part of the management plan in place at Almadén Mines and the Almadén- Francisco Javier de Villegas Foundation. During 2005, two heritage elements of the Almadén Mining Park: the underground mine and the mercury store were rehabilitated. Since November, 2006, the underground mine at Almadén can be visited and December, 2006, saw the inauguration of the Mercury Museum, thus completing the first phase of the Almadén Mining Park, and work started on the rehabilitation of the former Compressor Building that recently homes the Mining Interpretation Centre. Still awaiting rehabilitation are various 20th century buildings that are in a good state of repair but are not in use. In 2007, the work to restore the Route to the Carlos IV Gate was carried out. In January 2008 took place the official inauguration of the Almadén Mining Park. Also during this year was restored the Tejeras furnaces (Tile Kiln). In 2010, the work to restore the Old laboratory building was carried out.

Interventions of restoration and rehabilitation have been carried out in the following elements of the Almadén Mining ensemble:

- Bustamante Furnaces
- Bullring
- Retamar Castle
- Saint Raphael Royal Miners' Hospital
- Charles the Fourth Gate
- Historic mining internal area
- Tejeras Furnace(Tile Kiln)
- Wall of the Cerco
- Carros Gate
- San Aquilino shaft, Head Frame, Machinery Building and Extraction machine
- San Teodoro shaft
- Mercury store
- Compressor building
- Workshop buildings
- Old laboratory building
- The rubbish tip

Larger conservation projects are not



001 084 MERCURY MUSEUM TODAY

necessary at the time, but regular maintenance is required and provided for. Safety measures are in place in the area.

From the architectonic viewpoint, several buildings in Almadén reflect the knowledge and the techniques used by their builders, which were more mining rather than civil engineers. This is notable in two of the main architectonic monuments: the Bullring and Saint Raphael Miners' Hospital. Both have been rehabilitated and contain important functions, the Bullring Hotel and the Almadén Historic Archive, respectively.

Idrija

State of preservation of the mine and related buildings.

Idrija Mercury Mine (1490)

Idrija Mercury Mine is one of the oldest mines in Europe and had seen 500 years of uninterrupted production. The amount of mercury that was excavated from the mine places the Idrija Mercury Mine the world's second largest. Over 147,000 tonnes of mercury were produced in Idrija during the mine's history, accounting for 13% of the global output of the metal.

The very poisonous mercury was slowly replaced with other substances in the 1970s, due to increased environmental awareness. The decreasing demand for the metal caused its price to fall on the global market, where the mine exported over 95% of its output. Despite the fact that the ore deposit had not yet been depleted (foreign analysts predict that the mine still holds some 10% of the global reserves of the metal), the price drop prevented the mine from operating with a profit. Based on expert arguments, a decision to suspend production was passed early in 1977. The decision also called for redeployment of the workforce and maintaining the mine in the condition that would allow for production to continue when global prices rose.

The "Long-term programme for the full and final shutdown of the Mercury Mine Idrija" was drafted in 1987. The programme was based on the knowledge of the mine, stability conditions in the ore deposit and other issues, linked to the closure.

Based on its geological composition, the mine is divided into the lower (below the *XI*th level) and the upper (above the *XI*th level) part. The lower part of the mine is made of solid rocks and the shutdown programme called for filling only the vertical shafts of this part of the mine. The upper part of the mine is much more interesting and complex, both in geological and mining terms. The long years of intensive digging in this

002 113 THE TRADEMARK OF THE IDRIJA MERCURY MINE.



002 114 THE SHUTDOWN PROCEDURES INCLUDE THE GRADUAL FLOODING OF THE XIth LEVEL.

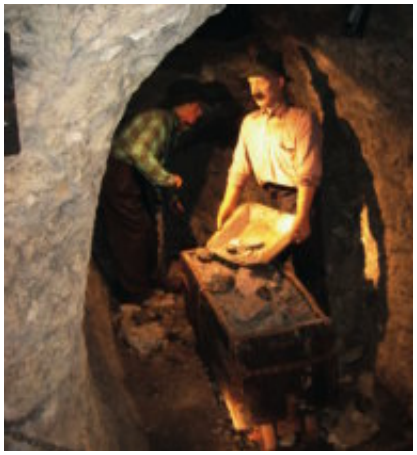


002 115 CLOSURE WORKS – DRILLING OF INJECTING BORES.

part of the mine have been causing subsidence and land slides as parts of the mine had not yet been filled up. The programme therefore calls for reinforcing works in the upper part of the mine by filling all of the tunnels in the central part of the mine, filling all the shafts, reinforcing the incompacted fills and filling the empty spaces above the fills by injecting concrete. Digging of specific bodies of ore in the Permian-Carboniferous shale was also done to change the direction of the deformation area in order to reduce the possibility of land slides on the surface.

The long-term programme calls for works to take place from the bottom up. All of the equipment was taken from the levels that have or will be flooded with water after the final closing works. The water gates at the Ljubevč main road were closed in October 1988, the pumps on the 14th level were stopped four years later and the mine was slowly flooded, while a new pumping station was constructed on the *XI*th level. The mine is currently flooded up to the IXth level.

Additionally, a total of 510 metres of shafts and 261 metres of gallery roads were filled under the *XI*th level, with 3,645.00 m^3 of concrete used for the shafts and 1,300.00 m^3 of the same material used for the roads.



002 116 THE MUSEUM PART OF THE MINE (ANTHONY'S MAIN ROAD), SHOWCASES THE WAYS OF MINING IN DIFFERENT PERIODS.



002 117 MEETING BETWEEN VISITORS AND MINERS IN ANTHONY'S MAIN ROAD.

Submergible water pumps were installed on *IX*th level in 2005 to allow the mine to be drained out above the level. The mine is currently being flooded between the *XI*th and IXth level. The remaining roads between the XIth and 2nd level, a total of 23,680 metres of tunnels, were filled by 142,075 m^3 of concrete (reinforced backfill).

A study was drafted in 1993 on "Projecting the fillings above the IXth level and geological circumstances in the vicinity of the excavated ore deposits". The study provides for fillings above which injecting must take place. A total of 18 areas were defined that required injecting. The process uses a mixture of stone meal (50%), cement (6%) and water (44%). So far, 53,989 metres of bores were drilled and 93,101 m^3 of injecting material used.

The programme for the gradual, complete and permanent shutdown of the Mercury Mine Idrija plans for the mine to be filled in by water up to the IVth level, a construction of a permanent pumping station and a continuous maintenance of the mine above the IIIrd level. Expert positions have also been drafted for the maintained part of the Idrija ore deposit as a natural heritage of national importance. The area of the Mercury Mine Idrija includes the ore deposit (identification no. 4644) and Anthony's Main Road (identification no. 4455). The two have already been declared natural sites of national importance (OJ RS no. 111/04). The Idrija ore deposit is undoubtedly unique globally. Native mercury and the sedimentary cinnabar ore are unique in the world and should be preserved in situ at least to allow experts to visit.

It will be necessary to maintain:

- 1,200 metres of tunnels in the museum part of the mine,
- 2,156 metres of mine roads,
- 128 metres of blind shafts,
- 122 metres of the Inzaghi shaft,
- 222 metres of the Francis's shaft.

Maintaining the mine above the IIIrd level will require a crew of 14 permanently employed personnel.

The preserved part of the mine showcases various types of ore mining, various supports, mechanical methods, ore excavation methods and pumping of groundwater. Larger conservation projects are not necessary at the time, but regular maintenance is required and provided for. Safety measures are in place in the area.

Anthony's Main Road (1500)

One of the oldest preserved entrances into a mine in the world was excavated in 1500 and is well maintained at the moment. It has been done up as a museum and is used to bring visitors to the mine. In March 2010 the Conservation plan for Anthony's Main Road was prepared.

The museum part of the mine includes 1,200 metres of tunnels on three galleries, with a 22-metre difference in altitude, encompassing the unique underground Chapel of the Holy Trinity, the Attems's inclined shaft, precious cinnabar ore and mercury droplets.

The mine carried out the following maintenance works:

- Setting up the Anthony's Main Road path (1993/94)
- Renovation of the underground Chapel of the Holy Trinity (1993/94),
- Restoration of the Šelštev, the entrance building to the oldest part of the mine (1993/94),
- Opening of Anthony's Main Road (1994),
- Opening the 1,000-metre long circular path with a difference in altitude of 22 metres (1995),
- Drafting the proposal: Expert positions for protecting the Idrija ore deposit (ZRSVN, Mercury Mine Idrija, 2004),
- Restoring 50 metres of the entrance part of Anthony's Main Road (2005/06).

Joseph's Shaft (1786)

The shaft was filled up to its surface in 2006 and the hoist and drive equipment are no longer in use. The forge is still partially serving its purpose, but the loading station of the cable car had not been used since the mine stopped production in 1995.



002 118 JOSEPH'S SHAFT AND THE KAMŠT WATER PUMP.

Francis's Shaft (1792)

The facility is well preserved and maintained as it is still used and will be used after the mine shuts down completely. The main building of the shaft contains a collection of old machinery, all properly maintained and restoration measures are not needed at the time. The shaft was declared a monument of national importance in 2001.



002 119 PARTIALLY RESTORED HEADFRAME OF FRANCIS'S SHAFT, 2005.

The hoist in the Inzaghi Shaft (1890)

The remains of the derelict hoist were cleaned up and restored in the year of 2005. The municipality opened a tourist information centre in the building. This presents an excellent example of combining technical heritage protection with tourist activities. In the building, the safety measures are in place and the restoration measures are not necessary at the moment.



002 120 INTERIOR OF THE ENGINE ROOM OF THE INZAGHI'S SHAFT, 2005.



002 121 THE SMELTING PLANT IS LOCATED IN THE DIRECT VICINITY OF THE NEWLY-CREATED INDUSTRIAL PART, 2002.

The smelting plant of the Mercury Mine Idrija (1880)

The area was designated a monument of national importance in 2001 and encompasses the final station of the cable car, separation plant, conveyor belt and the rotary furnace.

The smelting equipment is no longer in use. The entire area is fenced off and urgent restoration works have been carried out in order to maintain and protect the buildings (replacing the roof covers, protecting the condenser's load-bearing frame, restoring the hillside, funnel and the chimney).

Rotary Furnace (1961)

Two thirds of the furnace building alongside two of three rotary furnaces have been torn down and removed. Only one furnace (Rotary Furnace 3) has remained, but had not yet been preserved. Also on display is a huge mercury condenser, which also needs to be restored and put in its proper place. Pipes to the length of some 300 metres need to be installed as well.

In August 2008 the "Idrija – Smelting Plant of the Idrija Mercury Mine



002 158 MACHINERY RESTORATION WORKS IN CRUSHING PLANT.



002 159 MACHINERY RESTORATION WORKS IN CRUSHING PLANT.

(HRN 7460)" and the "Idrija – Čermak – Špirek's Furnace II." conservation plans were drafted. In September 2008 the "Idrija – Čermak – Špirek's Furnace II." conservation & restoration project was prepared.

Based on the above documents, the following plan of the presentation and restoration of immovable and movable heritage in the area of Smelting Plant was drafted: "Restoration and revival of the area of metal foundry of the Idrija Mercury Mine – From Mercury Ore to Droplets" (2009). After the building permit had been obtained in 2010 the restoration works in the Separation Plant started, encompassing mainly the renovation of the machinery in the ore crushing plant.

Urgent restoration works were carried out – roof tiles were replaced and the condenser's load-bearing frame was protected against rusting.

The area of the rotary furnace has been cleaned up and fenced off. The furnace is protected as a monument of national importance and restoration measures are being planned.

002 122 THE PRESERVED ROTARY FURNACE, 2004.



Klavže water barriers (18 th and 19 th cent.)

Klavže water barriers have been protected as monuments on the local level in 1986, Brus's klavže water barrier has been protected also as a monument of national importance since 2001. They are all well maintained and restored and are all covered with authentic wooden shingles. The restoration used authentic materials and techniques (mortar). All but the klavže water barrier on the Ovčjak creek are missing the wood barrier mechanisms, which will be fitted in the future. All klavže water barriers are available to public.

In the second half of the 1980s Soške elektrarne electric company below the Idrijca klavže water barrier built a dam for the accumulation lake; it is used for its small hydro power plant. Due to the high water level in the accumulaton lake the klavže water barrier is endangered and in need of reconstruction. The Konservation plan was ready in 2010.



002 124 THE RESTORED KANOMLJA KLAVŽE WATER BARRIER ARE USED AS A DAM FOR A SMALL HYDROELECTRIC POWER PLANT, 2005.

Water channel Rake and the Kobila dam (1596)

Today the famous 400 years old water dam Kobila and water channel Rake supply the water for the power plant in the town. Suitable protection measures are in place for the dam.

The Kamšt water pump (1790)

The Kamšt was erected in Idrija in 1790 and it was pumping ground water until 1948, when a flood wreaked havoc with the surrounding area. The pump was drawing water from a depth of 283 metres for over a century and a half.

Kamšt water pump does not need any restoration work, as its wooden wheel and the building are restored. The Kamšt water pump is spinning again and performs its function.

Safety measures are in place in the area. The Kamšt water pump was in 1952 labelled as a cultural monument and is in the custody of the Idrija Municipal Museum.



002 126 THE WOODEN WATER WHEEL OF THE IDRIJA KAMŠT WATER PUMP IS THE LARGEST OF THE KIND IN EUROPE.



002 125 THE KOBILA DAM WITH THE RAKE WATER CHANNEL.

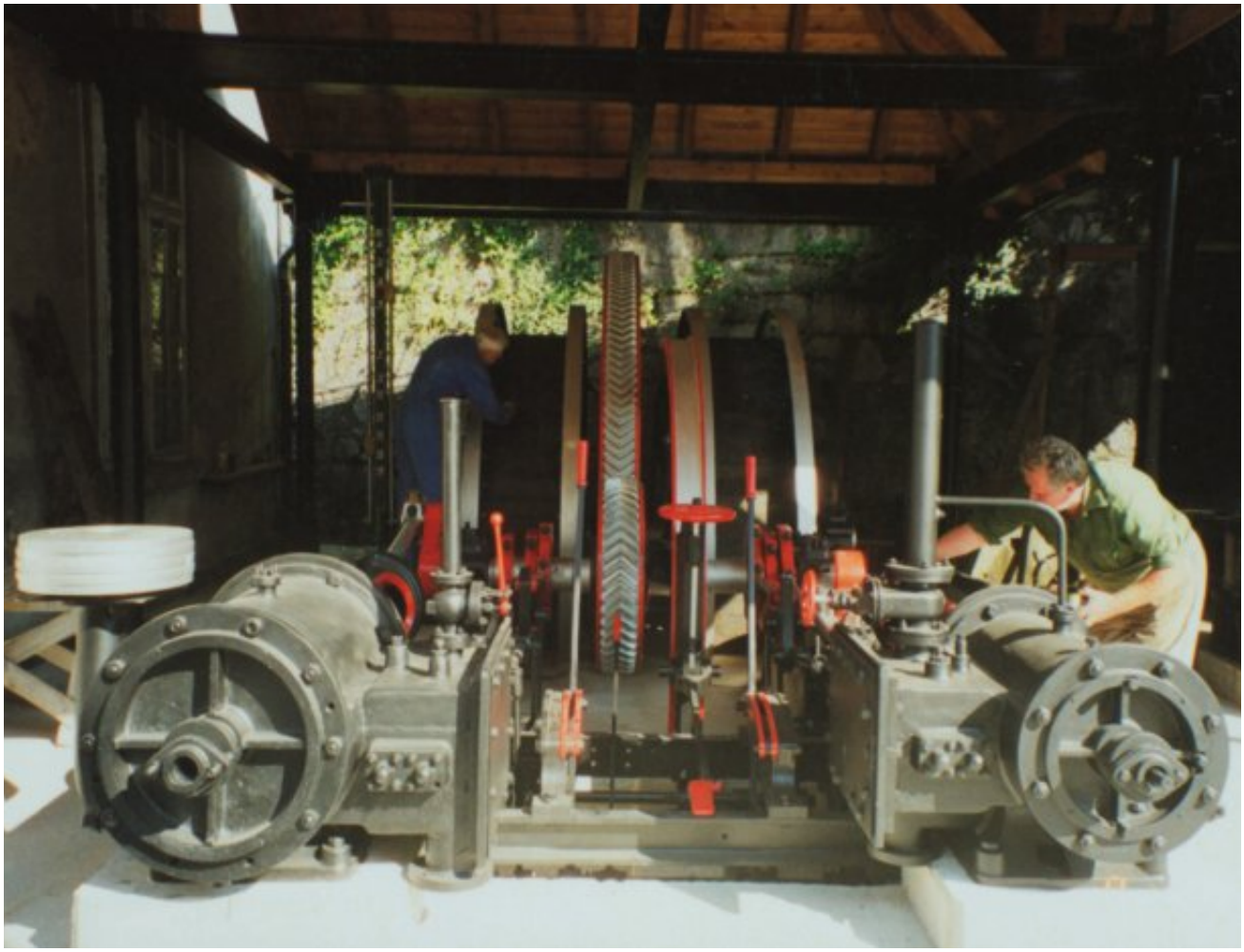


002 127 THE MINE MACHINERY AND EQUIPMENT WAS MOVED OFF THE GEWERKENEGG CASTLE, 1989.

State of preservation of mine machinery and equipment

Thanks to decisions in the 1950s by experts in the Idrija municipality, the Mine and the Technical Museum of Slovenia, numerous mining machines and devices that the mine ceased to use have been conserved instead of being sold or scrapped. The Idrija Municipal Museum was established in 1953 in order to conserve the rich technical heritage of the mine.

The museum was tasked with taking care of the entire moveable cultural heritage. The museum in the first phase only made sure that the heritage was kept in its original state, while from 1988 onwards it began to systematically conserve and restore the devices. All moveable cultural heritage is documented in an inventory. The majority of the heritage is exhibited at the museum, the mine, Francis's Shaft and the hoist station of Joseph's Shaft.



002 128 THE RESTORATION WORK ON MINE MACHINERY AND EQUIPMENT, 2001.

3. State of conservation of the elements of evidence of the evolution of the mine ensemble, of its link with the environment and historical development. State of conservation of the elements of evidence of tangible and intangible cultural ties with historic mining processes. Expression of the same in the urban settlement. State of conservation of architectural and civil engineering monuments or important buildings. State of preservation of urban patterns. Guarantee of compliance with criterion V of the list of criteria to be met in order that the property may be considered to possess outstanding universal value.

Almadén

The stratification of the mine is clearly visible as parts from different times down through history and particularly after the 16th century have been conserved. The type of mining that was carried out did not transform the precedent work too much. Some of the shafts and galleries are very well conserved and the work that has been done to recover the dumpsites is also worthy of note.

The pitheads and other elements of the mine in the settlement should be recovered by means of clearance and consolidation. This measure is contemplated in the Special Protection Plan for Almadén.



001 085 THE URBAN FABRIC OF THE HISTORIC CENTRE HAS NOT BEEN TRANSFORMED.



001 086 ALMADEN'S HISTORIC CENTRE.

As regards the town:

The traditional architectonic typologies are largely aintained, both in the case of the very valuable buildings and those houses located in the historic centre. The urban fabric of the historic centre has not been transformed.

The town's historic centre has hardly been altered, except for the deterioration of some buildings as the growth in all of Almadén has mainly occurred through additions to the existing layout. The areas corresponding to the town's expansion in the 18th century retains its urban design but the architecture has undergone modifications and replacements. Of the buildings and elements related to mining activities, the part most profoundly transformed is the 20th century workmen's district that is not in the core zone.

The Saint Raphael Miners' Hospital, on the other hand, due to the characteristics of the building, supported by the museum displays produced there, transcends its abstract architectural meaning to become evidence of, first, the primarily utilitarian aim of the introduction of medical and health care into the work setting, conceived as instruments to recover the productive capacity of the workforce. But, also, the process of conversion of the workplace into an area of legitimization of new knowledge and practices related to the health and illness of workers.



001 087 STREET IN ALMADEN'S HIDTORIC CENTRE

The close and prolonged contact between workers and health professionals in the care setting fostered the birth in Almadén of a richer and more original school of thought in the study of work-related diseases in the Hispanic world. It was a school that for the first time questioned the traditional dominant role of Central European countries in this area.

Some buildings of several levels are visible from the bullring, but the greatest aggression to the town's heritage occurred when the Royal Gaol, a magnificent 18th century building was destroyed as it was considered a testimony of an age and events that had better be forgotten, and the building erected in its stead, the University School, is a structure in aluminum and glass, with the cuboid shapes so characteristic of the 1960s. The town's urban profile is only affected by an unpleasant eight-storey building that, fortunately, was the only one of this height built in the town, so the Castillo de Retamar castle retains its significance as the dominant element.

Percentage of buildings requiring major repairs: 10 % of buildings in the historic centre. The very valuable buildings in need of rehabilitation interventions are: Ermita de San Miguel (San Miguel Chapel), Iglesia de San Sebastián el Nuevo (San Sebastián el Nuevo Church), Real Academia de Minas (Royal Mining Academy), Castillo de Retamar (Retamar Castle) (consolidation).

Moreover, urban planning intervention will be necessary for the ensemble at Plaza de los Donantes de Sangre. The rehabilitation of the Ermita de San Miguel (San Miguel Chapel) is contemplated in the management plans of the Francisco Javier de Villeges Foundation; work on the Casa del Inquisidor (House of the Inquisitor) is already finished and the rest is included in the Special Protection Plan.

Idrija

The beginnings of Idrija town are linked to the discovery of mercury (1490). Its growth and scope just over the tunnels is linked to the development of the mine in the underground. Today the mine is shutting down but will never close its doors completely. It has retained the control over the area that it had exploited for 500 years, in 15 main levels, reaching a depth of 420 metres at its closure. The termination of the mine's activities resulted in the flooding of the deepest parts of the mine, while other tunnels and shafts are being backfilled. The most important and telling examples of architectural and technical heritage are being preserved and bear witness to the rich history of mining and life in general in the town (the Gewerkenegg castle, Anthony's Main Road, shafts, theatre, warehouse, etc.).

Gewerkenegg Castle (1533)

The past years of intensive restoration made the castle statically stable. Its wooden parts were replaced by reinforced concrete, the façades facing the courtyard were completely restored and the castle can also host modern exhibitions.

The basis for the restoration works is the restoration programme by the Nova Gorica unit of the Protection of Natural and Cultural Heritage in 1988. The castle was declared a monument of national importance in 2001.



002 130 RECONSTRUCTED WALL MURALS ON THE COURTYARD OF THE GEWERKENEGG CASTLE.

002 129 THE RESTORED BUILDING OF IDRIJA'S CASTLE, GEWERKENEGG.





002 131 THE MINE'S WAREHOUSE.



002 132 ENTRANCE TO THE MINE'S THEATRE.

Mine's warehouse (1764)

After the adaptation and thorough restoration as well as the introduction of town-forming activities, the building now has its maintainers. Its architecture has been well preserved.

Mine's Theatre (1769)

The building was restored in full after being rehauled several times in the past and also given new purpose. It kept the original look and is well-maintained. Smaller restoration works and the current state of restoration of the building's furniture do not allow for the modern functioning of the facility.

A thorough restoration programme and projects will have to be drafted in order to improve the future outlook of the exceptional cultural monument. The building was declared a monument of national importance in 2001.

Secondary School of Natural Sciences (1903)

The school is being restored in 2006-2007. Its exterior will be preserved in its original looks and the interior redesigned to meet the demands of modern education. A restoration programme has been drafted for the renovation.

002 133 IDRIJA'S SECONDARY SCHOOL OF NATURAL SCIENCES IN 2005 BEFORE THE BEGINNING OF RESTORATION WORKS.





002 134 TOWN HALL.

Town hall (1898)

The building's interior has not yet undergone a complete restoration. Its exterior has been restored in the past decade in line with the guidelines drafted by the Nova Gorica unit of the Institute for the Protection of Natural and Cultural Heritage. The town hall got a new roof in 1995, all of its doors and windows were restored in 2000 and 2001 and its façade was renovated in 2003. The building kept its original look and safety measures are in place. A thorough restoration programme will be drafted to preserve the monument according to professional standards.

Church of the Holy Trinity (1500)

The church was restored between 1982 and 1984. According to the instructions by the Nova Gorica unit of the Institute for the Protection of Natural and Cultural Heritage, the subsequently added vestry was demolished, the Gothic windows of the presbytery and two south-facing windows of the nave were reopened, the wooden chancel and the outside staircase were removed, the floors replaced and the façade restored. All three altars in the church were restored as well. Regular maintenance is necessary and safety measures are in place.



002 135 THE RESTORED CHURCH OF THE HOLY TRINITY IS LOCATED IN THE AREA WHERE THE TUB MAKER DISCOVERED MERCURY.

Miner's house, located at Bazoviška 4 (18th century)

The house was purchased by the museum in 1985. Its façade was restored between 1986 and 1990, Works in the house's interior were begun in 1988 and continued in 1992 when the open fireplace was closed and the floors on the 1st floor were restored.

The house was opened for visitors in 2002, after undergoing the renovation of its living areas, which were equipped with furniture dating to the first half of the 20th century.

Fountain with miner statue (1868)

The fountain is labelled as one of the best works by the foundry and smelter at Dvor which is still preserved today. It was restored in 2007. Safety measures are in place and restoration measures are not necessary at the moment.



002 136 MINER'S HOUSE, LOCATED AT BAZOVIŠKA 4.

4.b. Factors affecting the property

As this is a serial transnational nomination, the factors that affect the two components are largely derived from the geographic, economic and social conditions of each one and may not be explained on a joint basis. However, as we shall see later on, the concept of management is based on common criteria.

(001) Almadén

I Development pressures

The economy of the district has been based on the production of mercury, the sole raw material that exists here, with a great dependency being created with the Minas de Almadén y Arrayanes, S.A. company that exploits the mercury mines. Mining activity has been the driving force for this township by providing direct and indirect employment to almost all of its inhabitants.

Due to the low yield of the ore extracted and the scant demand for mercury, the cinnabar extraction works have stopped, with considerable social and economic implications on the town: loss of jobs and demographic regression (Coto Sauras, Marta, 2006). This is compounded by the presence of an ageing population, as may be seen in the pyramid and other data on the population structure.

According to the National Institute of Statistics, the evolution of population in Almadén in the last three years has been as follows in the 2007-2009 period of years:

- 2007.- 6,243 inhabitants
- 2008.- 6,288 inhabitants
- 2009.- 6,243 inhabitants

Some of the following characteristics allow us to classify Almadén as an until now, economically depressed region:

- Isolation. The population is far from the industrial or consumption centres
- Insufficient communications network
- Lack of raw materials and energy
- Climate conditions and the nature of the soils hinder the development of agricultural activities.

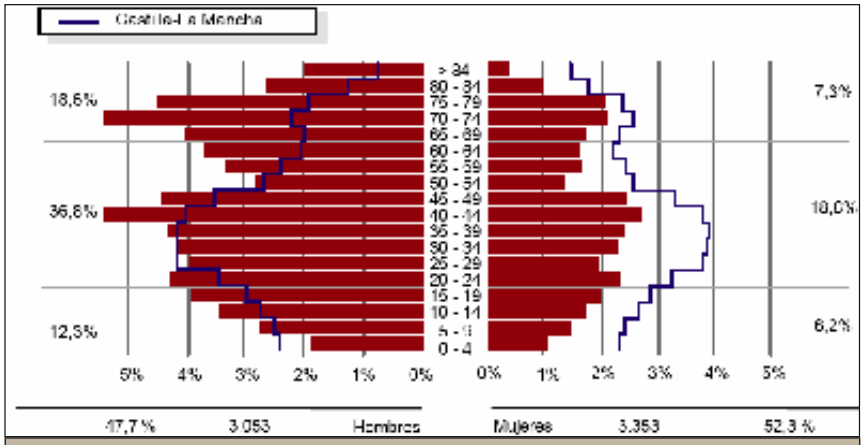
In response to the end of the mining activity in Almadén, economic development alternatives are sought in other sectors, taking advantage of the resources available in the surrounding district:

- Food and agriculture sector: starting up companies devoted to the production of derivatives



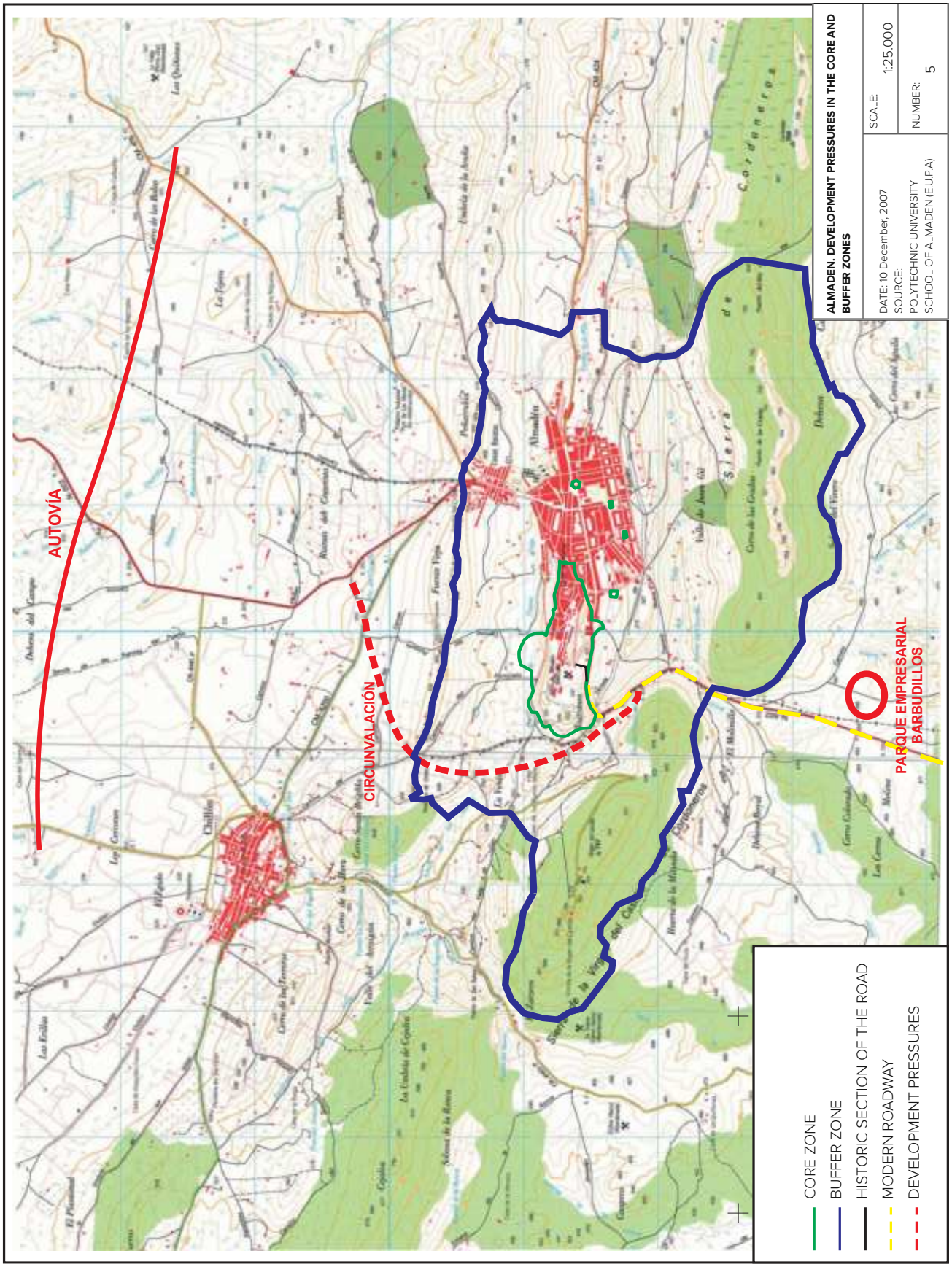
from Ibérico pork or the local game, cheese made from the milk of merino sheep, packaging of pickled aubergines, etc.
- Development of infrastructures at the "Pozo de las Nieves" Industrial Estate that has 63 plots equipped with all the town planning requirements for the installation of all kinds of industries.
- Promotion of rural tourism
- Hunting
- Development of the industrial archaeology, museums. The Almadén Mining Park forms part of this project.

As may be seen, there are no development pressures in Almadén. On the contrary, there is a need for economic revival in the county. Of the economic development alternatives mentioned above, only two would be cause for concern: the "Pozo de Las Nieves" Industrial Estate and hunting. The industrial estate is located at a sufficient distance from the site and outside the buffer zone. The industries that may be set up are not expected to affect the territory. On the other hand, despite the fact that hunting is authorised in various areas of the county, it is subject to control and there is a Special Bird Protection Zone that coincides with the Almadén buffer zone. Projects have already been drawn up for a ring road to divert heavy traffic from the area proposed in this dossier and an expressway that will contribute to considerably improving access to Almadén, despite not affecting it directly.



Population Structure – 2006 Municipal Register

RATE:	MUNICIPALITY	PROVINCE	COMMUNITY
Dependence (Pop. <15 + Pop. > 64)/ Pop. 15-64) x 1000	66,1%	52,1%	51,4%
Longevity (Pop. > 74/ Pop. > 64) x 100	50,2%	50,6%	51,1%
Maternity (Pop. O-4/ Women 15-49) x 100	13,5%	18,1%	19,4%
Trend (Pop. 0-4/ Pop. 5-9) x 100	69,0%	91,0%	
Replacement (Pop. 20-29/ Pop. 55-64) x 100	116,7%	161,0%	161,1%



001 088 DEVELOPMENT PRESSURES

II Environmental pressures (Coto Sauras, Marta, 2006)

Climatology

Almadén's county is characterized by a mild Mediterranean type of climate. This climate corresponds to very warm summers and not very cold conditions in winter.

Temperature.

The annual mean temperature varies between 15.5ºC and 16.5ºC, with peaks in July and August in the range of 26-27ºC and lows in December and January of around 7-8ºC. The maximum temperature recorded was 48.5ºC. The absolute minimum temperature achieved in the period between 1961 and 2001 corresponds to the month of January and was -10ºC. The thermal variation in the course of the year is 20-21ºC, with a greater amplitude between night and day temperatures in summer rather than winter. Few days in the year suffer frost, with the mean of 17.8 days a year distributed between December and January.

Rainfall.

The rain is distributed irregularly and is in general scant. The dry period extends from June to September, with a moderate rainfall the rest of the year. The annual rainfall varies between 450 and 650 mm, with an average of 78.3 days per year, presenting a minimum in August (7.0 mm) and a maximum in December (81.6 mm).

The rainiest months correspond to winter and spring. The summer is characterized by a marked drought in July and August. The amount of snowfall is negligible. The number of storms is also very small, with an average of 9.8 days a year during the months of April, May and September. Intense snow is an extraordinary phenomenon.

Wind regime.

A clear Atlantic influence can be seen, with winds coming from the coast along the valley of the Guadiana river to cross the Plateau. The dominant wind comes from the South-East.

Flora, fauna and land uses

The Mine at Almadén is located in the Alcudia Valley, which constitutes one of the richest areas in the region in terms of flora and fauna.

In its central area, the landscape is profoundly altered as a result of the subsequent deforestations that took place to supply timber to the mines and the numerous fires that took place in the 18th century and have contributed to the degradation of its plant cover.

Plants

Plant life has to subsist in unfavourable conditions in terms of the absence of water and dampness, degraded soils and a large rock contents. The area is characterized by open woods of holm oak occupying the lowest parts of the valley and a rich plant cover of grasses and grains used to feed sheep. In association with the oak forests, there is low scrub comprising thyme, rock rose and rosemary bushes. These constitute a widely-spaced Mediterranean dry scrub due to the competition for water. The plant species observed do not present any interest in terms of their ecological value due to their abundance in the area.

The presence of other species depends on variations in altitude, giving some species of bushes (strawberry trees, viburnum, buckthorn, wild olives, etc.) and cork oak forests on the slopes.

Fauna.

The fauna is constrained by the existing vegetation of holm oak groves and scrubland, and by the proximity of relatively virgin woods. The following species can be distinguished; birds (wood pigeons, magpies), small mammals (common hare and rabbit) and some species of reptiles (Spanish psammodromus, large psammodromus) none of which has any hunting interest. From time to

time it is possible to encounter other medium-sized mammals such as mountain cats or jennets. The fauna also includes all those linked to big and small game hunting, as well as a great number of birds, such as various types of eagles, vultures, etc.

Edaphology and Land Uses

The soil is classified as poor because of its characteristics of:

- Shallow depth.
- High rock content, mainly clays and slates, arranged vertically with the result that the rock often emerges through the surface.
- Erosive action of water.
- Scant organic matter and minerals.
- Acidity and imperviousness.

In conclusion, all these unfavourable factors make this land unsuitable for crops and, excepting some areas of volcanic soils, only the natural vegetation of the region grows here and the main land is used for cattle grazing.

The Valley of the river Alcudia lies within the Iberian domain or Herzinic Massif. The history of this valley extends from the Pre-Cambrian period to the Quaternary era. From a seismic viewpoint, the area is stable, far from any seismotectonic risk.

As may be seen, there is no aggressive environment pressure, but there are very slow processes underway that involve a certain degree of environmental degradation.

III Natural disasters and risk preparedness

Detailed studies of the risks threatening Almadén and a risk prevention plan have been presented. In this particular case, the most significant aspect is the impact that the ensemble itself might entail, i.e. a mercury mine on the territory, given the fears that the visitors and the population of the county, more than the actual inhabitants of the place, might harbor.

"Minas de Almadén" maintains its commitment to the environment with a view to minimising the impact that its activity has produced on the surrounding area, thus paving the way for the mining facilities in Almadén to become part of the splendid, extensive mining-industrial heritage that has been generated by two millennia of uninterrupted exploitation now that the extractive and metallurgical activity has ceased.

Hence the environmental restoration work carried out on the former mercury production facilities, where all of the installations that comprise the metallurgical plant have been cleaned and decontaminated. The Environmental Surveillance Programme has also been maintained in order to control the impact of the mining-metallurgical activity.

Minas de Almadén y Arrayanes S.A. (MAYASA) has understood that the enhancement of the historical heritage called for prior environmental restoration.

The restoration of the dumpsite at the San Teodoro Enclosure is undoubtedly the most important environmental project ever taken on by MAYASA. Since the year 2005, the company MAYASA has been treating the dumpsite in Almadén, located in the San Teodoro enclosure.

Down through the centuries, this dumpsite has received both tailings from the mining activities and the slag produced in the metallurgical processes. Its current volume is now close on 3.5 million tonnes and it spans a surface area of 10 hectares.

The work in the restoration project commenced in October 2005, following approval and authorisation from the environmental authority in the Autonomous Community of Castilla-La Mancha.

The budget for this project was 9 million euros and the timeframe for completion was 16 months. In carrying out the work, MAYASA collaborated with the company TRAGSA and com-

panies from the SEPI Group, ENUSA and SADIM, also participated in the tasks of sealing the dumpsite and providing technical support for completion of the project (Carrasco, Javier, 2006).

The work on consolidating the mine is a guarantee of safety; the mercury residues are subject to very precise control and therefore there is no possibility of risks being posed to Almadén itself or its surroundings. The Mining Park has a good safety system for visitors.

Despite having a very particular geophysical history, with the presence of areas of volcanic origin, the territory where Almadén is located is not at all vulnerable to natural catastrophes and neither is there any possibility of the proposed proposed site being affected by other kinds of situations such as landslides, flooding, etc.

Mining work stopped in the Mine at Almadén in 1987 and began again in 1997. At that time, activities focused on the Southern Branch, for which infrastructure was already available. In parallel with the re-opening of the Mine, a geological and mining survey was conducted in order to know in detail the existing reserves that can be exploited in this Branch and to identify new resources. In 2001 a technical incident brought extractive work to an end in the Southern Branch. An assessment was made of the stockpiles on the surface and the cost of further extraction, and it was concluded that continued operation was not longer profitable. From this point on, the administrative dossier for the definitive closure finished in 2003, from which date the sales activity continued on the basis of the remaining stock of mercury and also the mercury recovered from the dismantling of chlorine and sodium hydroxide plants. Sales shall come up to a definitive end in March 2011.

The European Union has made considerable progress in addressing the global challenges of mercury since it launched the EU mercury strategy in 2005. This has resulted in restrictions on the sale of measuring devices containing mercury, a ban on exports of mercury from the EU that will come into force in March 2011 and new rules on safe storage. The EU's mercury strategy is a comprehensive plan addressing mercury pollution both in the EU and globally. It contains 20 measures to reduce mercury emissions, cut supply and demand and protect against exposure, especially to methylmercury found in fish.

Actions included in the Closure Project:

The closure of a mine like this one entails a series of environmental, socio-economic and safety implications for which it is necessary to assume certain liabilities and actions must also be taken by the Central and Regional Governments through Development Programmes.

Safety and the Environment

- Guaranteeing the quality of surface and groundwater through drainage from the tips.
- Stability of tips and long-term stability against erosion of the structures that remain on the site.
- Restoration of the landscape

These first three aspects have been considered in the AZOGUE-LIFE project developed by MAYASA.

- Maintaining the health and safety conditions by sealing of accesses to the operations and monitoring of the environmental conditions in the surroundings of Almadén.
- Environmental improvement allowing the development of leisure or visitors activities.

(See Chapter 5: Pollution and its control in Almadén)

Socio-economic Aspects:

- Modernization, enlargement and diversification of the existing economic activities.

- Improving the infrastructures in the area
- Promoting professional enhancement in order to collaborate in the implementation of alternative industrial activities.
- Implementation of consensus platforms allowing social acceptance of the changes promoted.

This point includes the creation of the Mining Park that attracts tourism and creates direct and indirect employment.

Almadén Mining Park:

The tour by visitors comprises the first level of the old mine at Almadén. Rehabilitation and restoration work has been carried out and the old tunnels have been raised to make them easier to visit.

The conservation of the Mines at Almadén is totally justified as it is a unique example of stratigraphic, tectonic, volcanic and metallogenic elements at the same time as an example of the operation methods used at the deposits with sub-vertical mineralized masses over the last 300 years.

Mining Parks are areas in mining basins where the geological and mining heritage located there is protected and prepared so that it can be visited and enjoyed by members of the public for different purposes: leisure, educational, research, training or therapeutic (Octavio Puche and Enrique Orche, 2002). Mining Parks are capable of generating jobs and revenue, so mitigating the social degradation that may have been caused by the closure of the mining operations.

Safety at the Mining park:

There is no specific legislation in Spain applicable to mining theme parks. The liabilities are shared between:

- The General Regulations on the Basic Standards for Mining Safety
- General Police Regulations for Public Shows and Activities.
- These comprise certain specific aspects such as the installation of fire extinguishers, low voltage electrical wiring, stairways, pavements, banisters, signage.
- Safety measures must be adopted with respect to: the stability of the terrain, the status of electric conduits and wiring, flow of ventilation air, air quality.

With respect to the safety measures to be adopted, two quite distinct periods must be considered:

- Adaptation work for the mining operations and installations carried out by specialist workers and technicians. These are activities in which mining techniques are used.
- Commercial operation of the Theme Park.

Scenarios:

- Visits to the inside of the mine will be able to access the first level of the 17th century mining works
- Description of the scenarios in which the tour takes place in order to identify the risks.

The route to be taken by visitors has been distributed in scenarios for each of which the following elements have been defined:

- General characteristics (length, mean cross section, materials, etc.)
- Connections with other tunnels, route
- Geology and Geotechnics
- Stage setting
- Unique elements

Work carried out to prepare the Mining Park:

Since the creation of the Mining Park Project, a number of works have been carried out for the preparation and rehabilitation of the old tunnels.

The main goals have been to ensure the safety and welfare of visitors

while at all times maintaining the aesthetic of the mine.

These works can be grouped as follows:

- Cleaning and preparatory work throughout the tunnel
- Mining works carried out (tunnel preparation, maintenance and restoration)
- Ventilation circuit
- Lighting and electrification
- Protective measures (fire extinguishers, alarms, etc.)
- Staged settings

Cleaning and preparation of tunnels:

- The preparatory operations are to prevent any falling rocks. Constant inspections are carried out to identify unstable areas in the roof so that the risk can be eliminated using protective barriers. Any rock removal will be by means of manual methods and hand-powered mechanical means.

Bating:

- The bating of the roofs and floors of tunnels ensures that they are of an adequate size for visitors to travel through: 2 metres in height and 0.90 metres wide. On the other hand, the floor level has been lowered to allow placement of a 12 cm thick concrete flooring to facilitate transit and avoid slips and falls by visitors.
- The bating of the tunnels is by mechanical means: pneumatic drill or jackhammer.
- There are stretches of the tunnel in which, because of the instability of the surrounding areas, the corresponding adjustment or bating has not been made. In areas where there are metal frames, these have been replaced by profiles of the same type as in the frame, proportional in length to the area cut back.

Cleaning of tunnels:

- The cleaning of the tunnels is the preliminary phase of any operation, as many tunnels were full of rubble, rock fragments, scrap, rubbish. This section includes the clearing of walls and bricks.

Rehabilitation works. Placement of supports and mining operations:

- Some of the tunnels that visitors will be accessing in future were partly collapsed and presented problems of stability, and now they generally are in very good state. The estimation of the supports necessary in each area and their placement is based on conservative criteria and extensive mining experience.

The work that was common to all of the tunnels were:

- Flooring in reinforced concrete. This includes preparation and paving.
- Closure of side tunnels by wooden doors.
- Sealing of tunnels.

The specific works performed at each scenario are indicated below:

San Aquilino Tunnel:

- Demolition of walls to prepare passage through to the end of the tunnel.
- Injection of consolidating resin and placement of metal frames at the initial part of the tunnel and dressed with stonework.

Caña Santa Teresa / Caña Gitana:

- The main activities carried out were aimed at raising and preparing the "Caña Gitana" tunnel that was sunk over a large stretch.
- Cladding of the tunnel and placement of supports in the most unstable areas: trusses, metal frames, rock bolts, bolting pins.
- Placement of pins and mal mesh in the San Javier shaft.

Eastern Tunnel:

- Placement of a plug and installation of an electric ventilator fan in the San Miguel shaft.
- Replacement of the concrete vaults by brick vaults.
- Replacement of stonework walls.

- Preparation of the roofs and subsequent placement of 1.5 metre long and 25 mm diameter resin pins.
- Protection and support with injected concrete in the Torno de Castro area.

Forced Labour Tunnel:

- In the Forced Labour Tunnel, the stonework walls and the vault will be repaired by drilling with pneumatic hammers and replacement where necessary.

Entranceway to the Mina del Pozo:

- Raising of the accessible part of the Mina del Pozo.
- At the access from the outside, two concrete walls have been built to hold up the side walls.
- Execution of a gutter at the side so as to facilitate drainage from the tunnels.
- Reconstruction of the wall between different tunnels in brick or stone blocks.
- Demolition of old ventilator.
- Demolition of walls to allow for ease of passage in the tunnels and transport to the dump.

The most delicate point in the Entranceway is the side tunnel heading North. The actions in this area were as follows:

- Missing bricks were replaced.
- Metal frames lined in wood, correctly strutted were used to support the entrance to this tunnel.
- The gap existing above the vault will be filled with timber and expansion foam, and then the brick vault will be put back in place.
- The side tunnel, before being bricked up, has been filled with the rubble from the clearing and bating of the rest of the tunnel.

Entranceway to the Mina of the Castillo:

- Placement of the drainage gutter.
- Repair of stonework walls and vault
- Repair of the vault
- Replacement of the concrete vault by brick vaults

Ventilation:

First of all, two different types of ventilation must be distinguished:

- Site ventilation: this corresponds to the ventilation required during the preparation of the tunnels and the museum arrangement. This ventilation will vary depending on works being carried out.
- Definitive: enough to ensure correct airflow through all the parts visited.
- Natural ventilation. Air comes in from the outside particularly through the depressed entranceways (the air filtering down through the shafts is considered almost negligible). The main air inflows will be at the Entranceway to the Mina del Pozo, the Entranceway to the Mina of the Castillo, the Forced Labour Tunnel, the San Teodoro and San Aquilino shafts and the Torno de Castro.

Forced ventilation:

- A gEL 6-11 type electric aspiration ventilator has been placed on the outside of the San Miguel shaft.

Tasks completed to ensure good ventilation:

- Breakage of the external plugs in the San Aquilino and San Teodoro shafts to allow clean air to enter.
- Placement of airproof seals under the first level of the San Aquilino, San Teodoro and San Miguel shafts, in order to prevent toxic gases from rising up into the ventilation system and, at the same time, prevent the clear air from going further down.
- Placement of ventilation grilles on the entranceways so as to allow fresh air to enter from the outside.
- Demolition of walls to facilitate passage through the tunnels.

Electrification:

- Power and lighting installation (cables, distribution boards,



001 089 INTERCOM SYSTEM IN GALLERIES. EXAMPLE.

LEDs, light fittings, wire clamping, adjustment and programming)
- Electrification. Lighting and power line (placement of cables, light fittings).
- Protection devices installed on the lighting line (differentials, earthing).
- Lighting equipment is installed embedded in the floor throughout the tour.
- Special electrical equipment for the staged settings.

Self-protection measures:

Some of the protective measures installed in the tunnels are:
- Fire extinguisher
- Alarm triggers
- Fire alarm siren
- Automatic fire detector
- Intercom system
- Emergency lighting, comprising luminous arrows on the floor indicating the emergency exit closest to the current location.
- Presence detectors
- Meeting point

The Evacuation Plan takes into account five emergency exits.

(See Risk Preparedness analysis in Chapter 7)

IV Visitor/tourism pressures

Despite the outstanding values of the county of Almadén, it is not part of tourism corridors and does not have any other type of functional link that might lead to speculation regarding a possible anthropic impact. This is due to three main factors:

- First of all, appreciation for mining heritage is something relatively recent and in the case of mercury, there have been many misgivings on the part of possible visitors, initially because it was not thought to be attractive and later on, because of fears of its harmfulness. Although it does exist, tourism linked to nature or to visiting archaeological sites is not on a massive scale.
- Secondly, although Ciudad Real is well connected to Madrid and other locations in Spain that could send tourists, the road connection between the provincial capital and Almadén is quite long, despite being picturesque and interesting. Both of these factors have influenced the reduced hotel capacity of Almadén, which in turn limits tourist development.

Perspective plans for the province do not foresee significant transformation of infrastructure that might involve considerable improvements to connections with Almadén and therefore it is impossible for mass-scale tourism that might translate as the generation of a negative impact.

It may be claimed that the delay by the tourism sector and the authorities in understanding and promoting the outstanding qualities of Almadén as a tourist destination may mean that there has not yet been enough time to create an awareness of the virtues of a concept of tourism based on respect for cultural and natural values, focused on sustainable development and in coordination with the community.

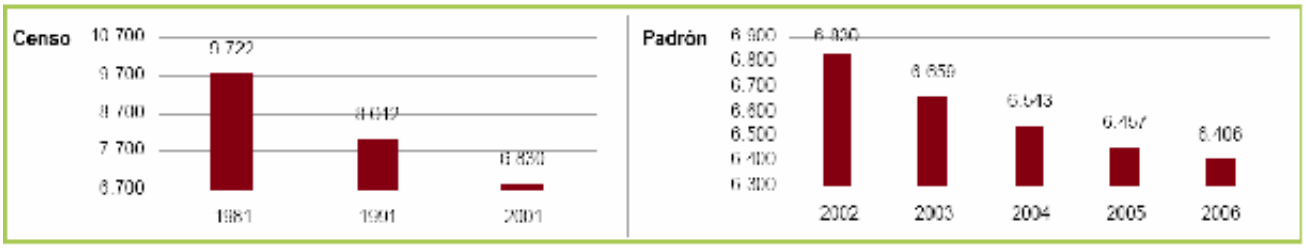
It is also important to highlight that the characteristics of the town of Almadén, as regards its extraordinary sense of belonging and love for history, backed by the municipal authorities, the institutions and the company that owns the mine are a guarantee that the heritage will be respected and that any negative impact from tourism or from a misguided concept of development will be controlled.

The issue of tourism management, among others, is detailed in item 5.e.

V Number of inhabitants within the property and the buffer zone:

Core zone:	852	
Bffer zone:	5988	Inhabitants
Total:	6830	Inhabitants
Year:	2006	

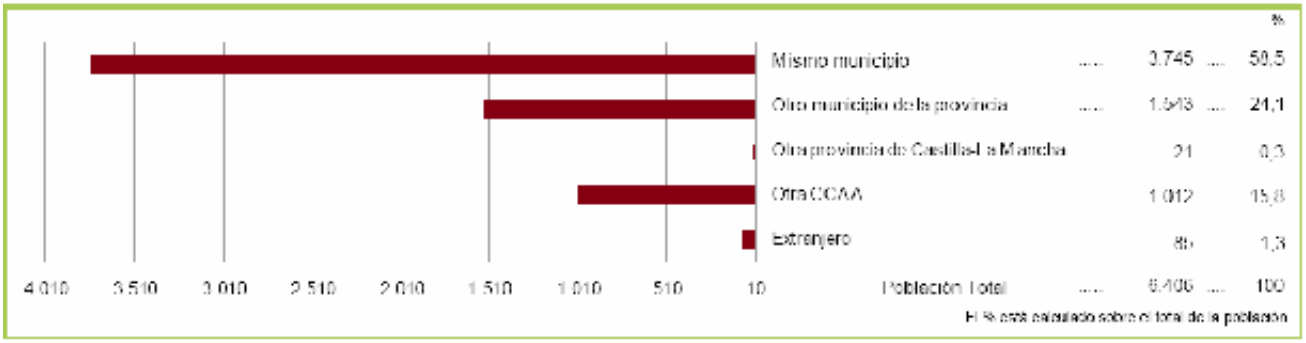
EVOLUTION OF POPULATION



Fuente: Censo de Población y Viviendas. INE

Fuente: Renovación del Padrón Municipal de Habitantes a 1 de Enero. INE

POPULATION ACCORDING TO PLACE OF BIRTH



Fuente: Renovación del Padrón Municipal de Habitantes a 1 de Enero. INE

MNP - 2005

Nacimientos	43
Defunciones	103
Crecimiento vegetativo	-60
Matrimonios	15

Fuente: Instituto Nacional de Estadística. INE

POPULATION ACCORDING TO AGE

	2002	2003	2004	2005	2006
Menores de 18 años	1.017	986	922	882	860
De 18 a 64 años	4.011	3.889	3.855	3.812	3.782
Mayores de 65 años	1.802	1.804	1.766	1.763	1.764

Fuente: Renovación del Padrón Municipal de Habitantes a 1 de Enero. INE

Sources: Population and Housing Census. Spanish National Statistics Institute (INE), Source: Update of the Municipal Register of Inhabitants on 1st January. Spanish National Statistics Institute (INE), (002)(002)

(002) Idrija

I Development pressures

The nominated area is being maintained in line with the long-term plan by the Idrija municipality, published in 1999 in the Official Journal of the then Socialist Republic of Slovenia. A spatial planning strategy for the municipality and its zoning plan are being drafted.

The key issues arise from:

- Mining,
- Economic development,
- Settlement.

Development pressures, caused by mining

Mining also brought adverse effects apart from its positive economic benefits during the busiest periods in of the mine. The effects, seen mainly in the town of Idrija, include a degraded environment.

The shutdown works in the Mercury Mine Idrija was completed in 2009, but even after that period, the unfavourable geological conditions require the mine to remain unflooded above the IVth gallery. This will require constant maintenance. To maintain the unflooded part of the mine, the Government of the Republic of Slovenia adopted in April 2007 a programme for maintaining the unflooded part of the mine and for carrying out monitoring after its shutdown. The programme is based on the Act on Gradual Closure of the Idrija Mercury Mine.

The programme plans for maintenance, measuring and monitoring activities in the mine. In line with the provisions of the EU Strategy for Mercury (2005) relating to areas that are suffering the consequences of mercury mining and the shutdown of such mines, as well as the applicable laws and implementing regulations of the Republic of Slovenia stipulating the final rehabilitation of the environment and elimination of the consequences of mining works, a project of monitoring in the period after the termination of mining activities in the Idrija Mercury Mine was prepared.

The monitoring of the narrow and broader affected area of the Idrija Mercury Mine comprises:

- visual monitoring,
- geodetic monitoring,
- geomechanical monitoring,
- monitoring of ground water,
- environmental monitoring, which also includes the health surveillance of miners and the population.

The technical solutions and implementation of the observation system project include the following:

- (1) Visual monitoring is conducted at certain facilities in the affected area of the Idrija Mine simultaneously with other types of monitoring, and comprises the inspection and evaluation of the condition of areas above the ore deposit and the state of rehabilitated or abandoned mining facilities.

- (2) Geodetic monitoring comprises the monitoring of surface and underground shifts in the area of the town of Idrija and the unfilled part of the closed underground part of the mine. For this purpose, meshes of geodetic-surveying observations were set up on the surface and in the pit.

- (3) Geomechanical monitoring comprises geotechnical measurements of deformations and/or shifts and stresses and their transformations in the broader affected area of the mercury

mine in various rock strata or old mining areas, as well as in certain facilities in the pit and consequently on the surface.

- (4) Monitoring of ground water, mine and surface waters comprises the identification of aquifers, and the dynamics of underground and mine waste waters and pollutants in them.

- (5) Environmental monitoring comprises the monitoring of concentrations of mercury and other heavy metals in soil, water, air, ground and vegetation, and the impact of pollution on the food chain and humans.

The scope, area, duration and aims of environmental monitoring (Ad 5.), and measures are:

- Air and precipitation,
- Soil, crops, forest fruits, mushrooms and game (roe deer),
- Surface waters, sediments and fish,
- Biological monitoring and ecomorphological evaluation of watercourses,
- Periphyton (community of organisms),
- Macroinvertebrates (water invertebrates),
- Physical and biological properties of the riverbed, riverbanks and the land next to watercourses, with additional information on water vegetation (microphytes), fish and water invertebrates.

Apart from the subsidence on the surface, the environment is being polluted by mercury and radon.

Positions for environmental restoration which the local community will use in drafting a comprehensive plan of environmental restoration. The plan will focus on the removal of smelting remains (tailings disposal site) by finding a suitable location for depositing them in order to improve the living and working conditions.

Development pressures, caused by industry

The key company in the town, Kolektor Group, began rapidly developing in the 1970s. Its successful business operations necessitated expansion of its premises in the 1980s and 1990s. The development plan of the Kolektor Group corporation includes a further construction of production as well as research and development facilities – a technological centre. The company's development plan includes a further construction of production as well as research and development facilities. Investments have been or will be carried out in the buffer zone in line with the valid spatial legislation and the protection regimes in place.

Development pressures, caused by settlement

The settlement in the nominated zone is mainly limited by Idrija's geographic location. The position also means that various uncoordinated or prohibited encroachments in the zone can quickly cause the balance of the buildings to deteriorate. No larger cases of such activities have yet been recorded in the nominated zone. The need for building land could cause such transformations.

To prevent or alleviate such activities, the municipality began drafting spatial and zoning acts that are also in line with the Spatial Planning Act (2007). These acts are based on the following three spatial planning principles:

- Prudent utilisation and sustainable development of natural and cultural heritage,
- Equal accessibility to common good and knowledge with the aid of modern infrastructure,
- Balanced and polycentric development of urban settlements.



002 137 DEVELOPMENT OF MODERN INDUSTRY IN THE SMELTING PLANT AREA.



002 138 ENVIRONMENTAL MONITORING IS CARRIED OUT BY THE LABORATORY OF THE MERCURY MINE IDRIJA IN CLOSING, LTD.

II Environmental pressures

Environment degradation due to pollution with mercury and radon

The 500 years of mercury mining in Idrija placed a large strain on the environment and the inhabitants through pollution with mercury and ionised radiation. The levels of mercury in the soil still reach values of up to 900mg/kg. The levels of mercury in the environment have dropped significantly after the mine stopped its operations after 1995. Part of the smelting remains of the ore that was used for many years in backfills in areas of the town contains increased levels of U-238 in Ra-226.

Studies, carried out during the closure activities, discovered that:

- Larger levels of mercury and radon exist in Idrija than in other comparable industrial cities in Slovenia,
- Pollution was caused by long years of mining,
- The levels of miners falling ill or dying are directly linked to the length of their work in the mine.

Even after all the closing works, anticipated by the long-term plan are completed, monitoring will need to continue until measures will prove that the subsidence above the mine had stopped. A monitoring programme had been adopted and a mining project passed. The duration of the monitoring was not limited. The results will be evaluated after a period of five years, when the need for further measurements or changes to the programme will be debated.

The positions for environmental restoration – with a focus on eliminating remains of smelting (tailings disposal site) – have been drafted and a suitable location is being sought to dispose of the tailings in order to improve the environment.

Pollution caused by municipal waste

Landfills: several unregulated landfills for communal waste have been recorded in the buffer zone. These landfills will be restored through proper measures. The Idrija municipality is taking part in setting up a regional system of waste collection and management.

Air pollution

The basin in which the town is located causes higher levels of air pollution especially in the winter, due to use of solid fuels for heating.

Water pollution

Water pollution is caused by individual points, encroachments into the water regime and inadequate communal infrastructure, which the municipality is improving through planned development and upgrades.

The state of the environment is measured by data on water, air and soil, already collected in the municipality. The national environment inspectorate is monitoring whether law is being abided with.

III Natural disasters and risk preparedness

Protection from natural and other disasters is based on:

- Suitable protection and rescue mechanisms in the zone and settlements,
- Evacuation,
- Housing and care for those left without a home and other endangered individuals,
- Radiological, chemical and biological protection,
- Construction of shelters and other protection buildings and their use,

- Protection of cultural heritage,
- Protection from unexploded ammunition.

The assessment of threats posed by natural disasters is based on years of experience. Such disasters in Idrija are mainly caused by:

- Subsidence,
- Earthquakes,
- Storms, land slides,
- Fire.

The system's main tasks are to:

- Prevent accidents,
- Prepare people for accidents,
- Offer protection from accidents,
- Rescue and aid as accidents happen,
- Remove the consequences.

The main objectives in setting-up a system of preparedness from natural and other disasters in the nominated zone, are to decrease the number of accidents and prevent or lessen the damages and the number of victims. Based on those objectives and the Act on protection in case of natural and other disasters (OJ RS, no. 64/94, 33/00 and 87/01), following regional plans for protection and rescue had been prepared:

- Regional plan for protection and rescue in case of earthquake
- Regional plan for protection and rescue in case of fire in nature
- Regional plan for protection and rescue in case of avalanches

Subsidence – effects of mining

Long-lasting mining in Idrija resulted in subsidence of surfaces that affects the urban space including important cultural monuments.

Following plans are in place to eliminate the subsidence effects on urban space of Idrija:

- 2007 operational program for elimination of mining effects in Idrija Mercury Mine in closing.
- 2008-2012 program for the maintenance of the unflooded mines and the monitoring after the closure of the Idrija Mercury Mine.

The main activities towards the surface stabilisation are:

- Maintenance of the unflooded shafts
- Backfilling of the abandoned shafts
- Shaft flooding control
- Monitoring of the soil movements

Earthquakes

Devastating earthquakes can appear in Slovenia and Idrija is one of the country's most endangered zones. Other threatened cities and towns include Ljubljana, Krško, Brežice, Tolmin, Bovec, Ilirska Bistrica and Litija. Idrija is listed in the VIIIc, VIIId earthquake zone.

Analysis and studies of earthquake resistance of cultural heritage buildings, including individual buildings of exceptional value alongside areas of the town, show that many of the objects are not built to withstand earthquakes.

Along with the data on zones vulnerable to earthquakes, the data on vulnerability of buildings are crucial for assessment of the overall risk-preparedness. Since 1965, the building regulation includes the special requirements for construction within the earthquake endangered zones. Therefore, the buildings constructed after 1965 fulfil the required standards. Buildings constructed before the year 1964 had mostly been constructed to withstand the bearing of the vertical loads, with only short periods after the occurrence of larger destructive earthquakes when owners increased the investment into the anti-earthquake reinforcements.

The building vulnerability assessment takes in account the following factors:

- Type and quality of the walls
- Number of walls
- Layout of the walls
- Wall bonding
- and other factors

In this regard, the buildings are divided in three categories:

- Buildings constructed before 1895
- Buildings constructed between 1896 -1965
- Buildings constructed after 1965 and rebuilt after 1976 and 1998

Generally, the earthquake causes a reasonable threat to cultural monuments, however after the introduction of the 1965 building regulation, the elimination of the earthquake effects on architecture had been increased.

Storms, landslides

Long-lasting storms meanwhile bring with them the danger of floods in the buffer zone, while frost and erosion that can cause landslides and falling rocks presents a danger mainly in the hilly parts of the Zgornja Idrijca landscape park including three klavže water barriers and the hillsides of the Kanomljica with the Kanomlja water barrier. The storms could damage the monuments.

There have been several hydrogeological studies conducted to review the situation and possible risks concerning the high-raised water levels on the site and its elements by both the state owned and private institutions; however the exact data on conducted projects are being currently processed and will be presented in the next project phase.

Fire hazard

According to the Regional plan for protection and rescue in case of fire in nature, the Municipality of Idrija belongs under the municipalities with medium or low fire danger

Increased fire hazard is usually caused by humans and can be reduced to a minimum through proper regulations. Based on Fire Hazard Regulation (OJ RS no. 39/97), every cultural heritage object has a fire plan, while the personnel is being trained for cases of fire.

Fire plan

Fire plan serves as a tool for object users, fire brigade and other rescue teams in case of fire. It is a graphical scheme of the ground plan with parts of the building with high fire risk, the fire extinguishers and other protective systems for preventive and active fire protection to decrease the possible losses in lives and property.

The owner or building manager has to pass signed copy of the fire plan to the respective department of the Fire and rescue service.

Before the fire plan preparation, the owner or building manager has the opportunity to apply for free advice at the respective department of the Fire and rescue service.

Evacuation plan

In following cases it is obligatory to prepare and post the evacuation plan:

- If the building serves as a gathering place for larger number of people (100+)
- If there is a medium or higher fire hazard
- In hospitals
- At schools
- In hotels and similar accommodation facilities
- In senior homes

The evacuation plan must contain following:

- Location of the rooms and other spaces
- Evacuation path (fire exits)
- Gathering place
- Location of fire extinguishers

- Location of the manual alarm system

The Idrija Mercury Mine, Anthony's Main Road

In order to alleviate the consequences of accidents and natural disasters, the Mercury Mine Idrija has drafted a defense and rescue plan that includes informing and taking measures if needs arise. These measures were drafted to tackle the various accidents in the mine that could impact its surroundings. The mine rescue plan clearly set the roles of individual experts and workers during accidents.

The programme to shut-down the Idrija mine was focused on protecting the town's centre and the exceptional cultural heritage, located directly above the mine. Reinforcing works were carried out to protect the buildings above the abandoned ore deposit. Water was used to fill the lower parts of the mine (up to the IXth gallery). The upper sections of the deposit, where unique cinnabar ores are located in situ, are meanwhile preserved through maintaining the level of water below the IVth gallery.

Constant supervision and conservation of the exceptional heritage after the final shutdown will be carried out as part of a programme of monitoring that provides long-term supervision over the shutdown works. The programme includes cyclic measurements of the surface above the ore deposit and sets down the necessary measures in order to prevent subsidence.



002 139 YOUNG VISITORS IN ANTHONY'S MAIN ROAD.

Constant sampling of water that is released from the mine is meanwhile in place to prevent too large concentrations with mercury and other hazardous substances that are dissolved in cave water. The results so far show that the proper way of shutting down the mine allowed us to prevent excessive pollution of the Idrijca river as the level of mercury in the water pumped from the mine is lower than the legally-set limits.

After the final shutdown, it is planned that all the experts who are active in monitoring, are to continue their work in the Information and Research Centre for Mercury (– Informacijsko in raziskovalno središče za živo srebro) which will take over the role of supervision of the mine. Centre will at the same time continue to provide training and information on environmental studies that have already been carried out in Idrija over the past decades. These results will aid in planning environmental protection measures to safeguard man and nature from the harmful effects of mercury.

Rules on the protection of the visitors to the mine museum at the Mercu-



002 140 A VISIT TO THE DRIVE WHEEL OF THE KAMŠT WATER PUMP.

ry Mine Idrija have also been drafted. They are mainly meant for visitors, who found themselves in the mine during an accident. Special rescue crews have been set up and are composed of the most experienced miners.

IV Visitor/tourism pressures

An analysis of Idrija's capacity for tourism had defined the maximum number of visitors who can visit a region or a tourist destination simultaneously, without causing irreparable damage to the cultural and natural heritage or the social and economic environment.

The municipality is faced with a large number of transit tourists during the summer season, while other parts of the year do not bring many visitors. As new tourist products and places to sleep are bound to appear in next years, it is necessary to check in advance whether the town will be able to handle the increase in the number of visitors in the long run.

In consideration to cultural and natural conditions of the area and of the principles of sustainable development, the resolution of the local community on the development of the tourism is, that its future direction of development concentrates on education al and research tourism.

Thereby, in the year 2009 the new Strategy of tourism development in the Idrija Municipality has been prepared and adopted which sistematically determine priority programme resolutions intended for certain target groups of visitors, with special emphases on the development of moderate tourism.

V Number of inhabitants within the property and the buffer zone

The protected area:

Core Zone:
- Area surface: 47.33 hectares
- Number of inhabitants: 2,401
- Number of buildings: 586
- Number of house numbers: 426
- Number of units of cultural heritage: 42
- Number of units of natural heritage: 1

Buffer Zone:

- Area surface: 563.60 hectares
- Number of inhabitants: 5,595
- Number of buildings: 1,727
- Number of house numbers: 1,021
- Number of units of cultural heritage: 78
- Number of units of natural heritage: 5

(Source: Statistics Office of the Republic of Slovenia, population census 2002 and official records).

Chapter 5

Protection and management of the property





Given that this is a serial nomination of transboundary nature, both the legal system and the administrative structure and consequently, the conditions governing ownership and legal protection, depend on the historic, economic, political, cultural and social characteristics of each country. Therefore, although there is an attempt to provide a general overview, showing these aspects together, it is not possible to establish a single approach. However, as we shall see later on, the concept of management of the property is based on common criteria and the countries making this presentation have established a collaboration agreement for joint cooperation in management.

In other words, as regards the existing plans, there is a similar situation in the sense of their dependence on the aforementioned conditions in each country, but at the same time, they are part of the system of common management of the serial property That is to say, the management system for the two components of the serial property was conceived on the basis of the plans that were already in existence or in the process of being drawn up at each site and was supported by the relevant institutions and by the various stakeholders. In the two cases, both the plans and the joint management system and its specific characteristics are based on the community's identification with the history of the place. As we have already explained, this is a characteristic that is common to the two components of the serial property presented herein for inscription.

In this regard, the current dossier also provides a new view of the common approach to the management system at each of the proposed sites, an exercise that undoubtedly offers a more comprehensive management method of each of the two sites and of the serial property as a whole.

It may be claimed that the existing plans have the following characteristics in common:

- Consideration of the problems derived from the transformations caused by the end of mining production.
- Conservation of tangible and intangible heritage.
- Diversification of economic activity.
- Importance of handicrafts and other traditional products that demonstrate the cultural significance of the place, while also constituting a form of job diversification.
- Development of tourism with a sustainable focus based on diversity, respect for human values, the environment, history and culture.
- Respect for the environment and attachment to landscape.
- Consolidation of the image of communities that are historically linked to the development of education and science.
- To preserve and improve social heritage.
- To improve urban infrastructure service levels.
- To encourage social commitement and participation.
- To increase the quality of life of inhabitants.
- To stimulate and attract productive investments that are respectful and favourable towards the conservation and promotion of the values of the site.
- The preservation of historic and cultural heritage areas as viable economic centers, through strategic planning and canalization of focused investments that will encourage sustainability and development.
- The conservation of popular and vernacular architecture as a way of supporting the towns and rural areas in their social and economic development.
- To encourage a new attitude by the population which will aim to foster more peaceful social interactions, better civic duty and increased respect to the historic heritage.
- To anticipate and to control the effects of tourism on the heritage.
- To promote and to improve the implementation of the intergovernmental agreements as well as those between institutions.
- To establish economic funds to support the preservation.
- To promote the recognition of the cultural diversity and its heritage dimensions.
- To develop a wide educational base that reinforces cultural identity.
- To foster mutual knowledge, understanding and cooperation among the different communities involved.

(001) Almadén

5.a. Ownership

OWNERSHIP	OWNER	TYPE OF OWNERSHIP
Almadén Mines	Empresa Minas de Almadén y Arrayanes S.A. (Entreprise created by the State but regulated by mercantile law as a private legal company: Anonimous Society)	Private
Historic stretch of the road included on the proposed core zone.	Empresa Minas de Almadén y Arrayanes S.A.	Private
Historic centre of the town of Almadén 1).- Streets and public spaces and equipment 2).- The majority of the buildings and homes belong to private owners 3).- The following are the unique historic buildings belonging either to private owners or public institutios:	 1).- Municipality of Almaden 2) Private owners 3).- See the following list:	 Public Private
Retamar Castle	Municipality of Almadén.	Public
San Miguel Chapel	In disuse. Empresa Minas de Almadén y Arrayanes S.A.	Private
House of the Superintendent of the Mine	Municipality of Almadén.	Public
San Sebastián el Nuevo Church	Spanish Catholic Church. Almadén Dioceses. Bishopship of Ciudad-Real. Currently not used for prayer, dedicated to storage purposes.	Spanish Catholic Church
Mining Academy House	Municipality of Almadén.	Public
House of the Inquisitor	Privately owned, dedicated to hosting guests: Hotel Boutique “Condes Fúcares”.	Private
Archaeological remains of the Royal Enforced Labour Prison (Real Cárcel de Forzados).	School of Mining and Industrial Engineering of Almaden University of Castilla La Mancha.	Public
San Rafael Royal Miners’ Hospital (Real Hospital de Mineros de San Rafael)	Empresa Minas de Almadén y Arrayanes S.A. Managed by the Almadén – Francisco Javier de Villegas Foundation.	Private
Bullring	Cultural asset owned by the Municipality of Almadén. Privately managed.	Public

5.b. Protective designation

5.b.1. The legal protection of Almaden mining site. The mines, the historic urban area and the setting.

The legal status of the Almadén Cultural Heritage under the current Acts on Historic Heritage, Land Regulations and Urban Planning and on Conservation of Natural Areas and Resources (see 5.b.2, 3 & 4) is as follows:

Cultural Assets		**Protection. Legal Status.**
1	Almadén Mines. The ensemble declared as BIC comprises what is defined as the "object" (specific heritage contents) and its "setting". **A. The "object" (specific heritage contents):** The zone comprising the "object" (heritage contents) declared as B.I.C. is delimited as follows in cadastrial terms: • Block 00365: complete plots from 01 to 025 • Block 03386: complete plots 17,34 and 35. • Block 03370: a part of the plot 03. • Public road (going up to the castle) • Block 12368: complete. • Block 08336, complete plot 01. • Block 10330, complete plot 01. Therefore, the "object" (specific heritage contents) as B.I.C. includes the following elements: 1) The industrial heritage ensemble of the Mine of Almaden and its elements; 2) the archaeological deposit related to the mine; 3) a hermitage of outstanding significance, whose surrounding area may content archaeological remains from other inmovable assets already disappeared. The latter element is not included on the proposed core zone of this nomination since it is located far from the town and does not make part of the historic mining complex. Besides the archaeological remains still unknown, these elements comprise the following well-known elements:	The Almaden Mines are legally declared as an asset of Cultural Interest (B.I.C.) in the category of Historic Ensemble by Resolution of 25th November 2008 (Official Gazette of Castile-La Mancha of 1st December 2008).
1.1.	**Outdoor mining-metallurgical historical ensemble.**	
1. 1.1.	San Aquilino Shaft, Tower, Machinery Building and Extraction Machine.	

1.1.2.	San Teodoro Shaft, Tower, hopper and conveyor belt for barren material, and ore feed hopper
1.1.3.	Mercury Warehouse.
1. 1.4.	Buildings of the former mining authority.
1. 1.5.	Workshop Facilities.
1.1.6.	Compressor Building.
1.1.7.	San Teodoro Cellar.
1.1.8.	Shrine of the Virgin of Miners.
1.1.9.	Former Laboratory Building.
1.1.10.	Works Office Building.
1.1.11.	San Joaquín Shaft, Tower, Skip support, extraction hopper and former machinery room.
1.1.12.	Horno de Tejeras (Tile Kiln)
1.1.13.	Trough from Xabeca Furnace.
1.1.14.	Trough from Ashpit or Reverberation Furnace.
1. 1.15.	Troughs (Aludels) from the Bustamante Furnace.
1. 1.16.	Pacific Furnace.
1. 1.17.	Pacific Furnace.
1. 1.18.	Wall of the Cerco (Palisades).
1. 1.19	Puerta de Carros (Carts Gate)
1. 1.20	Puerta de Carlos IV (Charles the Fourth Gate).
1. 2. Indoor mining historical ensemble.	
1. 2.1.	Mineral transport tunnel
1. 2.2.	Mina de Pozo Gallery.
1. 2.3.	Mina del Castillo Gallery.
1. 2.4.	San Andrés Shaft.
1. 2.5.	Baritel and malacate (winch) of San Andrés.
1. 2.6.	Galería de Forzados (Forced Labour Tunnel)
1. 2.7.	Caña Gitana tunnel
1. 2.8.	Tunnel to San Aquilino
1. 2.9	Platform on 1st Floor of the San Aquilino Shaft
	Shaft guide.
	Cage.
	Vaulted niche and tools room.
1. 3. Unique buildings in the surroundings that are related to the mines.	
1. 3.1.	San Miguel Chapel.
1. 3.2.	San Miguel Buildings and Shaft.
1. 3.3.	Casa Academia de Minas (Mining Academy building)
1. 3.4.	Archaeological Remains of the Royal Forced Labour Gaol (Real Cárcel de Forzados).
1.3.5	House of the Mine Superintendent.
1.4. Historic section of the original mercury's route comprised between the Charles the Fourth Gate and a modern road.	

1.5. The "object" (contents) also includes the following elements that had previously been declared as B.I.C:		
1.5.1	Bustamante Furnaces	Declared as an Asset of Cultural Interest (B.I.C.), in the Monument category, on 23-6-92 (Official Gazette of Castile-La Mancha of 8th July, 1992).
1.5.2	Bullring	Declared as an asset of Cultural Interest (B.I.C.), in the Monument category, on 16-11-79 (Official State Gazette of 18th January 1980)
1.5.3	Castillo de Retamar (Retamar Castle)	Declared as an Asset of Cultural Interest (B.I.C.), in the Monument category, by application of Act 16/1985 on Spanish Historic Heritage (Additional Clause Two) (As a castle) [1].
1.5.4	Saint Raphael Royal Miners' Hospital	Declared as an Asset of Cultural Interest (B.I.C.), in the Monument category, on 23-06-1992 (Official Gazette of Castile-La Mancha of 8th July, 1992).

1.6. In the same way, the "object" has included the following cultural elements that are therefore considered in the category of BIC:

1.6.1. Royal School of Mines
1.6.2. The House of the Superintendent.
1.6.7. The Royal Forced Labour Gaol.
1.6.8. The Charles the Fourth Gate

B) "The setting":

The legal provisions that have been set to force provide that the above ensemble and elements declared as BIC also include their "setting": "The "setting" includes a space that is also linked to the Mine, but outside the so-called "Cerco de Buitones", in which the whole construction of the layout of the town around the mines is included.

The "setting" is delimited as follows in cadastrian terms:

Block 00384: complete plots from 01 to 025;
Block 00386: complete plots from 01 to 011;
Block 03386: complete plots from 01 to 016; from 018 to 033 and from 036 to 039;
Block 02370: complete plots from 01 to 029;
Block 02376: complete plots from 01 to 022;
Block 02363: complete plots from 01 to 023;
Block 02364: complete plots from 01 to 017;
Block 03364: complete plots from 01 to 019;
Block 04365: complete plots from 01 to 08;
Block 05368: complete plots from 01 to 027;
Block 05367: complete plots from 01 to 041;
Block 04377: complete plots from 01 to 012;
Block 04376: complete plots from 01 to 016;
Block 03370: complete plots 01, 02 and 04 to 028;
Block 06386: complete plots from 01 to 06 and part of the 017;
Block 00351: complete plots from 01 to 020;
Block 01341: complete plots from 01 to 026;
Block 02353: complete plots from 01 to 018;
Block 01352: complete plots from 01 to 020;
Block 12362: complete plot 01;
Waldo Ferrer square, Libertad and Esparteros streets, Doctor Fleming square, Barcelona street;
Block 09330: complete plots 15, 16, 17 and 35;
Block 09321: complete plots from 015 to 018 and plot 33;
Block 10330: complete plots from 02 to 06;
Block 10334: complete plots 01 and 02 and from 10 to 13;
Block 11336: complete plots 01 and 02;
Block 12337: complete plots from 01 to 03;
Block 12346: complete plots 01 to 08 and 24 to 31;
Block 09347: complete plots 17 to 20 and 45;
Block 11350: complete plots 08 and 022.

The protected setting also affects all of the public spaces contained by the line that goes around the outer perimeter of the aforementioned blocks and plots and joins them together.

It is deemed to be necessary to allow for the administrative control established in the legality of Historic Heritage on the aforementioned protection zone, as any intervention in same is considered liable to have a negative effect on the conservation or contemplation of the site under protection.

2	Almadén's historic town centre The protected area also includes unique specific elements like the following, and the "buffer zone":	Included in the above protected Historic Ensemble as settings and in the Special Protection Plan for Almadén. Proceedings were initiated by the Almadén Town Council in 2007.Once the public information period elapsed without remarks or claims, the Special Plan was initially approved by Plenary Session of the Town Council (29 January 2009) and forwarded to the competent regional Department for consultations. Currently, aiming at definitive approval, the Almadén Town Council is completing and introducing corrections to the technical document as requested by the Provincial Council for Land Regulations and Urban Planning.
2.1	San Sebastián el Nuevo Church	Included in the aforementioned Special Protection Plan for Almadén as a unique element entitled to comprehensive protection.
2.2	San Juan Church	Included in the aforementioned Special Protection Plan for Almadén as a unique element entitled to comprehensive protection.
2.3	Buffer zone	Included in the provisions of the Special Protection Plan for Almadén prepared by its Town Council. Also coincides partially with rupestrian art sites that have been declared as Assets of Cultural Interest, (B.I.C.), by application of Act 16/1985 on Spanish Historic Heritage (Additional Clause two). It also coincides partially with the Special Bird Protection Zone (ZEPA) by the name: Sierras de Almadén – Chillón – Guadalmez. Code ES0000155. (ZEPA. Natura 2000 Network (Dir. 79/409 EEC)[2]

[1] "Property covered by the Decrees of 22 April 1949, 571/1963 and 499/1973, shall also be considered of cultural interest and shall be subject to the regulations established by this Law". The Decree of 22nd April 1949 establishes that "all of the Castles in Spain remain under the protection of the State, which shall prevent any intervention that might alter their character or cause them to collapse".

[2] As regards the Special Bird Protection Zone (ZEPA), which coincides with some of the sections of the Road and the proposed buffer zone, it is included in the Network of Protected Areas of Castile-La Mancha, which are regulated by Act 9/1999, of 26th May, on the Conservation of Nature, amended by Act 8/2007 of 15th March. This Network is formed by both the various natural spaces and resources that are protected by virtue of the domestic provisions at national and Autonomous Community levels and those whose protection is derived from the application of the European Directives on Birds (79/409/EEC) and Habitats (92/43/CEE), such as Sites of Community Importance, ZEPAS (Special Bird Protection Zones) and the figures that result from effective application in the management of the conservation of protected species, such as the Critical Areas.

5. b. 2. The national Legal Framework for the protection, conservation and management of cultural heritage in Spain

SUÁREZ -INCLÁN, María Rosa, 2004; reviewed, 2010

1.-The Spanish Constitution of 27 December 1978 (Arts. 9, 44, 46, 48, 50, 148 and 149) and the Organic Acts on the establishment of the Statutes of the Autonomous Communities. (Note: Organic Laws require the agreement of the majority of M.P.s)

2.-Act 7/1985 of 2nd April, regulating the Legal System for Local Entities (articles 2 and 25), which has been partly amended and developed by different Acts and Royal Legislative Decrees. Royal Legislative Decree 2/2004 of 5th March has reworded the previous legal measures on the Tax and Financial System of Local Entities.

3.-Spanish Historic Heritage Act (LPHE) 16/1985 of June 25th (Official State Gazette of June 29th, 1985). Royal Decree 111/1986 of January 10th as a partial development of the said LPHE, partly amended by Royal Decree 64/1994 of January 21st (Official State Gazette of March 2nd).

4.-Act 49/2002 of December 23rd on the Tax System of Non-profit Entities and Tax Incentives for Patronage (Official State Gazette of December 24th).

5.-Organic Act 1/2002 of 22 March 2002 on Associations (Official State Gazette of March 26th).

6.-Act 50/2002, of 26th December on Foundations (Official State Gazette of December 27th) and succesive Acts issued by the Autonomous Communities for their regional scope.

7.-Royal Decree 1740/2003 of 19th November on operational proceedings concerning associations of public utility (Official Gazette of January 13th 2004)

8.-Royal Legislative Decree 2/2008 of 20th June on Land Regulations (Official Gazette of 26th June 2008) This kind of national legislation also includes basic regulation on Urban Planning, which shall in any case be adapted and developed by each of the Autonomous Communities. That is to say: it is the competence of the autonomous communities to design and develop their own town-planning policies. The state exercises certain competences related to this field, but must avoid conditioning it insofar as possible.

9.-Other specific and complementary legal measures on the protection and conservation of cultural assets, as well as on land regulations and urban planning, have come into force in the Autonomous Communities of Spain. In Castile-La Mancha, the region in which Almadén is located, the main legal measures related to the protection of Cultural Heritage are described in section 5.b.4. which also includes an executive summary highlighting their key provisions.

5. b. 3. The national system for the protection, management and control of cultural heritage in Spain. Distribution of competencies among the State and the Autonomous Communities. The role of Local Entities. Financial aspects

(SUÁREZ -INCLÁN, María Rosa, 2004)

1) Distribution of competencies among the State and the Autonomous Communities. The role of Local Entities.

Regarding the national system for management and control of cultural heritage, it is to be said that, according to the political system established by the present Constitution, the Autonomous Communities have assumed all the competencies in their respective territory (both in administrative and legal matters since they all have their own Parliament). The Government of the State has the exclusive competence in those cultural elements belonging to the State, although their management can also be transferred to the Autonomous Communities. It also has competence against the illicit exportation of cultural goods and a residual action in case of "spoliation", which is destined to allow the State to act, in subsidiary terms and under extreme circumstances, when the Autonomous governments fail to preserve cultural elements[3]. Notwithstanding, this last faculty has been scarcely exerted by the authorities of the Ministry of Culture.

According to the Constitution, the State Government has also competencies in matters dealing with foreign relations. There is a national Historic Heritage Council where the representatives of the aforementioned Ministry and those of the different Autonomous Communities discuss matters of cooperation and common interest.

Following the spirit of decentralisation marked by the Constitution, local entities have also assumed an outstanding role in the protection and management of cultural heritage. Once a town or a given area inside the municipal territory has been declared of historic interest according to the legal provisions *("Conjunto Histórico en la categoría de Bien de Interés Cultural, B.I.C".,* i.e. Cultural Historic Ensemble in the category of Site of Cultural Interest), it is expected to develop a Special Plan for Protection under the Land Regulation and Urban Planning Acts. When this plan is approved both by the city councils and the Autonomous government, its management is put under control of local authorities that shall authorise or deny the interventions in the protected area and supervise their execution. In case of conflict, the Autonomous government shall act as a second instance. Notwithstanding, the Autonomous government has a direct competence on monuments and other elements declared individually as B.IC.

2) Financial aspects: Public spending and private financial contributions

The total amount of public spending specifically for the protection, conservation, study and rehabilitation of historic heritage both by the State and Autonomous Communities as well as Local Corporations accounts for 15 to 16% of public spending on culture, amounting to approximately 0.2% of total public spending.

Of this total amount, approximately 31.35% is provided by the State; 44.56% by Autonomous Communities; 6.13% by Province and Island Councils; 6.54% by City Councils of more than 50,000 inhabitants; and 11.42% by City Councils of less than 50,000 inhabitants.

Aside from these public funds, the Church contributes from its own resources a slightly lower amount than Autonomous Communities. To this amount, the investments made by entities such as Banks, Savings Banks and Foundations should be added. Adding together these and the previous contributions, the approximate percentages of each of the aforementioned investment sources are as follows: State, 22.30%; Autonomous Communities, 31.70%; Regional and Island Councils, 4.36%; City Councils of more than 50,000 inhabitants, 4.65%; City Councils of less than 50,000 inhabitants, 8.13%; Church, 26.78%; Banks, Saving Banks and Foundations, 2.8%.

Financial contributions by private individuals must also be taken into

[3] Article 4 of the Spanish Historic Heritage Act (LPHE) 16/1985 of June 25th: For the purposes of this Law, spoliation shall be understood as any action or omission placing all or any of the values of the property comprising the Spanish Historic Heritage at risk of loss or destruction or preventing it from carrying out its social function. In such cases, irrespective of the powers of the Autonomous Communities, the State Administration may at any time urge the appropriate department of the Governing Council of the appropriate Autonomous Community to urgently adopt measures to prevent spoliation. If this request is not met, the State Administration shall act as necessary to recover and protect the endangered property both legally and technically.

account, these being particularly difficult to assess because their primary purpose is for ordinary maintenance. Many restoration, conservation or rehabilitation works of cultural elements are taken on by private individuals. They obtain government subsidies covering a varying percentage of the total cost of the required investment (amounting to 30 or 40% of the total investment value, and even to 80% in some cases), as well as low-interest or preferential rate loans.

5. b. 4. The legal protection of cultural elements in Castile-La Mancha, the region in which Almadén is located. The main legal measures and an executive summary highlighting their key provisions

(SUÁREZ - INCLÁN, María Rosa, 2007; reviewed, 2010).

1) The main legal measures in Castile-La Mancha.

The contents of Act 16/1985 on Spanish Historic Heritage, article 6 of which specifies the sharing of competences and the administrative bodies responsible for same, are valid throughout Spain and each Autonomous Community, such as Castile-La Mancha, also applies its own relevant legislation on Historic Heritage.

Therefore, in the Autonomous Community of Castile-La Mancha, the aforementioned Spanish Historic Heritage Act of 1985 and Act 4/1990, of 30th May, on the Historic Heritage of Castile-La Mancha are applicable.

Royal Legislative Decree 2/2008 of 20th June on Land Regulations (Official Gazette of 26th June 2008) This kind of national legislation also includes basic regulation on Urban Planning, which shall in any case be adapted and developed by each of the Autonomous Communities as stated above (5.b.2.)

Legislative Decree 1/2010 of 18th May 2010, which approves the Reworded Text on Land Regulations and Urban Planning Activity in Castile-La Mancha (Official Gazette of Castile-La Mancha of 21st May 2010).

Act 9/1999, of 26th May, on the Conservation of Nature in Castile-La Mancha (Official Gazette of Castile-La Mancha of 12 June 1999), amended by Act 8/2007 of 15th March which updates various legal provisions.

Act 4/2007, of 8th March 2007, of Environmental Evaluation in Castille-La Mancha (Official Gazette of 20 March 2007).

2) Executive summary highlighting the key provisions of the above Acts:

The measures for institutional collaboration regarding the Historic Heritage of Castile-La Mancha are reflected in the following articles of the aforementioned Act 4/1990 on the Historic Heritage of Castile-La Mancha:

According to article 2.1. "The Regional Government of the Communities of Castile-La Mancha shall adopt the necessary measures to enable its collaboration with the State Administration, the Local Corporations and public and private institutions, with the aim of guaranteeing the conservation of the Historic Heritage of Castile-La Mancha as part of Spanish Historic Heritage".

Article 4 of this Act also states "The Town Councils and other territorial and institutional public corporations in Castile-La Mancha shall cooperate with the Regional Government of the Communities of Castile-La Mancha for implementing this Act on the conservation and custody of the Historic Heritage of Castile-La Mancha included in its territorial scope of action,

adopting the opportune measures to avoid deterioration, loss or destruction of same. They shall be obliged to notify the Department of Education and Culture regarding any threat, damage or disturbance of the social function to which such heritage assets may be subject, as well as any difficulties and needs that they may have in caring for such heritage. They shall also exercise the other functions that have been assigned to them by virtue of this Act".

Moreover, article 9 specifies as follows: "1. In order to protect the legacy that makes up the Historic Heritage of Castile-La Mancha and with a view to enabling citizen access to same, promoting communication among the various services and the necessary information for developing scientific and technical research, regional information plans on the Historic Heritage of Castile-la Mancha shall be reformulated on a regular basis; 2. The regional council dedicated to the Historic Heritage of Castile-La Mancha is responsible for proposing the regional information plans mentioned in the previous paragraph, which are subject to the approval of the Department of Education and Culture; where applicable. 3. The various public services and the owners of the legacy that make up the Historic Heritage of Castile-La Mancha shall collaborate in drawing up the regional information plans".

According to the terms of article 6 of the same Act 4/1990 on the Historic Heritage of Castile-La Mancha, regarding Assets of Cultural Interest (BIC), *"Asset belonging to the Historic Heritage of Castile-La Mancha that is declared to be of cultural interest shall enjoy special protection and safeguarding". Article 10 further specifies: "The real estate asset that is included in the Historic Heritage of Castile-La Mancha may be declared to be of cultural interest, in the categories of monuments, gardens, historic ensembles and archaeological zones". Article 7 provides as follows: "The proceeding for declaring an asset to be of cultural interest may be initiated on an official basis or at the initiative of private individuals. The Regional Government of the Communities of Castile-La Mancha shall decide if the application is worthy of such declaration."* The application must include a *favourable report* from some of the consultative institutions listed in article 3 (provincial research institutes, provincial committees officially dedicated to historic heritage, etc.). If the report has not been issued three months after it has been applied for, it shall be understood to be favourable to the declaration of cultural interest. When the application refers to real estate assets, a public information period shall also be opened and *the town council in question shall be heard. The application shall be resolved in the maximum timeframe of twenty months after the date on which it is first lodged.*

Once a proceeding has been initiated for an asset to be declared as being of cultural interest (BIC), this is granted the same protection as is granted to those for which BIC status has already been confirmed, according to the terms of article 11 of Act 16/1985, of 25th June, on Spanish Historic Heritage *"1. Initiation of proceedings for the declaration of cultural interest for a property shall determine provisional application of the same system of protection that is provided for property declared of cultural interest with regard to the property in question". Item 2 of this article adds: "Resolution of the proceedings declaring property to be of cultural interest shall describe such property clearly. In the case of immovable property, it shall delimit the area affected by the declaration and, where appropriate, shall define and list the component parts, and any belongings and accessories included in the declaration".*

In turn, article 12 of this Act provides: *""Assets declared to be of cultural interest shall be recorded in*

a general Register held by the State Administration";"This Register shall be notified of any proceedings initiated leading to the corresponding preventive entry until a final resolution is passed" and "In the case of historic monuments and gardens, the appropriate Administration shall also officially arrange the free entry of the declaration in the Land Register". Article 13 adds that "An official title shall be issued by the general Register for assets declared to be of cultural interest to identify it and record all legal or artistic actions on it. Any conveyance or transfer of such property shall be entered in the Register. Moreover, the owners or, where appropriate, the holders of real rights on such assets or persons possessing them under any title shall be obliged to permit and facilitate inspection by the appropriate organisations, study by researchers on reasoned application by same and public visits which shall be free as officially determined at least four days a month on the days and at the times stipulated in advance. Fulfilment of this latter obligation may be waived completely or partially by the appropriate Administration for a justified cause".

In the existing regulation at a national, regional and local level, all interventions in protected cultural assets and areas of cultural interest are clearly regulated in terms of preserving their cultural values. Both previous authorisation and regular supervision by the responsible public institutions are common legal requirements which equally affect official entities and private owners at the different territorial levels. The infringement of these rules may bring the imposition of penalties and other administrative restricting measures to the offenders, and have even criminal consequences. The law also contemplates subsidiary action to be carried out by public authorities when private owners neglect or omit their obligations of maintenance and conservation of monuments and other cultural elements.

With respect to historic towns and urban areas, article 20 of the Spanish Historic Heritage Act (LPHE) of 1985 puts the protection of historic cities and urban areas under the control of urban measures based on the laws on Land Regulations and Urban Planning. In article 21, it states that urban planning will include the classification of all buildings, interior and exterior areas, other significant structures and natural components, as well as the definition of the types of intervention possible. Full protection will be provided for those items classified as having outstanding value, while planning instruments will set the level of protection for the rest. Remodelling is allowed on an exceptional basis provided that it represents "an improvement in the relations with the urban environment of the area" and "avoids degrading uses". In any case, the existing land divisions must be maintained. Replacements are allowed exceptionally if they contribute to "conservation of the character" of the complex as a whole.

Under the LPHE, protection of the heritage of historic centres is implemented through what are termed the Special Plan for Protection, the General Plan and the Subsidiary Regulations, which are based on the Land Regulation and Urban Planning Acts.

In turn, article 8 of Act 4/1990 on the Historic Heritage of Castile-La Mancha, which refers to the Initiation of Proceedings and Declaration of Property as being of Cultural Interest indicates: *"1. Urban plans must explicitly include all buildings for which proceedings have been initiated for declaration as asset of cultural interest or which have been declared as being of cultural interest and the setting of such buildings should be defined. The definition of the urban conditions of the said setting shall require a favourable report from the Department of Education and Culture, which should be obtained by the respective town council prior to the provisional approval of such plans; 2. If the dec-*

laration of the asset of cultural interest does not include the definition of the setting, the urban plans shall propose its delimitation, which shall also require a favourable report from the Department of Education and Culture, under the same conditions as referred to in the previous section".

Article 14 of the same Act provides that the Department of Education and Culture (of Castile-La Mancha) "is expressly authorised to prevent demolition and suspend any type of work or intervention on asset that has been declared to be of cultural interest or on the setting of such asset, or for which the relevant proceeding for such declaration has been initiated. It is also entitled to agree to works being carried out at the expense of the owners in order to prevent irreparable deterioration due to abandonment or negligence".

Work on asset that has been declared to be of cultural interest or for which such a proceeding has been initiated and the protected setting of such asset are subject to the mandatory licenses and control by the competent Administration and infringements shall lead to administrative obligations and sanctions. Thus, article 13 of the aforementioned Act of Castile-La Mancha provides the following: *"1. When the building or land use actions that under the terms of this Act require authorisation from the Department of Education and Culture are carried out without a license or implementation order or without complying with the conditions stated in same, the mayor or the Department of Education and Culture shall order the immediate suspension of such actions. The suspension agreement shall be notified to the Town Council within three days if it has not been adopted by the mayor; 2. Within two months counting from notification of the suspension, the interested party shall have to apply for the relevant license or, where applicable, adjust the works to the license or implementation order; 3. If this timeframe elapses and the aforementioned license has not been obtained or the works have not been adjusted to the indicated conditions, the town council shall agree to demolish the works at the expense of the interested party and shall proceed to prevent on a definitive basis the uses that such works might enable. It shall proceed in the same way if the license is refused because granting of same would go against the provisions affecting the proposed action; 4. If demolition is not carried out within one month of expiry of the term referred to in the previous item or from the moment that the license is refused for the expressed reasons, the mayor or the body in the Regional Government of the Communities of Castile-La Mancha that is competent in matters of urban planning shall order such demolition on an immediate basis, also at the expense of the interested party".*

The same Act issued by the Government of Castile-La Mancha to which we have been referring includes Chapter (II), dedicated to the *"Regime of Sanctions",* which specifies that *"As regards infringements and sanctions, the terms of state legislation shall apply".* The fines shall be imposed by the relevant bodies in the regional government of the Autonomous Community. Article 61 specifies that *"any action against the historic heritage may lead to: a:1. The adoption by the competent bodies of the necessary measures for restoring the legal order that has been infringed and the physical reality that has been altered or transformed, insofar as possible, as a consequence of the illegal action; 2. The initiation of proceedings to order the suspension and annulment of the administrative acts on which the illegal action might presumably be based; 3. The imposition of sanctions on the parties responsible, following the relevant sanctioning procedure, without detriment to any possible criminal responsibilities in which they may have incurred; 4. The obligation to pay for damages and compensate for losses at the expense of*

those that are deemed to be responsible for such damages and losses".

This does not prevent the authorities in charge from adopting the necessary restoration measures, as indicated in article 62: "Under no circumstances may the authorities in charge fail to adopt measures aimed at restoring the affected asset to its status prior to the occurrence of the illegal situation. The sanctions for any infringements detected regarding the historic Heritage shall be imposed on an independent basis from any such measures".

Infringements against asset of cultural interest that constitute crimes are also typified in criminal legislation.

As regards movable and immovable asset belonging to Industrial Archaeological Heritage, the aforementioned Act 4/1990 on the Historic Heritage of Castile-La Mancha mentions in article 22.2 that *"The Department of Education and Culture shall propitiate or carry out the study, research and documentation of these materials on a systematic basis throughout the territory of Castile-La Mancha".* As regards the Ethnological Heritage, article 23.4 also contemplates that *"The Department of Education and Culture shall propitiate or carry out the study, research and documentation of the materials that make up the Ethnological Heritage of Castile-La Mancha".* Therefore, the knowledge and safeguarding of Industrial and Ethnological Heritage is a basic issue in the urban planning and management of the region.

As regards funding, the same Act provides that the general budget of Castile-La Mancha shall include a line that shall be at least equivalent to 1% of the funds destined to public works, for funding the work of conservation or enhancement of the Historic Heritage of Castile-La Mancha. Funding is also obtained via direct and supplementary agreements, conventions and contributions from the State Administration. Legislation also contemplates the obligations of owners and users to contribute towards adequate maintenance of heritage asset. On the other hand, the aforementioned Act 49/2002 of December 23rd on the Tax System of Non-profit Entities and Tax Incentives for Patronage (Official State Gazette of December 24th) and the Royal Decree 1740/2003 of 19th November on operational proceedings concerning the associations of public utility (Official Gazette of January 13th 2004) establish a series of stimulating measures in financial terms.

The provisions of the aforementioned legislation that is specific to Historic Heritage are also complemented in the territorial and urban spheres in the aforementioned Legislative Decree 1/2010 of 18th May 2010, which approves the Reworded Text on Land Regulations and Urban Planning Activity in Castile-La Mancha (Official Gazette of Castile-La Mancha of 21st May 2010).

In Title Three of this Act, which addresses "Instruments of Territorial and Urban Planning", the Municipal Plans are regulated in Chapter III, Section 1 of which refers to the General Plans. Article 24, regarding the *General Municipal Planning Plans (POM)* provides that, among other issues, *"they should be classified as urban, urbanisable and rustic and each of these classes should be divided into the respective categories and in any case, in areas of territorial land regulations and urban planning, with delimitation of areas subject to a special protection regime". They should also proceed to the "delimitation of sectors for partial planning or areas for internal rehabilitation, determining the logical sequence of its development by means of the concrete definition of the objective conditions for enabling the incorporation of each urbanising initiative, establishing a basic order of priorities and regulating the conditions that must be met in order for*

such programming to be possible"; "Establishment of the majority global use and definition of the maximum building intensities and densities for each sector, action unit and area of territorial and urban planning intervention"; "Indication of the general communication systems and their protection areas, the general system of community facilities and equipment, and of the general system of free spaces in a proportion that should be not less than15 squared metres per 100 squared metres devoted to residential buildings. This proportion can be modulated according to the density of inhabitants";The provision of road structures and open spaces and facilities of any ownership and scope of service whose location and reservation it is convenient to design in advance as they perform a relevant structuring function in the urban planning met by the Plan", "Detailed urban planning and minute treatment of the urban mesh, public spaces, community facilities, infrastructure networks", etc. "Determination of detailed uses and typological by-laws, without detriment to the possibility of deferring to Special Internal Rehabilitation Plans certain areas of urban land with the aim of restructuring consolidation of same".

Section two of chapter III of the same Legislative Decree refers to Development and Complementary Plans. Article 26, regarding Partial Plans, indicates, among other measures, that these "are aimed at detailed planning of complete sectors of land liable for urbanisation that have not yet been established in the Municipal Planning Plans (POM) and the complementary plans and the improvement of that which is established in same"; In this regard, they shall determine "the layout of the communication network for the sector, detailing its alignments and grades and the characteristics of its link to the general communications system"; "division in urban planning areas, indicating detailed uses and typological by-laws"; "division in action units, indicating for the urbanisation units the objective and functional conditions"; "the establishment of reserves for public facilities"; "specification of characteristics and layout of water supply, sewage and electricity networks, (etc.) and their link with existing municipal networks".

Article 27 refers to the Catalogues of Protected Assets and Spaces, which "will formalise the public policies for the conservation, rehabilitation or protection of the real estate property or natural spaces of relevant value". The competent Administration shall keep an up-to-date Register with all of the details pertaining to such property and "specific treatment according to the legislation on cultural heritage or the environment shall be afforded to those property or spaces that are also subject to measures dedicated under the terms of the said legislation".

Chapter IV of the same Legislative Decree contemplates the figure of the Special Plans foreseen "to develop, complement or enhance the General Urban Land Regulation Plans (POM) with any of the following purposes:

a) To create or extend reserves of land set aside for institutional purposes; b)To define or protect infrastructures, communication channels, landscape or the natural environment; c) To adopt measures aimed at ensuring between conservation of assets, ensembles or gardens of cultural and architectonic interest; d) To decide on the functioning of infrastructure networks; e)To link areas or plots of land that is urban or subject to urbanisation to the construction or rehabilitation of homes or other social uses subject to some form of official or public protection regime". With these same purposes in mind or in order to carry out urban renewal operations or manage preferential rehabilitation areas in specific areas of urban land, Special Internal Rehabilitation Plans may also be drawn up. It is necessary to differentiate between the plots that are subject to the building regime

from those that are subject to urbanisation. "The Special Plans should be written with the same degree of detail and shall contain the same definitions as the planning instruments that they complement or amend".

The Municipalities are in charge of drawing up, amending and revising their Urban Land Regulations Plans, POM (article 34 of the same Legislative Decree). "The Special Plans and the Catalogues of Protected Property and Spaces may be drawn up and promoted both by the Municipalities and by the rest of the Public Administrations, when the exercise of their respective competencies demands or requires the establishment of new definitions of territorial and urban planning" (article 35).

Article 36 establishes the procedure *for the initial approval of the Urban Land Regulation Plans, certain Special Plans and Catalogues of Protected Property and Spaces.* The Administration promoting the Plan must consult and reflect in the Plan the result of its consultation with other Administrations and entities that represent the affected citizens. In drawing up Urban Land Regulation Plans, it must also consult other adjoining municipalities that might be affected and the regional authority that is competent in the area of Territorial Land Regulations and Urban Planning in order to streamline with the Territorial Plan in force at the higher level. *Once the relevant Plan has been drawn up, the promoting Administration shall submit it to a public information period of at least one month* by means of publication in the "Official Gazette of the Community" and in the main newspaper in terms of readership, *providing it to the municipality for public consultation.* Once any necessary amendments have been incorporated, *the initial approval shall be published* as explained and the interested parties named in the documents shall be informed. In the same timeframe as is set aside for public information, it will also be necessary to gather favourable reports from the competent Administrations in the relevant areas and, where applicable, statements from the adjoining municipalities, except if there were prior agreements between administrations.

Any possible disagreement with other adjoining municipalities shall be settled by the Provincial or Regional Urban Planning Commission or, ultimately, by the competent regional administrative authority. *Once these procedures have been complied with, the Plenary Session of the Town Council or the Promoting Administration, after proceeding to initial approval with any amendments considered to be opportune shall forward it to the regional body ("Department") that is competent in the area of Territorial Land Regulations and Urban Planning, requesting definitive approval.*

As regards the procedure for *definitive approval,* as stated in article 37, the regional body ("Department") that is competent in the area of Territorial Land Regulations and Urban Planning shall commence a period of consultation and analysis of the Urban Land Regulation Plans, Urban Land Delimitation Plans, Special Plans that do not involve Internal Rehabilitation and that affect elements of structural land regulations or the Catalogue of Protected Property and Spaces, with the promoting Administration and other affected Administrations. During this *consultative period,* the competent "Department": a) shall gather the necessary reports; b) shall ask the Promoting Administration, if it deems this to be necessary, to complete the information, correct any deficiencies and clarify the motivations and purposes of the proposal; c) shall offer, where appropriate, technical alternatives for administrative consensus; d) *shall directly grant definitive approval, ignoring or abbreviating the consultative period, when the dossier submitted for consideration thus allows.*

Once these requirements have been met and after forty days have elapsed from the application for definitive approval, if the promoting Administration considers it opportune to immediately conclude the consultative period, it may ask for it to be terminated without further delay. If three months elapse and no express resolution has been reached since this new application, the promoting Municipality or Administration may ask the Department to acknowledge and publish the definitive approval that corresponds to same. Although the Department may, if it considers this to be opportune, formulate objections to the definitive approval, they may be based solely on the requirements of the territorial and urban planning requirements of Castile-La Mancha and in the established legal terms, but they may not question interpretation of the local public interest formulated by the Municipality.

Article 38 regulates the drawing up, processing and approval of Partial Plans, Special Internal Rehabilitation Plans, Special Plans that affect elements included in detailed Land Regulations and Detailed Studies. These plans may be promoted by the Municipalities or by private individuals, although in the case of Special Plans affecting elements included in the detailed Land Regulations in the development of an Urbanising Action Programme, such private individuals shall have to have been awarded or be competing for the awarding of the programme to develop at least one unit of action. However, the Detailed Studies may be promoted by any interested party. Once the plans have been drawn up, they shall be submitted for public information for 20 days. In municipalities whose population is over 10,000 inhabitants, a legal technical report by the municipal technical services shall be mandatory, while in municipalities with smaller populations, the report shall be drawn up by the regional body ("Department") that is competent in Territorial Land Regulations and Urban Planning matters, unless express authorisation is obtained from the latter and there are suitable municipal technical services. Once the public information procedure has been complied with and the report has been issued, initial approval shall not be required and definitive approval shall correspond to the Plenary Session of the Town Council. However, when the Partial Plans or Special Internal Rehabilitation Plans imply changes to the structural land regulations established in the Municipal Land Regulations Plan, such changes shall require initial approval after the public information procedure. Subsequently, the issue of a prior binding report from the regional body ("Department") that is competent in Territorial Land Regulations and Urban Planning shall be mandatory before they are definitively approved by the Plenary Session of the Town Council. The timeframe corresponding to the various prior administrative proceedings that are necessary for full completion of the dossier may not exceed one month. The timeframe for definitive approval shall be three months after the complete dossier enters the register of the body that is competent in granting such approval.

Article 39.1 establishes that *"Any innovation in the decisions in the Plans must be established by the same class of Plan and according to the same procedure that is followed for approving such decisions. Exceptions from this rule are innovations derived from the amendments that may be introduced by the Partial and Special Plans".*

As regards Act 9/1999, of 26th May, on Nature Conservation, of Castile-La Mancha, amended by Act 8/2007 of 15th May, which updates various legal provisions, of special importance in the case of Almadén regarding the Special Bird Protection Zone, which coincides with part of the proposed buffer zone, the following is the applicable legal framework:

The Network of Protected Areas in Castile-La Mancha was founded along with Act 9/1999, of 26th May, on Nature Conservation. It includes the natural spaces that arise from application of this Autonomous Community regulation: nature parks, nature reserves, natural monuments, micro-reserves, river reserves, protected landscapes, natural landscapes and peripheral protection zones, as well as those spaces that are subject to Natural Resource Organisation Plans.

It also includes the natural spaces declared in the territory of Castile-La Mancha under the auspices of Act 4/89, of 27th March, on Nature Conservation, to which the national parks belong.

Also included are figures resulting from application of the hunting and fishing legislation in Castile-La Mancha, such as the Fauna and Fishing Sanctuaries, as well as other protected figures referred to as Sensitive Zones in the Castile-La Mancha Nature Conservation Act and the natural spaces arising as a result of application of the European Directives on Birds (79/409/EEC) and Habitats (92/43/EEC). This will integrate Sites of Community Importance, ZEPAS (Special Bird Protection Zones) and the figures resulting from effective application in the management of the conservation of protected species, as Critical Areas.

Finally, it also includes Forestry Areas intended for the conservation of natural resources and others that are declared by the Castile – La Mancha Governing Council (biological corridors, standards or agreements, etc.)

5.c. Means of implementing protective measures

(SUÁREZ - INCLÁN, María Rosa, 2007; Reviewed, 2010)

As described in section 5.b.1., the components that make up the Cultural Heritage of Almadén are protected on the basis of the possibilities offered by standing legislation.

Retamar Castle, the Bustamante Furnaces, the San Rafael Royal Hospital for Miners and the Bullring, which have been declared as Asset of Cultural Interest (B.I.C.) in the Monument category, are entitled to the maximum legal protection on a comprehensive basis, by virtue of Spanish Historic Heritage Act (LPHE) 16/1985 of June 25th and Act 4/ 1990, of May 30th, on the Historic Heritage of Castile-La Mancha.

The same maximum protection is provided to the Almaden Mines since they are legally declared as Asset of Cultural Interest (B.I.C.) in the category of Historic Ensemble by Resolution of 25th November 2008 (Official Gazette of Castile-La Mancha of 1st December 2008). This includes the mining-industrial and architectonic heritage comprised both in the outdoor and indoor mining-metallurgical historical ensemble as well as the unique buildings in the surroundings that are related to the mines, and the historic section of the original mercury's route comprised between the Charles the Fourth Gate and a modern road. So, besides the space that is specifically linked to the mining and metallurgical activity, several outstanding elements of civil architecture are also included, like the wall around enclosure with the Charles the Fourth and Carriage Gateways, San Miguel Chapel, the Mining Academy House, the Archaeological Remains of the Royal Enforced Labour Prison and the House of the Mine Superintendent. This legal provision also contemplates the necessary protection for the surrounding spaces of the ensemble and related elements. Therefore, outside the Cerco de Buitrones the protected "setting" is understood as referring to the urban space related to the mine including all the fabric works resulting from the mining which have contributed to defining the specific layout of the town. This protection also extends to all the public spaces included inside the external border of the perimeter defining the protected blocks and plots and any intervention in these spaces that may cause damage to the conservation or contemplation of the protected elements must be submitted to control according to the specific legislation on cultural heritage.

It is to be added that the Almaden Mines have enjoyed the same protection as those already granted BIC status since proceedings were initiated for this ensemble to be declared as being of cultural interest (BIC) in 2007, according to the terms of article 11 of Act 16/1985, of 2nd June, on Spanish Historic Heritage *"1. Initiation of proceedings for the declaration of cultural interest for an asset shall determine provisional application of the same system of protection that is provided for property declared of cultural interest with regard to the asset in question".*

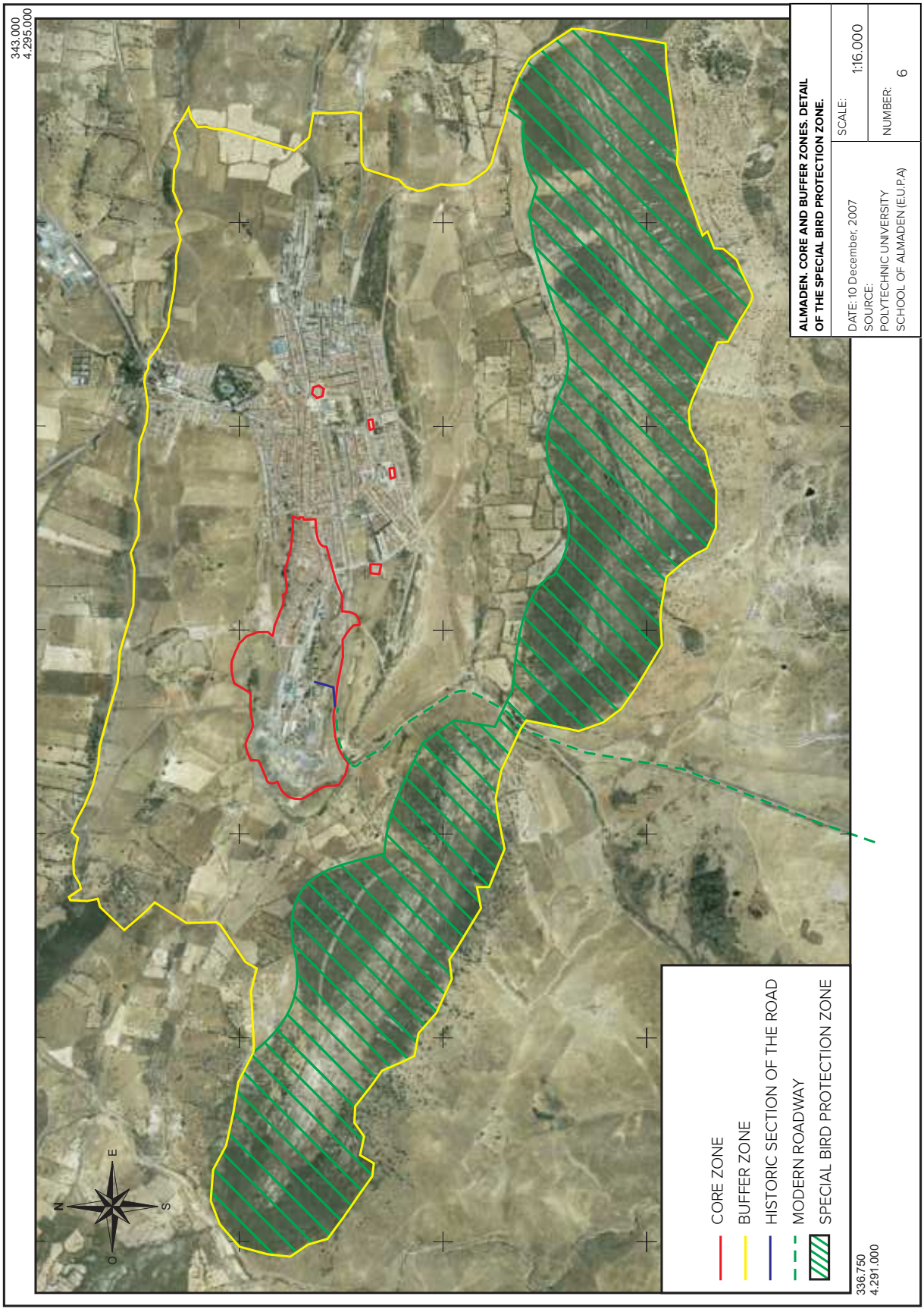
As regards the historic centre of the town of Almadén, the contents of the Municipal Land Regulations Plan (POM) and the subsequent Special Protection Plan are summarised in section 5.d. The procedure towards approval of planning was initiated by the Town Council in February 2007. After the public information period (announced at the Official Gazette of Castile-La Mancha number 236 of 17th November, the Official Bulletin of the Province number 6 of 14 January 2008, and the "La Tribuna de Ciudad Real" journal of 3rd January 2008) came up to its end without remarks or claims, the initial approval of the Special Protection Plan took place at the Plenary Session of the Town Council of 29th January 2009, aiming at its definitive approval: As was also explained in item 5. b. 4, by legal imperative, (article 8 of the Act on the Historic Heritage of Castile-La Mancha), this urban planning must include explicity the buildings declared to be assets of cultural interest (B.I.C.) by the government of Castile-La Mancha, and the definition and delimitation of their settings. It also must follow article 12 of the same Act, which establishes that, according to the terms of the urban planning legislation, in the planning instruments for historic ensembles, the unitary elements that make up the ensemble shall be catalogued and the unique elements shall be afforded comprehensive protection, with definition of their setting and the conditions for action in same.

For the rest of the elements, a suitable protection level is determined in each case. The regulations for action provided in the planning take into account the necessary harmony between conservation of the ensemble and maintaining the city as a living structure, including the building adaptations that are neceessary in terms of structure and inhabitability, adaptations to new uses and the presence of the necessary social facilities.

Besides the elements protected by means of their declaration as B.I.C., the San Sebastián el Nuevo Church and the San Juan church are planned to be included, in the category of Unique Elements entitled to comprehensive protection, in the specific urban planning for the Town of Almadén. Article 12, as quoted in the previous paragraph, also provides that the conservation of the historic ensembles declared to be of cultural interest implies maintenance of the urban and architehtonic structure as well as the general characteristics of its environment.

As regards the buffer zone, it is protected, as indicated previously, as part of the mine ensemble, declared as Ensemble of Cultural Interest (B.I.C.). As already stated in section 5.b.1, another part coincides with the Special Bird Protection Zone (ZEPA) by the name: Sierras de Almadén – Chillón – Guadalmez. Code ES0000155. (ZEPA. Natura Network 2000 (Dir. 79/409 EEC). This special bird protection zone (ZEPA) is included in the Network of Protected Areas in Castile-La Mancha, regulated by Act 9/1999, of 26th May, on Nature Conservation, amended by Act 8/2007 of 15th March. This Network includes both the various natural spaces and resources that are protected by virtue of the domestic provisions at national and Autonomous Community levels, but also those for which protection is derived from application of the European Directives on Birds (79/409/EEC) and Habitats (92/43/EEC), such as the Sites of Community Importance, ZEPAS (Special Bird Protection Zones) and the figures that result from effective application in the management of the conservation of protected species, such as Critical Areas. It also partially coincides with rupestrian art sites, declared as Asset of Cultural Interest (B.I.C.), by application of Act 16/1985 on Spanish Historic Heritage, Additional Clause two: "*Property covered by the Decrees of 22 April 1949, 571/1963 and 499/1973, shall also be considered of cultural interest and shall be subject to the regulations established by this Act".*

As stated in section 5. b. 4., in the existing regulation at a national, regional and local level, all the interventions in protected cultural assets and areas of cultural interest are clearly regulated in terms of preserving their cultural values. Both previous authorisation and regular supervision by the responsible public institutions are common legal requirements which equally affect official entities and private owners at the different territorial levels. The infringement of these rules may bring the imposition of penalties and other administrative restricting measures to the offenders, and have even criminal consequences. See also the references made to the following articles in the same section: article 21 of Spanish Historic Heritage Act (LPHE) of 1985, as well as articles 8, 13, 14, 61, 62 of Act 4/1990 on the Historic Heritage of Castile-La Mancha.



001 070A BUFFER ZONE SHOWING ZEPA (Special Bird Protection Zone) AREA

5.d. Existing plans related to municipality and region in which the component of the serial property proposed is located

The Monte Sur County in which Almadén is located has a population of 15,057 inhabitants, i.e 3.16% of the population of the province, of which 70% are concentrated in the towns of Almadén, Chillón and Guadalmez. There are two highly differentiated zones in this county: the north (Agudo, Saceruela, Valdemanco), which is dedicated to agriculture and livestock farming and the south (Almadén, Almadenejos, Chillón), which is dedicated to industry and the services sector, for the most part. There are also companies working in the sectors of industrial carpentry, the manufacture of metallic elements, construction companies that work outside the county, etc. Only the towns of Guadalmez and Alamillo in the southern part are basically dedicated to agriculture and livestock farming, especially Guadalmez due to its specialisation in market gardening, with a major increase in greenhouse coverage in recent years.

Over the course of several years, the County has been suffering from progressive ageing of its population, with negative growth rates in all municipalities, meaning that more than 60% approximately are over the age of 45 years.

Another aspect to be considered along with the issue of the ageing population in the County is the unemployment rate, which affects mainly the population in the 20 – 44 age bracket and especially in the services sector. It therefore appears that this high unemployment rate, three points higher than the national average, is provoking the exodus of the younger population of working age.

Nowadays, activity in Almadén and the County is starting to develop in sectors other than the traditional sector of mining, on the basis of the resources available in the area: hunting, fishing, timber, tourism and agro-foods production. In the latter years, this sector has acquired major importance in Almadén, with companies dedicated

to the manufacture of products derived from Iberian pork and game, the making of cheeses from Merino sheep milk, as well as the canning of pickled aubergines and other products like *asadillo* (roast peppers), *alboronia* (aubergine vegetable stew), etc., which are typical of the county of Almadén. These companies can be of great importance for the area, as they publicise its products elsewhere and take the name of the county to every corner of Spain, with major possibilities in terms of exports abroad.

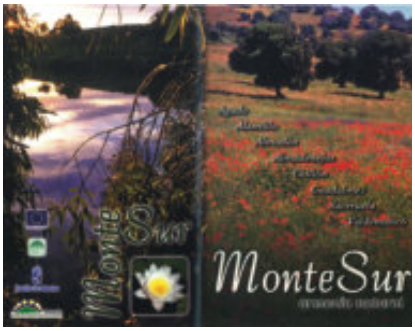
Neither should we forget the "Biocarburantes Almadén" Biodiesel Plant, which is dedicated to obtaining biodiesel from plant seeds. This plant operates according to the new concept of using natural elements to reduce CO2 emissions (Kyoto Protocol).

In the current situation, the development of tourism may not only provide inhabitants of the county with an improvement in their income levels, but it may also have beneficial effects on rural society, by helping to avoid isolation and abandonment of the municipalities and therefore allowing for them to recover and maintain alternative activities.

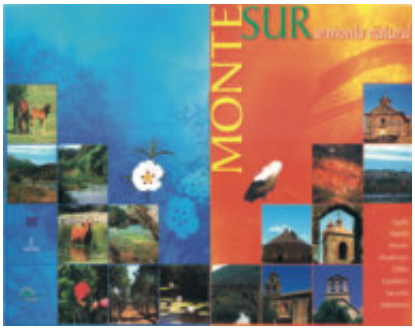
Based on the foregoing, it may be said that the most important plans related to the county of Almadén correspond to economic development in various sectors in order to make use of the resources that are available in the area:

a) Agro-foods sector: various companies have been set up and are dedicated to the manufacture of derivatives from Iberian pork and game, cheeses made from Merino sheep milk, the canning of pickled aubergines, the strengthening of livestock farming cooperatives and the use of municipal slaughterhouses, etc. In the municipality of Almadenejos, more than 5,000 calves are bred each year by the Pedroches Valley Cooperative.

b) Development of infrastructure in the "Pozo de las Nieves" industrial estate, which includes 63 plots equipped with all of the urban planning requirements needed for installing all types of industries. The location of this industrial estate is outside the limits of the proposed buffer zone. It does not interfere in the protected ensemble, but it does represent an

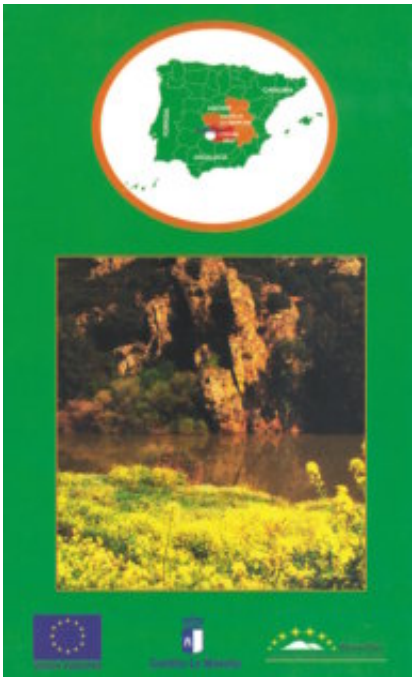


001 073A PROMOTION OF RURAL TOU ISM IN ALMADÉN'S COUNTY



001 074A PROMOTION OF RURAL TOURISM IN ALMADÉN'S COUNTY





001 071A PROMOTION OF RURAL TOURISM IN ALMADÉN'S COUNTY

001 072A PROMOTION OF RURAL TOURISM IN ALMADÉN'S COUNTY

important source of employment. At the moment, the second stage of the extension of the "Pozo de las Nieves" Industrial Estate, which has already been completed and which adjoins the previous extension, is underway, covering a surface area of 100,000 m2. September 2007 saw the instalment of the new companies, from sectors as diverse as construction materials, the manufacture of metallic elements, etc.

On the other hand, the Barbudillos business park is located 3 Km south of Almadén, outside the buffer zone. After the research and information stage, the works will begin in 2011.

There are plans to construct a next-generation 20 MW Thermoelectric Solar Energy Plant and another 16 MW Biomass Energy Plant in the county, which will represent for Almadén further diversification in the generation of clean energies.

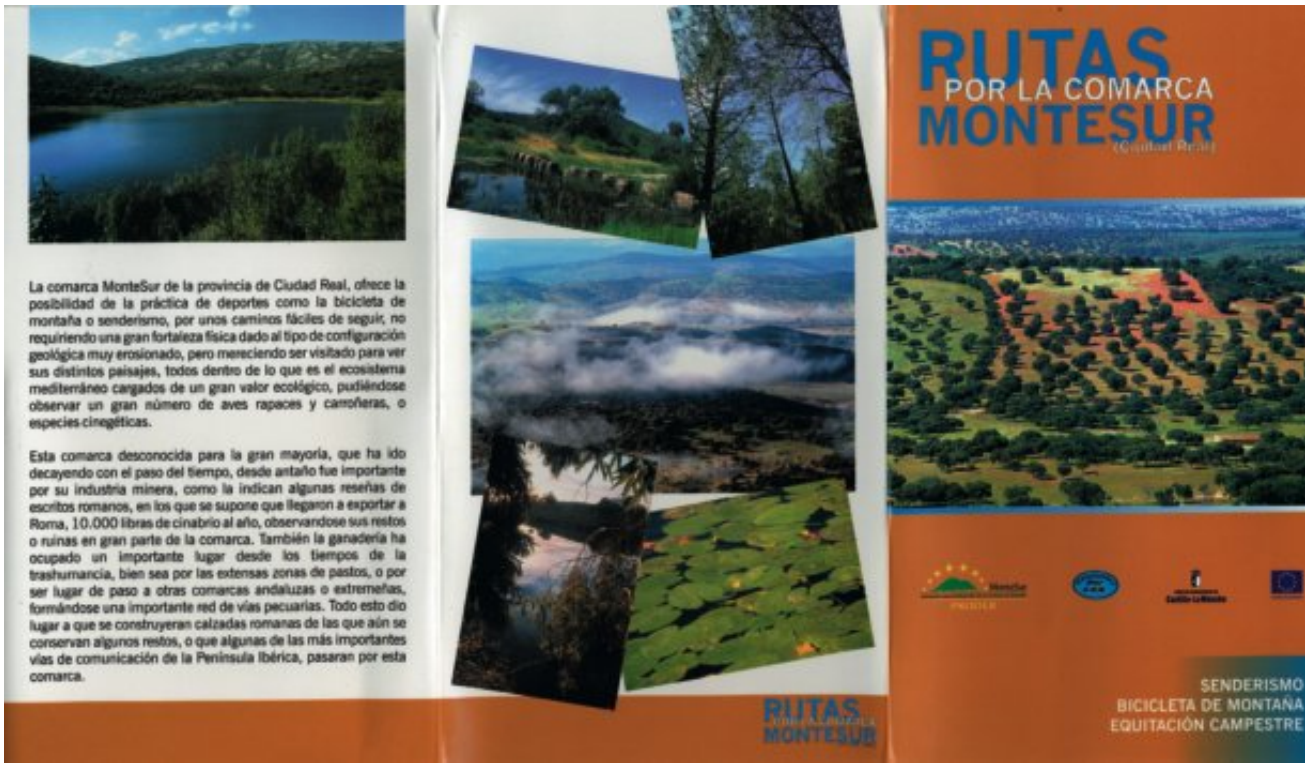
Neither may we forget to mention the reinforcement of the sector of university research, with the construction of an Environmental Biogeochemistry Laboratory at the School of Mining and Industrial Engineering in Almadén, and the European Mercury Research Centre, as well as the Technological National Centre of Mercury Decontamination, which will be established in 2011 in the installations of Minas de Almadén y Arrayanes.

c) Hunting, which is organised in order to protect certain species – for example, birds, in the Special Bird Protection Zone.

d) Promotion of rural tourism. This has already led to a certain degree of development of various manifestations of rural tourism, accompanied by the construction of hotel accommodation on the scale of this type of activity.

The recovery and management plan for the Almadén Mine, undertaken by the Company Sociedad Minas de Almadén y Arrayanes, which is described in the section on management, represents a major invest-

001 075A PROMOTION OF RURAL TOURISM IN ALMADÉN'S COUNTY



ment of ideas and resources that will generate important benefits, not only for the cultural heritage, but for the socio-economic development of the inhabitants of this town.

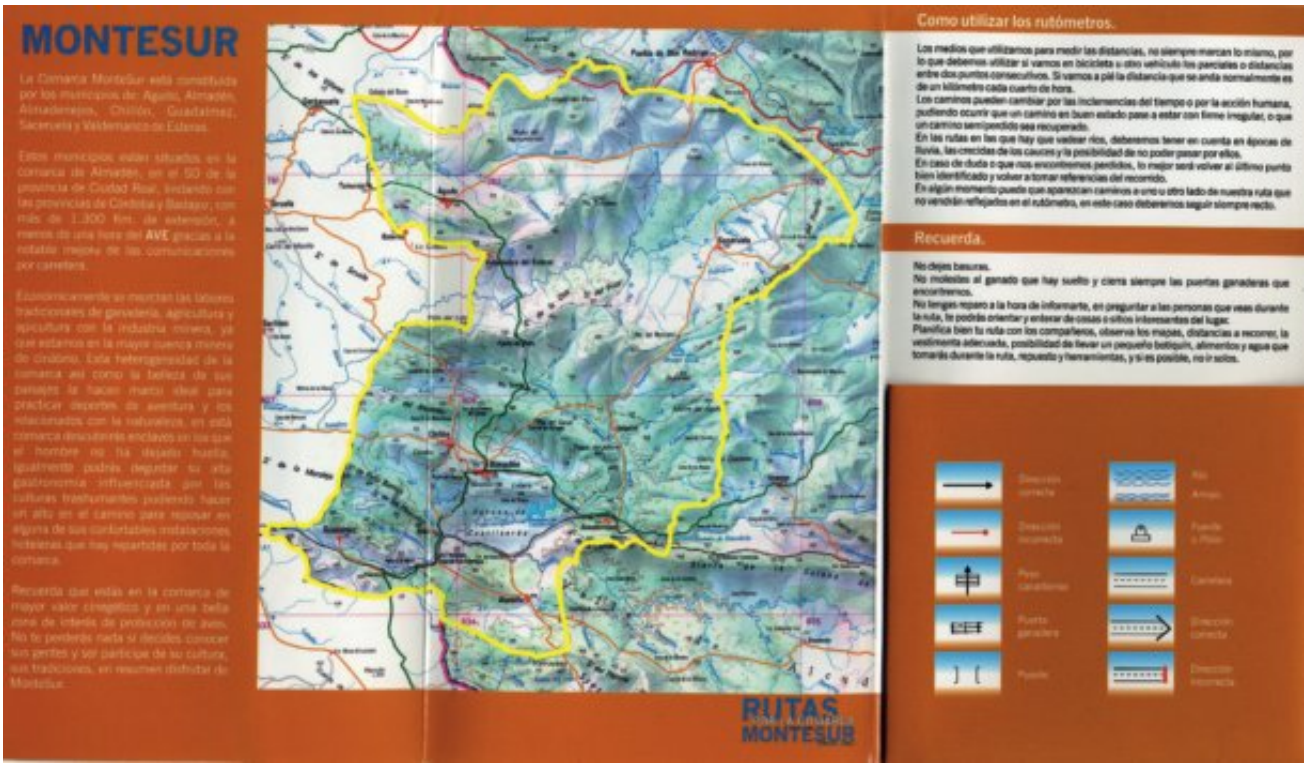
As regards infrastructure, projects have already been drawn up for a ring road to divert heavy traffic from the area proposed in this dossier and an expressway that will contribute to considerably improving access to Almadén, despite not affecting it directly. A project to build an airport in Ciudad Real is currently under study.

The regional development plans for Castile-La Mancha include the following:

The Regional Development Plan, the Regional Operational Programme the Regional Plan for Innovation in Castile-La Mancha (PRICAMAN), the Regional Plan for Scientific Research and Technological Development (PRICYT) to which the Innovation Plan was added (PRINCET, 2005-2010), the Strategic Plan on Telecommunications and the Information Society, etc.. These plans and programmes are based on the needs and potential of the Region and are the result of the consensus reached by the most representative economic, social and institutional agents in Castile-La Mancha. On some occasions, these plans have carried out projects linked to the European Regional Development Fund, such as the project linked to the Regional Innovative Initiatives Programme (PRAI), by the name "eCastilla-La Manch@" (FEDER 2000-2006), which received 2,904,510 euros from the European Commission and 2,124,033 euros funded for the most part by the Regional Government, as well as a small financial contribution from the private sector.

Among other objectives, these programmes pursue the following: To increase and improve human resources and scientific and technological infrastructure; to improve the connection between the knowledge-generating system and the productive system; to promote corporate innovation; to promote the culture of research and innovation among citizens, etc..

001 076A PROMOTION OF RURAL TOURISM IN ALMADÉN'S COUNTY



As regards the plans on issues related to the Environment and Rural Development, throughout 2008 the Autonomous Community Government invested approximately one million euros on a daily basis in order to promote sustainable development in Castile-La Mancha, protecting the natural environment and bringing balanced development to the territory. In total, 377 million euros, i.e. 10.78% more than in 2007.

Some of the objectives were to provide subsidies for the owners of tillage and livestock farms and forestry properties located in the Natura 2000 Network; the Green Fund, intended for support, conservation and sustainable development in parks, reserves and natural monuments in the Protected Areas Network; special plans for the recovery and conservation of endangered species, as well as the purchase of rural plots in areas subject to special protection, wetlands and land in protected areas.

Other initiatives contemplated improving and repairing rural lanes and infrastructure, the programme for Compensation in Mountainous and Disadvantaged Areas, the Programme for Reforestation of Agricultural Land, the II Solid Urban Waste Plan, the construction of recycling depots or eco-parks, the sealing of landfills and the recovery of dumps, the Plan on Waste from Construction and Demolition, the application of the Environmental Impact Assessment Act, the follow-up on the National Assignments Plan on climactic change and the extension of the Air Quality Surveillance and Control Network, etc.

The Castilla-La Mancha Rural Development Programme, approved by the European Commission Decision C(2008) 3832, of 16 July, is the programme document listing all European Agricultural Fund for Rural Development (EAFRD) co-funded actions in the field of rural development which will be carried out in Castilla-La Mancha in the period 2007-2013.

Axis 2 "Improving the environment and the countryside". Measures included in this axis are focused on developing methods of land use compatible with the need to protect the environment and the natural landscape, and to protect and improve natural resources.

Planned investment for this axis is as follows:

Axis 2 funding	EAFRD funding	'AGE' funding	REGIONAL funding	LOCAL funding	PRIVATE funding	TOTAL funding
Improving the environment and the countryside	362,612,472	238,878,195	186,797,317	0	5,000,000	793,287,984

EAFRD. European Agricultural Fund for Rural Development.

'AGE'. National government funds ('Fondos de la Administración General del Estado').

Moreover, there will be programmes dedicated to sustainable forestry management, including among other aspects, fire prevention and the promotion of forestry. There are also plans to improve and provide resources to the Environmental Education Facilities Network, to create Sustainable Development Offices at county level and a line of subsidies intended for the Network of Sustainable Cities and Towns in Castile-La Mancha, as well as the integrated management of the industrial environment and the integrated geographic information system.

As regards young people, the III Plan for Youth in Castile-La Mancha (PRA, 2009-2012) (which requires the participation of city and town councils) was approved by the Government Council of Castile-La Mancha on 28th July 2010 and is dedicated to education, training and employment, housing, new technologies, youth mobility, participation and volunteering, solidarity and equal opportunities, culture and sport, leisure, free time and quality of life. This plan represents a renewal of the existing devotion and commitment of José María Barreda, President of this Autonomous Government with its young people.

The plan is mainly based on a regional youth common policy which implies the participation and coordination of different institutions like the city councils. The most remarkable measures are policies devoted to emancipation, health, quality of life related to welfare, information and new technologies.

In the Castile-La Mancha region, there are many other plans in different areas, such as the Integrated Plan on Employment, which has been reinforced due to the existing level of disemployment, the 2010-2014 Strategic Plan on Organisation and Promotion of Tourism of Castile-La Mancha (, which was approved in January 2010, as well as the Plan to Kick-Start Tourism and the Strategic Handicrafts Plan, which started in 2008; the Library Development Plan, the Travelling Libraries and many more.

Many of these plans and programmes are linked to the existence of other general plans at national level, which are drawn up on a coordinated basis by the State and the various Autonomous Communities, establishing a specific programme for each one within the general framework. The economic and social agents involved also take part in drawing up these plans. Among others, mention should be made of the National Strategic Rural Development Plan (2007-2013); the National I+D+i Plan (2008-2011) which, by means of public calls for applications, develops the priorities of science and technology in a wide range of sectors; the Spanish Tourism Plan, Horizon 2020, which follows the Integrated Plan for the Quality of Spanish Tourism (2000-2006), and other very diverse examples, such as the National Aerial Orthophotography Plan (PNOA), plans to promote reading, plastic arts, scenic arts, etc.. all of which are applied in Castile-La Mancha.

On the other hand, at local level, in February 2007 the Town Council took in charge the elaboration of the Municipal Land Regulation Plan (POM), which was submitted to the mandatory public information period (Official Gazette of Castile-La Mancha number 164 and 169 of 8th August 2008 and 31 August 2009 respectively; Official Gazette of the Province of 8th August 2008, the "Tribuna de Ciudad Real" Journal of 30th of July 2008 and "Lanza" journal of 30 July and 17 August 2008); The plan was then initialy approved at the Plenary Session of the Town Council held on 27th May 2010; Notwithstanding, as a result of the remarks and claims made, the Provincial Council on Land Regulations and Urban Plans decided on 15th December 2010 the provisional suspension of the plan until the administrative dossier and the technical document are amended and completed according to its instructions. The POM includes an appendix dedicated to the Special Plan for the Historic Centre of Almadén, contained in the settlement area of the component being proposed. This plan may be summarised as follows:

Municipal Land Regulations Plan (Summary)

Urbanatura Technical – Legal Team (Writer): Report On Municipal Land Regulations Plan.- Contract for the provision of assistance and advisory serv-

ices to local entities in the Province of Ciudad Real. Technical Assistance.- *Advisory service*.- Provincial Government Council of Ciudad Real.- 2007

1. Content Of The Municipal Land Regulations Plan (P.O.M.)

The purpose of the Municipal Land Regulations Plan (POM) is to define urban planning regulations for the entire extension of the municipality and organise management of implementation of the plan.

To be specific and considering the case at hand, the POM (Municipal Land Regulations Plan) shall establish, among others, the urban planning decisions regarding the detailed classification of specific areas of the urban unit, with the objective of restructuring its consolidation, without detriment to the possibility of deferring them to Special Internal Rehabilitation Plans (PERI).

The content of POM (Municipal Land Regulations Plan) shall be expressed in the following documents:

- Report containing information and justification.
- Information Plans.
- Urban Planning Regulations and planning, development and management records.
- Catalogue of Protected Elements and Spaces and Catalogue of public residential land.
- Land Regulations Plans.

Among other aspects, the POM (Municipal Land Regulations Plan) should analyse the existing landscape and ecological values, the urban and historic-artistic ensembles in existence, the socio-economic characteristics of the population of the municipality and foreseeable trends in its demographic evolution.

On the basis of the analytical-informative content in which the above aspects are included, the territorial model to be implemented shall be described and reasoned out.

Based on the body of legislation related to Land Regulations and Urban Planning[4], the criteria of the urban planning regulations, the elements of the territorial model or solution proposed by the POM (Municipal Land Regulations Plan) which the new land regulations follow, including the new growths, should justify the coherence of its integration in the existing territorial structure of which the historic quarter is a fundamental part.

Among the most interesting documents from the point of view of conserving the Historic Quarter of Almadén is the Catalogue of Protected Assets and Spaces (CAT), which will formalise the public policies of conservation, rehabilitation or protection of the real estate elements and spaces considered to be of relevant value because of their artistic, historic, palaeontological, archaeological, ethnological, architectonic or botanic interest, and those that are conceived to be decisive or integrated in a characteristic or traditional atmosphere, or representative of the common cultural tradition or for reasons related to landscape or nature.

Although the Municipal Land Regulations Plan includes the relevant CAT, it may be approved on on independent basis or as part of Special Plans.

Report on Municipal Land Regulations Plan

The purpose of the CAT is to describe the state of conservation of the property that are included and the measures for protection, preservation and maintenance. It is the team of writers that defines the content of the CAT, in which at least the following rules from article 67 of the Planning Regulations (RP) must be followed:

"a) The possibility of installing commercial signs or similar should be

[4] The contents of Act on Territorial Land Regulations and Urban Planning Activity for Castilla – La Mancha (Act 1/2003 of 17th January), the LOTAU (Territorial Land Regulations and Urban Activity Act) and its Planning Regulations (RP) have been reflected and updated in the new Legislative Decree 1/2010 of 18th May 2010, which approves the Reworded Text on Land Regulations and Urban Planning Activity in Castile-La Mancha (Official Gazette of Castile-La Mancha of 21st May 2010)

restricted for all catalogued elements and partial rehabilitation work on ground floors should be limited; the latter according to the terms that are necessary in order to preserve the image of the elements and ensure that they remain coherent.

b) Unless there is a provision to the contrary in the planning or in the actual Catalogue, it shall be understood that protection is extended to the entire plot on which the catalogued element is located.

c) In the event of the disappearance of catalogued constructions or buildings, the disassociation from the regime derived from the land cataloguing that has been used in support shall require modification of the relevant CAT.

The CAT shall establish the decisions on preservation of assets included in accordance with the following levels of protection, according to article 68 of the Planning Regulations (RP):

- Comprehensive protection level: which shall integrate buildings in which architectonic or constructive characteristics should be preserved.
- Partial protection level: which shall include the constructions and premises in which the elements that define the architectonic or spatial structure should be preserved and those of intrinsic value.
- Environmental protection level: which shall be extended to those buildings or ensembles that contribute towards defining an environment that is worthy of protection because of its beauty or traditional character.

The catalogue shall also establish the type of works that may be authorised on the buildings and the regime of uses according to the protection level to which they are assigned in accordance with the guidelines defined by the actual Planning Regulations (RP).

The POM (Municipal Land Regulations Plan) shall use the catalogue to delimit the historic nucleus as a differentiated zone, so that the urban planning land regulations may not allow for indiscriminate replacement of buildings and that they may demand that conservation, implementation, rehabilitation or renovation should be carried out in harmony with the historic typology.

The CAT shall consist of the following documents:

- Report containing information and justification
- Complementary studies
- Information plans
- Individual record
- Location map
- Regulations

2. Procedure for approval of the General Plan

The procedure for filing and approval of the POMs is expressly regulated in arts. 36 and 37 of the Legislative Decree 1-2010 on Territorial Land Regulations and Urban Planning Activity in Castile-La Mancha and described by the content of arts. 38 and following of the Planning Regulations.

It is necessary for the Town Councils to comply with the so-called preparatory acts for the Plan, as well as the public exhibition of this preparatory work

To summarise the procedure for filing a POM, it should be explained that these Plans are drawn up and promoted by the respective Municipalities, including consultations to other administrations (in accordance with expectations on inter-administrative charters).

Art. 36 of the Legislative Decree 1-2010 on Territorial Land Regulations and Urban Planning Activity in Castile-La Mancha provides as follows:

"During the technical writing of the plans, the Administration promoting same shall engage in consulta-

tions with other Administrations or entities that represent citizen groups that are particularly affected, reflecting the results in the document that is drawn up. In the case of Municipal Land Regulation Plans, it shall be mandatory in preparing the inter-administrative charter to engage in consultations with the adjoining Municipalities, with the Administrations whose competencies and public properties are affected and, particularly, when the state of instruction allows to identify its basic and structural definitions, with the Department that is competent in the area of territorial and urban planning land regulations in order to define a municipal territorial model that is suited to the supra-municipal content and where applicable, with the Territorial Land Regulations in force.."

Interested entities and bodies may formulate and forward advance proposals to the Municipalities and the Department that is competent in matters of urban planning in order that they may be used as a guideline in writing the plans.

Approval of the advances shall only have the internal administrative effects of preparing the writing or formulation of the relevant urban planning land regulations instrument by the competent body. However, these advances are used when preparing the administrative charter referred to in art. 36 of the Legislative Decree 1-2010 on Territorial Land Regulations and Urban Planning Activity in Castile-La Mancha

1. Technical writing of the POM (Municipal Land Regulations Plan). The consultations and initiatives that are aimed at preparing the inter-administrative charter referred to in this art. 36 of the Legislative Decree 1-2010 on Territorial Land Regulations and Urban Planning Activity in Castile-La Mancha, shall be reflected in the dossier by means of the incorporation of the following documents:

- The advance proposal and partial draft projects that have been used in writing the document.
- The suggestions and request letters presented by the various interested parties.
- The reports that have been issued or, in the absence of the latter, the applications made to the said administrations or entities in order that they might issue same.

If any, the minutes of meetings held to deliberate on the Plan while it is being drawn up and the certificate of the agreements and decisions issued by the various bodies.

2. Public Information.

A timeframe for public information on the text and the reports issued by other bodies and adjoining Municipalities is subsequently opened.

The public information period must last at least one month after the mandatory notice is published in the Official Gazette of Castilla-La Mancha and in one of the most widely-read newspapers in the latter region. During this period, the draft of the plan that has been written must be left for public consultation in the premises of the Municipality or Municipalities affected by the land regulations to be established, which shall be named in the published notice.

The timeframe for public information on the plans shall commence the day after the aforementioned notice is published.

The Department that is competent in the area of territorial land regulations and urban planning shall, within one month of presentation of the charter document, issue a report in which it shall issue its verdict on the territorial model defined in the presented document and on the convenience or otherwise of considering the charter stage to be over.

Reports must also be requested on a simultaneous basis from the various

competent Departments and bodies in the Administrations that are required by the legislation regulating their respective competences, unless inter-administrative agreements have been reached in advance. The same is true of the reports that are established in other laws, such as those referring to Roads, Artistic Heritage and Water.

The Planning Regulation establishes the obligation to request the report from the Department of Public Works if the plan is liable to affect water supply and sanitation, as well as from the Department of Social Welfare regarding accessibility and the Department that is competent in the area of territorial land regulations and urban planning. A verdict is also required of the Municipalities that are adjoining to the one promoting the plan in such cases as are described in the regulations, unless an agreement on the content of the land regulations to be established has been reached with them in advance.

3.- Approval by the Plenary Session of the Town Council or competent body in the promoting Administration.

The next step is approval by the Plenary Session of the Town Council or competent body in the promoting Administration, thus ending the procedure followed before the Town Council.

It shall then be forwarded to the Department that is competent in territorial land regulation and urban planning issues in an application for definitive approval.

4.- Consultation and analysis stage.

After this formality, the Department commences a period of consultation and analysis of the Plan with the affected administrations, at the conclusion of which the Department proceeds to total or partial definitive approval (with corrections), suspension or refusal of the Plan.

In this regard, it should be noted that after forty days have elapsed since the application for definitive approval, the Administration promoting the Plan may request that it be resolved without further delay if it considers it to be opportune for the consultative period to be concluded on an immediate basis. If three months elapse without any express resolution on this new application, the Municipality or Administration promoting the Plan may ask the Department to acknowledge and publish the definitive approval.

5.-Dissemination of the Plan.

The agreements to approve the urban planning land regulation plans shall be published in full by the Town Council in the Official Gazette of the Province, which means that they shall produce binding effects and all the other consequences established in art. 157 of the Planning Regulations (RP).

In the interest of ensuring this dissemination, a full copy of the POM in question, including any amendments and updates, shall be forwarded to the Town Council and to the Department that is competent in matters of territorial land regulations and urban planning.

6.-Current stage of work

The work on the POM (Municipal Land Regulations Plan) is currently at a revision stage. The official starting dates of the proceedings have been as follows:

The contract for the Writing of the Municipal Land Regulations Plan was approved by the Government Council on 2nd February 2007.

The administrative contract for consultancy services and assistance in writing the Municipal Land Regula-

tions Plan for Almadén and the Environmental Impact Study was signed on 28th February 2007.

Once the writing of this Plan was completed, it was submitted to the mandatory public information period (Official Gazette of Castile-La Mancha number 164 and 169 of 8th August 2008 and 31 August 2009 respectively; Official Gazette of the Province of 8th August 2008, the "Tribuna de Ciudad Real" Journal of 30th of July 2008 and "Lanza" journal of 30 July and 17 August 2008); The plan was then initialy approved at the Plenary Session of the Town Council held on 27th May 2010; Notwithstanding, as a result of the remarks and claims made, the Provincial Council on Land Regulations and Urban Plans decided on 15th December 2010 the provisional suspension of the plan until the administrative dossier and the technical document are amended and completed according to its instructions.

Regarding the appendix dedicated to the Special Plan for the Historic Centre of Almadén, contained in the settlement area of the component being proposed, this plan was submitted to public information (Official Gazette of Castile-La Mancha number 236 of 17th November 2008, Official Gazette of the Province number 6 of 14th January 2008 and "La Tribuna de Ciudad Real" journal of 3rd January 2008). As no remarks nor claims resulted from this period of public information, it was then approved by the Almadén Town Council at its plenary session held January 29th 2009. Notwithstanding, the Provincial Council on Land Regulations and Urban Planning decided at its meeting held October 8th 2009 to suspend definitive approval of the plan until the Almadén Town Council completes and makes the necessary corrections to the administrative dossier and the technical document, specially for adaptation to all the regulations on Historic heritage of Castile-La Mancha and the decisions of the Provincial Council on Historic and Artistic Heritage.

Consequently, the Almadén Town Council is currently completing and introducing the necessary corrections on the technical document in order to resend it to the Provincial Council on Land Regulations and Urban Planning for definitie approval.

8.-Bilateral Agreement on the Comprehensive Restoration Zone of Almadén. First phase, year 2010.

The Secretariat of State of Housing and Urban Activity of the Ministry of Public Works, the Department of Land Regulations and Housing of the Autonomous Government, and the Almadén Town Council signed an agreement on financing restoration works of buildings, private housing and other specific matters related to the Comprehensive Restoration Zone in Almadén, First Phase: 2010 (Toledo, 26th November 2010). This agreement was based on the Royal Decree 2006/2008 of 12th December which regulates the State National Plan for Restoration and Housing 2009-2012.

This zone includes 415 private houses to be restored. It is contemplated to restore 40 of them in this first phase (2010) at an estimated cost is 848, 000, 00 Euros. The total cost of the activity is 932, 800, 00 Euros including the expenses which may be generated by the management team services.

The involved public bodies consider these financial measures are necessary in order to foster residential uses, also favouring social diversity and, if this happens to be the case, resettling of residents always in accordance with the current regulations on urban planning. This will also provide elimination of architectonic barriers, while fostering accessibility and improving the energetic efficiency in the buildings.

The Comprehensive Restoration Area in Almadén (ARI) is recognised and so declared by virtue of this agreement.

Economical provisions will correspond to the Ministry of Public Works (242,400, 00 Euros representing a 25, 99% out of the total amount); also the Autonomous Government of Castile-La Mancha will contribute with 172, 100, 00 Euros, (18.45%) and the restoration promoters in this Area will be exempted of some ordinary limitations as the necessary calculation of squared metres in order to obtain the benefits of a protected budget, the limit of personal income and a minimum age of buildings. Under this agreement these limitations will not be taken into account for the projects being considered as protected restoration works and obtaining the corresponding financial help. Beneficiaries will provide a total amount of 518, 300, 00 Euros, a sum equivalent to 55, 56% of this programme. The investment to be made by each of the three partners shall be distributed in a period of two years (2011 and 2012).

The Almadén Town Council will act as manager and adviser for the development of the programme and will count on the technical assistance of a professional team. The Autonomous Government of Castile-La Mancha shall communicate the names and relevant information of the beneficiaries to the Ministry of Public Works. I shall also supervise the projects, the development of works and the accomplishment of relevant legal rules; it will establish the procedure for obtaining financial help while ensuring transparency and equal opportunities for all interested persons.

Public information and publicity of the programme shall be guaranteed by the three institutions involved in the programme.

A Bilateral Committee integrated by the Ministry of Public Works and the Autonomous Government of Castile-La Mancha will be in charge of monitoring the actions to be undertaken and will verify the accomplishment of this agreement. This bilateral committee is enabled to extend the length of the agreement if deemed necessary beyond its foreseen limit dated December 31st 2013.

(002) Idrija

5.a. Ownership

The Republic of Slovenia has a legal and technical framework for preserving, conserving and protecting heritage in place. The regulatory framework, development planning and heritage protection programmes related to Idrija are outlined in sections 5b, 5c and 5d.

A comprehensive and balanced programme of management of cultural heritage in Idrija, which will establish a single tier of management, is currently being drawn up. The drafting of the document has brought together the main specialist institutions in the field, which are already playing an important role in preserving cultural heritage in Idrija. At the moment the organisations managing individual units of cultural heritage in Idrija do so independently. The main organisations managing immovable cultural heritage in Idrija and thereby playing an important role in preserving Idrija's riches are the Idrija Municipal Museum and the Mercury Mine Idrija in Closing Ltd. (the company overseeing the mine's closure). The company owns and manages the preserved mine infrastructure and mining equipment. The maintenance of the heritage infrastructure and devices is included in the annual action plans. The museum meanwhile manages – as the list below shows - several units of immovable cultural heritage that belongs to the local community.

Data on the ownership of national cultural monuments

The following data is based on the Decree on the proclamation of technical heritage in Idrija and its surroundings as a cultural monument of national importance (Official Journal nos. 66/01, 55/02).

HRN	Name of Monument	Cadastral Municipality	Plot No.	Extent	Type of Ownership	Name of Owner or Title Holder
12	Idrijska Bela - Brus's Water Barrier on the Belca creek	Čekovnik	1049	part	state-owned	Republic of Slovenia
183	Idrija – Castle	Idrija - Town	1398	whole	public	Idrija Municipality
183	Idrija – Castle	Idrija - Town	1399	whole	public	Idrija Nursery
183	Idrija – Castle	Idrija - Town	1400	whole	public	Idrija Nursery
183	Idrija – Castle	Idrija - Town	1401	whole	public	Idrija Nursery
183	Idrija – Castle	Idrija - Town	1402	whole	public	Idrija Local Community
183	Idrija – Castle	Idrija - Town	1403	whole	public	Idrija Municipal Museum
183	Idrija – Castle	Idrija - Town	2625	part	public	Podjetje za urejanje hudournikov Ljubljana
184	Idrija – miner's house at Bazoviška 4	Idrija - Town	376	whole	public	Idrija Municipal Museum
184	Idrija – miner's house at Bazoviška 4	Idrija - Town	377	whole	public	Idrija Municipal Museum
184	Idrija – miner's house at Bazoviška 4	Idrija - Town	378	whole	public	Idrija Municipality
184	Idrija – miner's house at Bazoviška 4	Idrija - Town	379	whole	public	Idrija Municipality
186	Idrija - Mine's Theatre	Idrija - Town	1444	whole	public	Idrija Local Community
187	Idrija - Kamšt water pump	Čekovnik	1019/1	part	state-owned	Republic of Slovenia
187	Idrija - Kamšt water pump	Čekovnik	1106	whole	private	Idrija Mercury Mine
187	Idrija - Kamšt water pump	Čekovnik	1117	whole	public	Soške elektrarne Nova Gorica - TOZD Elektro proizvodnja Gorica
187	Idrija - Kamšt water pump	Idrija - Town	974	part	public	Idrija Municipal Museum
187	Idrija - Kamšt water pump	Idrija - Town	2650	whole	public	Soške elektrarne Nova Gorica - TOZD Elektro proizvodnja Gorica
187	Idrija - Kamšt water pump	Idrija - Town	2651	whole	public	Soške elektrarne Nova Gorica - TOZD Elektro proizvodnja Gorica
187	Idrija - Kamšt water pump	Idrija - Town	2684	part	public	Idrija Municipality

HRN	Name of Monument	Cadastral Municipality	Plot No.	Extent	Type of Ownership	Name of Owner or Title Holder
187	Idrija - Kamšt water pump	Idrija - Town	2716	whole	public	Idrija Municipality
3134	Idrija – Joseph's Shaft	Idrija - Town	2231	part	private	Idrija Mercury Mine
3134	Idrija – Joseph's Shaft	Idrija - Town	2232	part	private	Idrija Mercury Mine
3134	Idrija – Joseph's Shaft	Idrija - Town	2235	whole	private	Idrija Mercury Mine
3134	Idrija – Joseph's Shaft	Idrija - Town	2236	whole	private	Idrija Mercury Mine
4819	Idrija – Mine Warehouse	Idrija - Town	1443	whole	local community	Idrija Municipality
4822	Idrija - Francis's Shaft	Idrija - Town	1168	part	private	Idrija Mercury Mine
4826	Idrija - Anthony's Main Road	Idrija - Town	1460	whole	private	Idrija Mercury Mine VITAL-Gostinstvo d. o. o.
7460	Idrija - Smelting Plant	Idrija - Town	480	part	private	Idrija Mercury Mine
7460	Idrija - Smelting Plant	Idrija - Town	483/1	part	private	Idrija Mercury Mine
7460	Idrija - Smelting Plant	Idrija - Town	505	part	private	Idrija Mercury Mine
7460	Idrija - Smelting Plant	Idrija - Town	506	whole	private	Idrija Mercury Mine
7460	Idrija - Smelting Plant	Idrija - Town	507	whole	private	Idrija Mercury Mine
7460	Idrija - Smelting Plant	Idrija - Town	508	whole	private	Idrija Mercury Mine

Last updated: December 2010

Ownership structure

There are a total of 79 cultural heritage units inscribed in the Cultural Heritage Register within the nominated area, including 45 within the protected old town and 34 in the proposed Buffer Zone.

Ownership structure for the whole area (old town and Buffer Zone):

- 41% privately-owned
- 32% locally-owned
- 23% Church-owned
- 4% state-owned

Ownership structure for the protected old town:

- 33% privately-owned
- 33% locally-owned
- 27% Church-owned
- 7% state-owned

Managers of the monuments

The most important monuments in the Idrijan area are managed as follows:

No.	Name of object	Managed by	Contact
1.	Kamšt water pump	Idrija Municipal Museum	Idrija Municipal Museum
2.	Rake water channel	Soča Power Company Nova Gorica	Soča Power Company Nova Gorica
3.	Smelting Plant	Mercury Mine Idrija in Closing Ltd.	Idrija Mercury Mine
4.	Anthony's Main Road	Mercury Mine Idrija in Closing Ltd.	Idrija Mercury Mine
5.	Joseph's Shaft	Mercury Mine Idrija in Closing Ltd.	Idrija Mercury Mine
6.	The Engine Room of the Inzaghi Shaft	No manager assigned (owned by the Idrija Municipality, used by the local Tourist Information Centre)	No manager assigned (owned by the Idrija Municipality, used by the local Tourist Information Centre)
7.	Francis's Shaft	Mercury Mine Idrija in Closing Ltd.	Idrija Mercury Mine
8.	Miner's house	Idrija Municipal Museum	Idrija Municipal Museum
9.	Secondary School of Natural Sciences	Jurij Vega Secondary School	Jurij Vega Secondary School
10.	Mine's Theatre	Idrija Municipality	Idrija Municipality
11.	The "Švica" building of flats	Idrija flats company – owned privately	Idrija Municipality
12.	Church of the Holy Trinity	Idrija Diocese	Idrija Diocese
13.	Gewerkenegg Castle	Idrija Municipal Museum	Idrija Municipal Museum
14.	Mine's warehouse	Idrija Municipality	Idrija Municipality
15.	Gorenja Kanomlja - Kanomlja or Ov□jak Water Barrier	No manager assigned (owned by the Republic of Slovenia)	No manager assigned
16.	Vojsko – Idrijca Water Barrier	No manager assigned (owned by the Republic of Slovenia)	No manager assigned
17.	Idrijska Bela – Putrih's Water Barrier on the Belca creek	No manager assigned (owned by the Republic of Slovenia)	No manager assigned
18.	Idrijska Bela – Belca Water Barrier on the Belca creek (or Brus's Water Barrier)	No manager assigned (owned by the Republic of Slovenia)	No manager assigned

Public institutions in charge of overseeing the protection of heritage

The public institutions in charge of overseeing the protection of immovable cultural heritage and natural heritage in the area are responsible mostly for the protection of monuments:

Institution	Contact
Institute for the Protection of Cultural Heritage of Slovenia	Jelka Pirkovič, zvkds@zvkds.si
Institute for the Protection of Cultural Heritage of Slovenia, Regional Office Nova Gorica	Ernesta Drole, ernesta.drole@zvkds.si
Institute of the Republic of Slovenia for Nature Conservation, Regional Office Nova Gorica	MartinaStupar, zrsvn.oeng@zrsvn.si

5.b. Protective designation

The protection and enhancement of cultural heritage is specific in that aside from the framework Cultural Heritage Protection Act and associated regulations (decrees and ordinances), it is also the subject of all legislation dealing with spatial planning, balanced regional development, construction and various development and spatial documents, both at the national and local levels.

A key to protecting and enhancing cultural heritage sites in Idrija is clearly defined ownership, management rights, and responsibilities over immovable and movable cultural heritage. The following is a list of the regulations - international, national and local - dealing with the protection and development of cultural heritage, spatial development and planning.



Protective designation for the heritage units and sites in the Core Zone

The following heritage units in the Core Zone are listed cultural monuments (HRN = Heritage Register Number; NM = Monument of National Importance; LM = Monument of Local Importance):

HRN	Name	LM	NM
Decree on the proclamation of cultural and historical monuments and natural monuments in the Idrija area Idrija (OJ SRS nos. 16/86, 17/88, OJ RS nos. 56/93, 45/97, 131/03, 45/07, 115/07, 16/08, 20/09).			
182	Idrija – Old Town	LM	
506	Gorenja Kanomlja - Kanomlja or Ovčjak Water Barrier		NM
3691	Idrija – Church of the Holy Trinity	LM	
3693	Idrija – Chapel of Saint John Nepomucene	LM	
4814	Idrija – house at Kosovelova 8	LM	
4817	Idrija – house at Ulica Vinka Mohoriča 1	LM	
4818	Idrija – house at Wolfovo stopnišče 2	LM	
4821	Idrija – marker at the Lazars house	LM	
4827	Idrija – School of Lace-Making	LM	
4829	Idrija – Secondary School of Natural Sciences	LM	
17640	Idrija – vault of the Church of St. Barbara	LM	
27519	Mercury route	LM	
Decree on the proclamation of technical heritage in Idrija and its surroundings as a national cultural monument (OJ RS no. 66/01, 55/02)			
12	Idrijska Bela – Belca Water Barrier on the Belca creek (or Brus's Water Barrier)		NM
183	Idrija – Castle		NM
184	Idrija – miner's house at Bazoviška 4		NM
186	Idrija – Mine's Theatre		NM
4819	Idrija – Mine's Warehouse		NM
4822	Idrija – Francis's Shaft		NM
4826	Idrija – Anthony's Main Road		NM
Decree on the proclamation of the Zgornja Idrijca Landscape Park (OJ RS nos. 11/93, 37/95)			
189	Vojsko – Idrijca Water Barrier		NM
593	Idrijska Bela – Putrih's Water Barrier on the Belca creek		NM

Protective designation for the heritage units and sites in the Buffer Zone

The following heritage units in the Buffer Zone are listed cultural monuments (HRN = Heritage Register Number; NM = Monument of National Importance; LM = Monument of Local Importance):

HRN	Name	LM	NM
Decree on the proclamation of cultural and historical monuments and natural monuments in the Idrija area Idrija (OJ SRS nos. 16/86, 17/88, OJ RS nos. 56/93, 45/97, 131/03, 45/07, 115/07)			
3692	Idrija – Church of Our Lady of Sorrows	LM	
4816	Idrija – house at Ulica zmage 1	LM	
4820	Idrija – marker near Kumer	LM	
4823	Idrija – Inzaghi Shaft	LM	
4825	Idrija – Čermak-Špirek furnace no. 2	LM	
4828	Idrija – Forestry School	LM	
Decree on the proclamation of technical heritage in Idrija and its surroundings as a national cultural monument (OJ RS no. 66/01, 55/02).			
187	Idrija – Kamšt water pump		NM
3134	Idrija – Joseph's Shaft		NM
7460	Idrija – Smelting Plant		NM

International conventions and charters

National and local policies of protecting and preserving cultural heritage are carried out so as to observe the provisions of the following ratified international conventions and charters:

- Convention Concerning the Protection of the World Cultural and Natural Heritage, UNESCO 1972;
- Convention Concerning the Protection of the World Cultural and Natural Heritage (Official Journal of the Socialist Federative Republic of Yugoslavia no. 56/74);
- European Charter of the Architectural Heritage, Council of Europe 1975;
- Convention for the Protection of the Architectural Heritage of Europe (Official Journal of the Socialist Federative Republic of Yugoslavia no. 4/91);
- Hague Convention: Convention for the Protection of Cultural Property in the Event of Armed Conflict, 1954;
- Convention for the Protection of Cultural Property in the Event of Armed Conflict (The Hague Convention) and accompanying protocols and implementation regulations (Official Journal of

the Federative People's Republic of Yugoslavia no. 4/56), International treaties on the protection of monuments and other protocols to the Convention (Official Journal of the Republic of Slovenia no 22/03);
- Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property, 1970;
- Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property (Official Journal of the Socialist Federative Republic of Yugoslavia no. 50/73);
- Charter for the Protection and Management of the Archaeological Heritage (1990) and Amended European Charter of the Architectural Heritage (Official Journal of the Republic of Slovenia no. 7/99).

National legislation

The Constitution of the Republic of Slovenia and national legislation dealing with culture, spatial planning and defence and civil protection:

- The Constitution of the Republic of Slovenia (OJ RS no. 33/91-I);
- Act on Enforcing Public Interest in the Field of Culture (OJ RS no. 96/02, 123/06-ZFO-1, 7/07 Odl. US: U-I-35/04-11, 53/07, 65/07 Odl.US: U-I-276/05-11);
- Cultural Heritage Protection Act (OJ RS no. 7/99, 110/02-ZGO-1, 126/03-ZVPOPKD, 63/07 Odl. US: Up-395/06-24, U-I-64/07-13)
- General Administrative Procedure Act (UPB-2/OJ RS no. 24/06)
- Spatial Planning Act (OJ RS no. 33/07);
- Act on Protection of Nature (ZVO-1-UPB1/OJ RS no. 39/06)
- Construction Act (ZGO-1-UPB-1/ OJ RS no. 102/04, 14/05 - popr., 120/06 Odl.US: U-I-286/04-46);
- Defence Act (Zobr-UPB1/ OJ RS no. 103/04); Risk Preparedness
- Ordinance amending the spatial aspects of the long- and mid-term social plan of the Republic of Slovenia (OJ RS no. 11/99).
- Decree on the proclamation of technical heritage in Idrija and its surroundings as a national cultural monument (OJ RS no. 66/01, 55/02, 16/08, 20/09).
- Decision of the Government of the Republic of Slovenia of 24 December 2009 (60th regular meeting, Decision no. 47701-16/2009/6 on initiation of regular liquidation proceedings of the Rudnik živega srebra Idrija d.o.o. company).
- Decision of the Government of the Republic of Slovenia confirming the starting points of the programme of comprehensive protection of cultural heritage and high natural values related to the Idrija ore deposit, in Idrija, Ministry of Culture, no. 6221-23/2009/41, 27 October 2010.

Local regulations

Local legislative regulations dealing in detail with the support of activities of the local community related to protection of cultural heritage in Idrija:

- Decree on the proclamation of cultural and historical monuments and natural sights in the area of the Municipality of Idrija (OJ SRS nos. 16/86, 17/88, OJ RS nos. 56/93, 45/97, 131/03, 45/07, 115/07);
- Decree on the proclamation of the Zgornja Idrijca Landscape Park (OJ RS nos. 11/93, 37/95);
- Decree on the establishment of the Idrija Heritage Centre public institution (OJ RS no. 55/2010)

5.c. Means of implementing protective measures

The measures for the protection and enhancement of Idrija mining heritage are being implemented sensibly and comprehensively using holistic approach while the project could only be successful by involving wide range of expertise including the spatial planning, nature protection, construction, tourism development, and the educational system...etc.

Two key stakeholders with management responsibilities over Idrija's heritage are the Idrija Municipal Museum and the Mercury Mine Idrija in Closing. Both institutions are deliberately planning the management of heritage objects and devices, as well as, the networking based on binding responsibilities and competence.

The area encompassing the mine is managed directly by the state. Since 1978, all the activities related to the closure of the mine, maintenance, rehabilitation of parts on the surface damaged by mining activities, and its monitoring, are funded from the national budget.

Based on preparation of proper Conservation Plans for the heritage assets, minimum of 50% from the cost for the preservation or restoration of the cultural heritage of national significance is being co-financed by the state.

Regarding the state of their property, the owners or managers of cultural assets have right for professional advice from the experts at the Nova Gorica branch of the Institute for the Protection of Cultural Heritage of Slovenia free of charge. Additionally, property owners of heritage objects (of national or local significance) can also bid for state financial aid issued by the Ministry of Culture through as part of public competitions by submitting conservation projects.

Prior to undertaking any activities in the urban and rural areas the developer is required to obtain the required opinions, limitations and clearance from the Institute for the Protection of Cultural Heritage of Slovenia. Extensive activities affecting the urban environment, foremost those financed with state funds, are carried out on the basis of public competitions that allow for the selection of the best architectural and urban planning solutions.

5.d. Existing plans related to municipality and region in which the proposed component of the serial property is locate

In recent years several strategic development documents, expert analyses and specialised documents dealing directly or indirectly with the preservation of Idrijan heritage and the development of the area were drafted at state, regional and local level. Below is an outline of the most important documents.

In continuation, strategic documents confirmed from competent authority and single developmental and project documents, which direct the development of individual sectors and developmental issues, are presented.

Documents on national level

Spatial Planning Strategy of Slovenia

The Spatial Planning Strategy of Slovenia is the fundamental document in Slovenia governing spatial development. It sets down the framework for spatial development for the whole of the country and introduces European-compatible standards in the field. It deals with the fundamental aspects of physical space, including its use and protection. The Spatial Planning Strategy was drawn up with a view to social, economic and environmental aspects of spatial development. Applying the fundamental principle of sustainable spatial development, the strategy dictates efficient use of space and the protection of life and goods. It places special emphasis on preserving the natural features of physical space, strengthening Slovenia's identity and its local and regional identities in a bid to give Slovenia an edge in competing with the rest of Europe.

Programmes dealing with rehabilitation of the effects of mining at the Idrija Mercury Mine

Based on the Prevention of Effects of Mining in the Mercury Mine Idrija Act (OJ of the Socialist Republic of Slovenia no. 37/87), the following programmes were drawn up to deal with and prevent the damaging effects of mining activities in Idrija:

In 1987 the »Long-term Programme of Full and Lasting Closure of the Mercury Mine Idrija« was drawn up. The programme was drafted on the basis of the understanding of the mine, the state of the mine area and mining conditions in general.

Based on the work carried out and the results of follow-up surveys and analyses a "Supplemented Long-term Programme of Preventing the Effects of Mining Activities in the Mercury Mine Idrija for 1996-2006" was drawn up in 1995.

The programme was reviewed and supplemented again in 2001. The supplemented programme bearing the title »Revised Supplemented Long-term Programme of Preventing the Effects of Mining Activities in the Mercury Mine Idrija for 2001-2006« was adopted by the Government of the Republic of Slovenia at is 101st session on 12 December 2002.

In 1995 the Government of the Republic of Slovenia adopted the »Decree on the transformation of the company Rudnik živega srebra Idrija p. o." with which the company was renamed to Rudnik živega srebra Idrija v zapiranju d. o. o. company. The only founder and owner of the company is the Republic of Slovenia.

The »Prevention of Effects of Mining in the Mercury Mine Idrija Act« (OJ RS no. 86/04) were adopted by The National Assembly of the Republic of Slovenia in 2004. The amended act expands its provisions to include the rehabilitation of the damage to the area caused by mining and the alleviation of the health effects of mining activities on former miners. The official consolidated version of the Prevention of Effects of Mining in the Mercury Mine Idrija Act was published in number 26 of the Official Journal of the Republic of Slovenia in 2005. It also included a provision (second sentence of Article 12) that after 2006, the activities of the mine be changed to allow for the operations of a museum mine as well as maintenance and monitoring activities in the unfilled part of the mine. Chapter three of Article 12 sets down that the state can transfer free of charge the property owned by the mine that is no longer needed by the mine for the purposes of maintaining the unfilled sections and that this property is in turn used as a national asset.

In April 2007 the Government of the Republic of Slovenia adopted at its session »The Programme of Maintenance of the Unfilled Sections of the Mine and Monitoring Following Final Closing Work in the Rudniku živega srebra v zapiranju d. o. o. for 2008-2012". The programme contains:

- An analysis of the conducted closing activities;
- The planned maintenance activities for the mine's entrances;
- The demolition and changed use of the surface infrastructure and buildings;
- The maintenance of the mine following the completion of closure works;
- Monitoring in the mine following the completion of the mine closure works;
- The creation of an information and research centre for mercury;
- The programme of the company's restructuring; and
- An assessment of the damage caused by mining.

Documents on regional level

Development programme and strategies

The Goriška statistical region (hereinafter the Goriška region) was established based on the 2000 Decree on Standard Classification of Territorial Units. The region was first formed for statistical purposes in 1995 and has since evolved to cover development activities (in line with the 2005 Promotion of Balanced Regional Development Act). It encompasses 13 municipalities in the Severna Primorska region in northwestern Slovenia.

The 2007-2013 Severna Primorska Regional Development Programme (Goriška statistical region) – (Severna Primorska Network Regional Development Agency, Posočje Development Centre)

The regional development programme includes the nominated area in all of the listed priorities of regional development, but foremost in:

- Sustainable environmental and spatial development of the region and regional infrastructure;
- Excellence in tourism;
- Knowledge for enterprise and development and
- Comprehensive development of rural areas.

Tourism in the region is one of the most promising business sectors, directly and indirectly incorporating many other activities. Gaming and adventure sports are among the most developed tourism services in the region. But the region also has other tourism potentials (the environment and cultural and natural heritage, wine and cuisine), which are yet to be fully utilised. All future tourism activities must be based on sustainable of the environment as well as cultural and social features. The development of tourism must include the local community, both in terms of integrating services, improving quality, promotional activities and marketing of local products, as well as encompass major investments in congress, sports (winter and summer) and spa facilities.

In the area of environmental risk, the regional development programme sets down measures to alleviate the consequences of mining at the Mercury Mine Idrija.

Developmental and project documentation of individual sectors

In the past 15 years individual sectoral development documents, foremost dealing with rural development, tourism development and spatial and infrastructure development, have been drawn up for the area incorporating the Idrija Municipality, which includes the nominated area. These documents have been drafted in cooperation with neighbouring municipalities as well as municipalities included in the Goriška region.

Development Strategy for the Emerald Route Tourism Destination – (The Sotočje Tolmin Local Tourism Organisation, 2006)

All local communities in the region were included in the adoption of the Development Strategy for the Emerald Route tourism destination. The goal of this document is to create conditions conducive to the development of the destination so as to make it competitive in Europe, highly developed and with a recognisable identity and in turn to make the regional tourism sector competitive, providing for a high standard of life of its employees and raising the general standard of life in the region.

Sustainable Spatial Planning in the Italian-Slovenian Border Region (TRANSLAND) - (ICRA d. o. o. Idrija, 2007)

In cooperation with the neighbouring areas in Italy, the region is drafting guidelines for regional spatial planning that foresees the nominated area being developed into an important municipal centre of excellence in the field of cultural heritage.

Development Plan and Management Strategy for the »Idrija Lace« Brand – (incorporating the municipalities of Idrija, Cerkno, Tolmin, Kanal, Nova Gorica, Ajdovščina as well as Logatec, Vrhnika, Horjul, Dobrova and Polhov Gradec – ICRA d. o. o. Idrija, 2004)

The aims of a marketing strategy for bobbin lace include: breathing fresh air into the identity of the Idrijska čipka (Idrija lace) brand name by renaming it to IDRIA LACE, forming a development plan for the IDRIA LACE brand name that will emphasise its transition from a geographic concept to a marketing concept and utilising the three competitive advantages of the IDRIA LACE brand name (Cultural precision, perseverance and innova-

tion that gives the lace its quality, the Idrija lace-making school, with its unmatched tradition in Europe and the bobbin lace festival with its 20-year tradition and international reputation).

Soča region - OVERTURE (Ajdovščina Municipality, 1993)

In 1993 the municipalities of Nova Gorica, Ajdovščina, Idrija and Tolmin launched the Soča Region project as part of the Overture programme. Ireland was the partner country in the project. The main task of the project was to develop a strategy of regional development (named at the time the Soča Region), which would place special emphasis on the development of tourism and small business.

Continuation of Overture Project – RILKE - (Development Agency ROD Ajdovščina, 2001)

On the basis of the first stage of the Overture project, which involved the drafting of the Soča 2000 development strategy, the municipalities of Ajdovščina, Idrija, Cerkno, Tolmin, Kobarid and Bovec decided to pursue the project further, teaming up with Italy and Spain in the process. The second stage of the Overture project was aimed at promoting the creation of new businesses in rural areas. Special emphasis was given to the development of rural tourism services. The project involved assistance being given to entrepreneurs in order to help them realise their entrepreneurial ideas.

Plan for the creation and development of the Geographical Designation Idrija Lace - (Idrija Municipality, 2000)

The name Idrija Lace was in 2000 registered as a geographical designation at the Slovenian Intellectual Property Office. The geographical designation Idrija Lace is used in the Idrija Lace Region. The geographical designation makes a distinction between »Idrija Lace« and general »lace« products as well as other types of lace. The Idrija Lace Region was created based on the rich tradition of bobbin-making in the area. Bobbin-making first appeared in the Idrija and Cerkno regions, where it thrived and was widespread. The region still boasts several hundred bobbin lace-makers.

Rural Development Programme for the North-Western High-Lying Parts of Severna Primorska - (Tolmin Municipality, 2005)

The Rural Development Programme for the North-Western High-Lying Parts of Severna Primorska seeks to promote projects that integrate three items. The first is aimed at promoting traditional local products, promoting rural enterprise, training and educating locals and building local means of promoting and marketing rural products. The second item involves the building of infrastructure required for rural life and work, while the third is aimed at promoting the activities of the local society, building partnerships, strengthening the local identity and social ties among generations, and promoting the sustainable use of natural and cultural heritage in the area.

The other sectors implementation projects

Regional Waste Management System for Severna Primorska - (Nova Gorica City Municipality and ICRA d. o. o. Idrija, 2002-2005)

In line with the Nature Conservation Act and the 2002-2005 Operational Programme for Managing Municipal Waste, local communities were tasked with drafting a programming document dealing with the collection, management and removal of waste, as well as guidelines for establishing a regional system of municipal waste management.

Regional Cycling Network in the Goriška Region – drafting of programme and accompany projects – (ICRA d. o. o. Idrija, 2002)

The local communities in the Goriška statistical region decided in 2001 on the basis of the Regional Development Plan and past activities to draft a joint programme of developing a network of cycling routes that would reflect the tourism priorities of the various municipalities and build connections with areas in neighbouring Italy.

Programme of Upgrading the Local Road Network in North-West of Severna Primorska (Idrija Municipality, 2006)

Programme of Building Environmental Infrastructure – The Clean Soča Project – (Tolmin Municipality, 2006)

Development documents and professional framework for Idrija Municipality – The local level

The REVIT Development Programme – (Idrija Municipality, 1993)

The development programme dealing with the revitalisation of the then Idrija municipality (now the Idrija and Cerkno municipalities) was drafted with the assistance of the Bavarian Ministry of Economy and Transport. The programme sets down the priority areas of development, including: cultural heritage, Idrija lace and integration of local tourism services.

Draft Strategy of Spatial Development of the Idrija Municipality (Idrija Municipality, 2007)

The Idrija Municipality is currently drafting strategic and operational documents in the field of spatial planning. The draft versions of the documents deal with the protection of heritage and include data on units of heritage, while taking note of the guidelines and opinions regarding sustainable planning and giving regard to acts protecting monuments in the area.

Plans and guidelines for local monument conservation activities

- The Professional guidelines for the proclamation of immovable cultural and historical monuments and natural features in the Idrija Municipality, the Nova Gorica Institute for the Protection of Natural and Cultural Heritage, Nova Gorica, 1984.

- The Professional guidelines amending the spatial aspects of the long-term and mid-term social plan, Idrija Municipality, the Nova Gorica unit of the Institute for Nature Conservation, Nova Gorica, April 2000.

- The Guidelines for the protection of cultural heritage in drafting the Strategy of Spatial Development for the Idrija Municipality, the Nova Gorica unit of the Institute for Nature Conservation, Nova Gorica, December 2006.

- The Guidelines for the protection of cultural heritage in the Spatial Order of the Idrija Municipality, the Nova Gorica unit of the Institute for Nature Conservation, Nova Gorica, December 2006. The material has been handed over to the Idrija Municipality.

- Conservation programme *for Smelting plant (August 2008),*

- ***Conservation and restoration project*** *for Čermak Špirek furnace no.2 (September 2008),*

- Conservation programme *for Anthony's Main Road (March 2010),*

- Conservation programme *for Idrijca water barrier (March 2010),*

- Conservation programmes for other individual monuments are not dealt with in this document. A point should be made of the fact that written copied of documents exist for work on: all the water barriers except Idrijca water barrier, the Kamšt water pump, Francis's Shaft and the miner's house at Bazoviška 4. In all cases institutions specialising in restoration and conservation were involved in the restoration and refurbishment efforts.

5.e. Property management plan or other management system

The serial property that makes up this nomination is of a transnational but not transboundary nature, which hinders the establishment of a single management system, mostly due to differences regarding the following:

- Political, economic, legal and social characteristics of the two States in which the components of this serial property are located.
- Characteristics of the specific communities and the players involved in the management of the two sites proposed.
- Particularities of each of the sites as regards dimensions, territorial relations, etc.

However, the representatives of the two components of the seria property proposed have developed a common approach for the management system, based on the following:

1.-Acknowledgement by the two party states of the outstanding universal value of the serial property proposed and therefore, that the common management system should meet the need to preserve same, ensuring its integrity, authenticity and in general, safeguarding all of the elements in the series.

2.-Concept of management as a shared system based on the following principles:

- Concept of a shared system in which the various levels of government, institutions, centres, owners and local community participate, as well as all of the players involved in management.
- Management system based on the concept of sustainable development.
- Environmental approach. In the case of Almadén and Idrija, planning environmental protection measures to safeguard man and nature from the harmful effects of mercury.
- Development of tourism with an approach that is sustainable and based on diversity, respect for human values, the environment, history and culture.
- Concept of education and research as dynamic factors not only in social but also in economic terms.
- Consolidation of the image of communities that are historically linked to the development of education and science.
- Linking management with handicrafts and other traditional

[5] "In the case of serial properties, a management system or mechanisms for ensuring the co-ordinated management of the separate components are essential and should be documented in the nomination"

products that show the cultural significance of the site while also constituting a form of job diversification.
- Heritage conservation as a way of promoting the local and regional economy.
- Development of the inhabitants' values on the basis of their commitment to the history of the site and by means of the programmes to disseminate culture and history.

As regards the aspects related to heritage conservation, the bases are the UNESCO and ICOMOS doctrinal texts. Tourism has been present in the concept of the management system because of the unquestionable potential for economic development, attracting investments and job generation, but also as a way of disseminating the cultural values that are present and as a channel for developing multicultural dialogue. This is based on the idea, as proposed in the International Cultural Tourism Charter, 1999, that "Conservation management and tourism activities should provide equitable economic, social and cultural benefits to the men and women of the host or local community, at all levels, through education, training and the creation of full-time employment opportunities"; and further on, that "Programmes for the protection and conservation of the physical attributes, intangible aspects, contemporary cultural expressions and broad context, should facilitate an understanding and appreciation of the heritage significance by the host community and the visitor, in an equitable and affordable manner".

As stated in the ICOMOS Charter on Cultural Routes, 2009: "Tourist visits should be managed on a rational basis in accordance with prior environmental impact studies and with plans for public use and community participation, as well as control and monitoring measures intended to prevent the negative impacts of tourism".

In general, the characteristics of the type of tourism planned for the tne components of this serialproperty are as follows:

- Active, dynamic, participatory, imaginative, learned.
- Close contact with the land (nature, culture, local cuisine).
- Different motivations in the course of a journey.
- Individual. Aimed at highly specific groups. Exclusiveness and privacy.
- Distributed throughout the year. Controlled by capacity.
- Accommodation: Simple but comfortable and hygienic. Small individualized hotels. Alternative accommodation (rural houses, eco-camp sites, etc.)
- Trekking, cultural cycling trips, cross-country skiing, visits to museums, natural parks
- Defensive and respectful.
- Controlled valuation and conservation of resources.
- Development: Medium- and long-term benefits.

3.-Bipartite agreement on coordinated collaboration for the management and monitoring of conservation of the components of the serial property, scientific development and knowledge management via the institutions that are linked to the said serial property.

This agreement is based on an integrated system of development and knowledge management, by means of cooperation between the educational and research entities and the interpretation centres and museums linked to mining activity, mining culture and other aspects related to mercury. Similarly, academic and technical training on the specific aspects of heritage conservation related to the subjects that are the object of this nomination of a serial property.

This has led to the drawing up of joint research programmes, as well as the exchange of experts and bibliog-

raphy. The agreement between the universities in various locations on the granting of scholarships and exchange of professors and students is of particular importance.

The research, educational, training, information and interpretation centres and the museums that are related to this issue in the two countries shall work on a coordinated basis.

The two sites proposed for nomination have developed specific management systems based on the above principles. These systems or plans are described in detail in Chapter 7.

We shall now describe the aspects of the management system at the two components of the serial property that are derived or which follow from the common bipartite approach:

(001) Almadén

The management system for the proposed component of the serial property in Almadén site contains as its most essential component the Management Plan for the Almadén Mines, drawn up by the company Quality Grupo, at the request of Minas de Almadén y Arrayanes S.A. (MAYASA), in the year 2003.

Regardless of the basic importance of the aforementioned plan, because the mines are the engine behind the development of Almadén in the past and in the future, management of the ensemble is being developed as a system, of which the most important elements are currently the municipality of Almadén and the Francisco Javier de Villegas Foundation. Other institutions are in possession of ownership of part of the assets in Almadén and therefore they have drawn up specific management plans, but act on a coordinated basis with the aforementioned entities, themselves achieving significant landmarks in the evolution of the Almadén management system.

The approval of the European PRODER programme for Almadén and its surroundings at the end of the 1990s has also represented an important reference as, although the money devoted to the recover of heritage proper has been scant, there has been a large amount of investment in development aids for tourism-related projects, rural houses, participation in trade fairs, etc., most of which come under the umbrella of the sustainable exploitation of the area's mining heritage.

The management system at Almadén includes the following specific management plans:

	Plan	**Date of implementation**
1	**Management system developed by the Francisco Javier de Villegas Foundation**	
	Museum of the Royal San Rafael Mining Hospital	2000
	Historic Archive of the Almadén Mines.	2000
	Management Plan for the Almadén ines	Mining Park: 2006. Updated 2009 Mercury Museum and Mining Interpretation Centre: 2007

	Technological National Centre of Mercury Decontamination in Almadén	The Centre will function as an institution promoting research and technological development for mercury decontamination, training of experts, technology transfer to third countries (especially Latin America), best handling practices, transport, management and storage techniques, while also fostering technological cooperation and training and the conduction of inventories at contaminated sites. Rehabilitation works will finish in the last quarter of 2011. The Laboratory and Environmental building at the Cerco de San Teodoro, were considered the mostappropriate places for the location of this new Centre which will work with the participation of the Consejería de Agricultura Industria, Energía y Medio Ambiente of the Junta de Comunidades de Castilla - La Mancha (Department of Agriculture, Industry, Energy and Environment of the Autonomous Government of Castile-La Mancha).

Contributions to the system for managing the site:
The recovery of the industrial and mining heritage, the rebuilding of its documentary heritage, and the dissemination of the cultural heritage of Almadén
Encouraging and promoting historical and scientific awareness of the operations.
To seek funding.
Strengthening the social economy of Almadén by encouraging what has come to be called "cultural tourism".
Museum: serves as the counterpoint of the themes at the Mining Park facilities, bringing visitors closer to the human aspects of mining, showing what the daily life of the miners in Almadén was like down through history; a life that was often marked by occupational diseases, which were the reason for the building.
Historic Archive of the Almadén Mines: rebuilding of Almadén's documentary heritage. This documentation is a guarantee of the authenticity of the heritage of Almadén.
The Management Plan of the Mining Park is the instrument for designing, planning and monitoring the transformation of the mining and metallurgical installations of the Mines at Almadén into a Mining Park, understood as a centre for the transmission of cultural, educational and quality tourism values based on the conservation and recovery of its industrial, scientific and technological heritage.
It includes the mine, the Mercury Museum, the Technological National Centre of Mercury Decontamination in Almadén, and the Mining Interpretation Centre, as part of the concept of knowledge development and dissemination.

2	**Management plans that depend on the School of Mining and Industrial Engineering of Almaden**	
	Francisco Pablo Holgado Historic Mining Museum	The museum was created in the decade of the 80s.
	Royal Forced Labour Prison Interpretation Centre	Restoration of the Remains of the Royal Forced Labour Prison concluded in 2001. The interpretation centre was inaugurated in 2006.
	Laboratory on Biogeochemistry of Heavy Metals of the Applied Geology Institute.	The Laboratory is intended to study biochemical aspects of heavy metals and was created in December 4th, 2009.

Contributions to the system for managing the Almadén ensemble:
Single system concept, invitation to other players.
Dissemination of history. Education in values on the basis of the memory of the prison.
Education at the various teaching levels. Education on the conservation of the mining heritage.
Support for the teaching of Mining Engineering. Collection of minerals started in the 18th century.
School's Historic Library from the 18th century.

3	**Management plan for the Bullring Hotel**	**The hotel was reopened in 2003**

Contributions to the system for managing the Almadén ensemble:
The most important hotel in Almadén linked to the history of the mines, a monument of great value. Contributes its symbolic value while also guaranteeing part of the hotel and catering infrastructure.
It has also been destined for cultural purposes, hosting cultural activities such as exhibitions, symphony concerts, regional open-air meetings of choirs, theatre, cinema, musical performances, etc.
The County Tourist Office was set up in September 2005.

4	**The Bullfighting Museum in Almadén**	**It has been set up at the Bullring of Almadén and is managed by the Town Council.**
5	**Municipality of Almadén / School of Mining and Industrial Engineers of Almadén: Casa Academia de Minas (Royal Mining Academy)**	
	The Almadén International Environmental Geo-mining Practices Centre	Underway
	The Interpretation Centre for the Intercontinental Camino Real.	Underway



001 079A MERCURY MUSEUM



001 077A MUSEUM OF THE ROYAL SAN RAFAEL MINING HOSPITAL. GROUND FLOOR



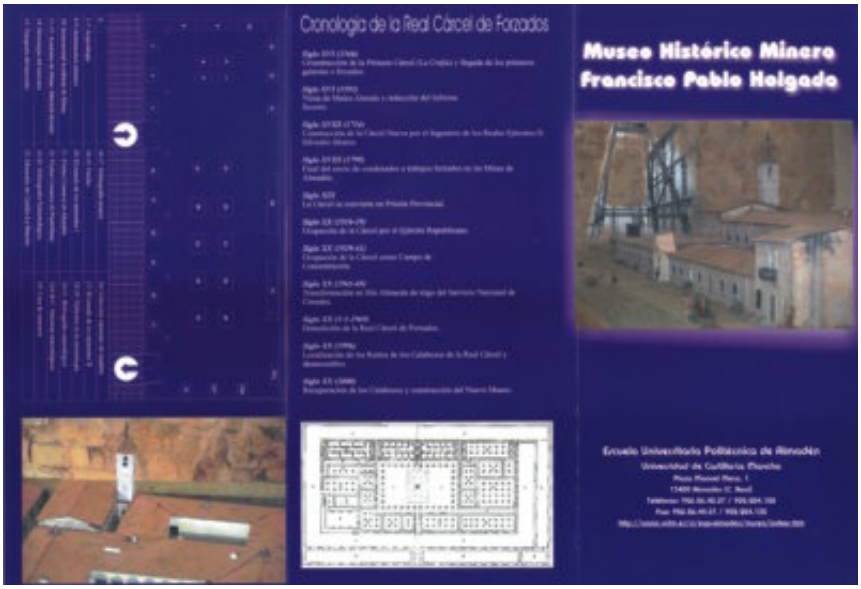
001 078A MUSEUM OF THE ROYAL SAN RAFAEL MINING HOSPITAL. FIRST FLOOR



001 080A MERCURY MUSEUM



001 081A MINING INTERPRETATION CENTRE



001 084A FRANCISCO PABLO HOLGADO HISTORIC MINING MUSEUM. BROCHURE



001 082A MINING INTERPRETATION CENTRE



001 085A ROYAL FORCED LABOUR PRISON INTERPRETATION CENTRE. BROCHURE



001 083A MINING INTERPRETATION CENTRE



001 086A ROYAL FORCED LABOUR PRISON INTERPRETATION CENTRE. BROCHURE

Pollution and its control in Almadén

Mercury production activities were discontinued in July 2003 due to several factors:

- the adoption of incipient restrictive measures in the European Union concerning mercury,
- low exploitation profitability due to mining difficulties, obsolete installations, and declining ore concentrations.

In June 2001, mining activities were stopped, and the Almadén Mine was finally closed down.

Mercury production carried on till 2003, and at that time the mining-metallurgical activities ended. In this situation, Minas de Almadén considered three follow-up actions:

- The rehabilitation of the historical heritage of Minas de Almadén, preserving and ensuring its conservation, as well as trying to find the right ways for this heritage to be known, visited and used by a wide range of people now and by future generations.
- The environmental restoration of its installations, with the aim of minimizing the effects of more than 2000 years of exploitation on the environment. Minas de Almadén has understood, unlike other mining sites, that the value enhancement strategy of historical heritage requires previous environmental restoration. Several environmental adjustments have been developed in the old mercury production installations, with continuous cleaning and decontamination activities being carried out in all installations comprising the metallurgical level. At the same time, an environmental supervision program has been maintained to control the impacts of mining-metallurgical activities.
- MAYASA discussed and reached an agreement with EUROCHLOR, an association representing European industrial interests, for the purchase of surplus mercury metal from European chlorine-alkali production plants. Since then, it has been selling this mercury as a substitute for primary production metal mercury that was no longer being extracted after the closure of the Almadén mine and metallurgy plant. This procedure is and will continue to reduce the entry of new mercury into the global cycle, and marks another step forward in the proper and efficient management of this metal and the environment. These activities will only continue until 2011, when the Community Mercury Strategy comes into force, ordering a complete halt in the production and export of mercury metal as of that year.

Special mention should be made of the following projects developed by MAYASA to protect the local environment:

San Teodoro dump restoration

An enormous amount of materials of all sorts has accumulated during centuries of mining in the vicinity of *Cerco Minero de Almadén*: sterile mine minerals, furnace slag, cleanup sludge, demolition rubble, etc. A major dumpsite was formed, whose volume is calculated at 3.5 million tons, spreading across a surface area of 9.1 hectares and reaching a maximum height of 58 metres.

The Project started in 2005 and was finished in May 2008. The in situ dump encapsulation of the dump was carried out by means of a geosynthetic package ensuring its impermeability, bank and slope stability, and adding a vegetable cover ensuring landscape integration of the dump and surroundings, as well as surface insulation.

The dump is located inside the most eastern built-up area, and constitutes a topographic elevation in relation to the relief of the remaining area. The end of the dump is well defined, fitting into the south with the Córdoba road, to the west with private ownership, and to the north with the Virgen del Castillo way.

The materials are piled up in an external dump close to San Teodoro, extending from the southeastern area to the northeast, surrounding the installations, and an inner dump of the precinct located at the southwestern end.

In January 2004, a study characterization was made of the materials placed in the dump, determining the composition of such materials – old metallurgic wastes, current metallurgic wastes, mining and other wastes.

The above-mentioned condition of the dump forced us to evaluate the existing environmental impact study for the said location. This study was carried out in 2003, and special attention was devoted to hydrological and atmospheric risks, ground occupation, vegetation and fauna impact assessment, geophysical processes, morphology and landscape, and infiltration.

The first stage involved waste heap remodeling in order to improve the existing stability conditions, and the same time to adapt its shape to the adjacent surroundings.

The final results of moving materials in order to obtain an appropriate morphology of the setting and ensure its stability include the smoothening of slopes with an average pitch of 36º up to a maximum pitch of 25º, and the removal materials from this area to smooth the slopes.

The final results of moving materials in order to attain an appropriate morphology of the setting and ensure its stability include the leveling and filling of 611,834 m^3 of materials and the creation of a superior horizontal surface flooring of 10,333 m^2 in order to obtain a less steep slope profile.

The next stage was to prevent the entry of water into the dump, thus avoiding lixiviate generation and material dispersion. To avoid mercury evaporation, insulation was placed across the entire dump surface.

The completed activities include the installation of a geosynthetic package composed of a maximum of 5 layers, depending on the slope (geotextile, bentonite, high–density permeable polyethylene, geocompounds, a geogrill of reinforcement and geocells). The waterproofed area covered more than 200,000 m^2.

To avoid any erosive effects that may affect dump stability, the next stage of restoration included collecting and circulating waters by means of ditches, drainpipes, and perimeter drains. In this way water was collected from runoff, thus avoiding any future erosive processes that may affect slope stability.

Installation of a watercourse pipe in the dump perimeter: These pipes release water through concrete prefabricated drainpipes coming out of the inferior slope under the cover ground.

The last stage of restoration was the recovery of vegetation on the rehabilitated surface, and landscape integration of the dump and the surroundings.

The completed activities included the spread of 50 cm of topsoil across the entire surface (up to 180,650 m^3), and regeneration of the vegetable covering by hydroharvest on an area of 16 ha.

Environmental Recovery Plan of the Almadén Mining Territory

While the mine excavated beneath the Almadén population was the richest, it was not the only cinnabar de-

posit mined in the district. The area surrounding Almadén is also mining territory where mercury deposits coexist with natural zones of excellent environmental and landscape quality. There were two major mines within this territory:

- The *Las Cuevas mine*, located 7 kilometres from Almadén, was an underground mine that operated until 1999. The closure plan was seamlessly executed in accordance with the Spanish mining law, featuring up-to-date control and sealing of the tailings dumpsite, which has been integrated into the landscape.
- The *El Entredicho* mine, located 15 kilometres from Almadén, operated as an open pit mine until 1997. Upon its closure, environmental restoration works were undertaken under the environmental supervision of the regional government, which included the transformation of the opening into a large lake of 11 hectares, and the removal of more than 600,000 tons of earth.

Environmental quality and management in Almadén

Minas de Almadén, aware of its main activity, which is classified under "potentially polluting industrial activities", has since 1993 undertaken a major environmental commitment – the establishment of an environmental vigilance program for water and air quality.

This program established a system ensuring the observance of applicable environmental legislation, and carried out a follow-up of the surrounding factors liable to be altered by our activities.

The mining and metallurgical production activities having ended, this environmental supervision program goes on, supervising surface flow water quality around the installations owned by Minas de Almadén on its way through and after coming off those installations, and monitors the air quality by means of a quality supervision supply system established in population settlements close to the metallurgical plant.

The extensive environmental work carried out during these last years can reliably be seen in the appropriate restoration of each and every one of the production installations whose activities have ended.

The environmental vigilance program allows us to follow the environmental restoration works carried out in different installations, as well as become acquainted with the environmental situation surrounding our installations.

Environmental Security Plan for the San Teodoro Restoration Project. Postclosure Stage.

Quality control and execution of works, as well as significant environmental activities identified for the San Teodoro dump restoration project (design project stage, construction and maintenance works), are being carried out in line with the Environmental Security Plan for the San Teodoro area restoration project guidelines.

The plan is designed to monitor the last objective of the San Teodoro dump restoration project by means of several parameters in underground water, surface, ground and air, thus preventing any harmful effects on the environment.

The vigilance plans have been made for a period of 50 years.

Security activities in the dump postclosure stage relate to water vigilance, specifically:

- surface waters,
- underground waters, and
- lixiviate pools.

The control frequency will be once monthly during the first two years after the conclusion of restoration works, and then every 6 months, unless environmental pollution is detected.

The control parameters will be, among others: pH, heavy metals, nitrates, nitrite, etc.

The proposed restoration measures aimed at diminishing the environmental effects described for the dump – dump surface waterproofing – will ensure the following:

- the avoidance of material dispersion and mercury evaporation,
- the avoidance of underground flows inside the dump,
- the drastic reduction of lixiviate production, which now has as its final destination the surrounding watercourses.

Workers' environmental control plan in Almadén

As far back as in the XVIII century, the concern about the effects that mercury could have on mine workers led to the establishment of the San Rafael Mining Hospital, which is devoted to the treatment of mercury diseases. This Hospital operated until the 1970's, when the technical systems of mining exploitation and health control contributed to the eradication of the disease. From that time onward, the harmful effects of mercury in mine workers have disappeared.

As part of Prevention Activity Planning, targeting MAYASA workers exposed to mercury, the prevention protocol calls for a series of monthly health checks at different points throughout the mine gallery, the part of the Mining Park open to visitors where part of the staff perform their activities, as well as biological control checks for mercury in blood and urine for these workers. In addition to these monthly biological and environmental checks, workers undergo a specific medical check-up once a year. All of the data collected in different urine and blood analyses of workers in the period from 2004 to the present indicate values below the BLV (biological limit value), which is a major guarantee of the working conditions of these workers, who enter the mining gallery on a daily basis.

It is therefore also safe to say that Mining Park visitors (who spend a maximum three hours within the facility, including the outdoor part of the visit) are also free from any risk.

In Prevention Activity Planning, both as regards technical measures and occupational medicine, the prevention protocol calls for a series of monthly hygienic checks of mercury in air at different points throughout the mine gallery and in the part of the Mining Park open to visitors where part of the staff perform their activities, and for the MAYASA workers exposed to mercury, biological checks of mercury in blood and urine.

After restoration works were completed, all of the environmental data collected in the mine have indicated values below ELV (exposure limit value).)In addition, the exposure time of workers who descended into the pit was reduced. They remain inside the mine for approximately 1½ - 2 hours, which is the same time spent by visitors to the mine. Therefore, all the different urine and blood analyses of workers indicate values below the limits (BLV).

Research, information, public awarness, and international cooperation in Almadén

In 2006 the MERSADE R&D-Innovation project got under way with cofunding from the European Union. This project, which draws to a close in 2009, was promoted by MINAS DE ALMADÉN Y ARRAYANES S.A. and conducted with the participation of the *Escuela Universitaria Politécnica de Almadén (Castilla la Mancha University)* and the *Centro Nacional de*

Investigaciones Metalúrgicas (Consejo Superior de Investigaciones Científicas of Spain) as partners.

Along these same lines, MAYASA made a proposal to our Ministry of the Environment for the establishment of a Mercury Technological National Centre of Almadén. The proposal was accepted and, this time with the participation of the Consejería de Industria, Energía y Medio Ambiente of the Junta de Comunidades de Castilla - La Mancha, the Centre is scheduled to be opened before the end of 2009. The Centre will function as an institution promoting research and technological development for mercury decontamination, training of experts, technology transfer to third countries (especially Latin America), best handling practices, transport, management and storage techniques, while also fostering technological cooperation and training and the conduction of inventories at contaminated sites.

The Mercury Technological National Centre of Almadén

The Almadén Mine and its installations still in use, such as the Laboratory and Environmental building at the Cerco de San Teodoro, were considered the most appropriate places for the location of this new Centre. It is obvious that a modernizing process is necessary, including the upgrading and renewal of laboratory equipment. Rehabilitation works began in the last quarter of 2009.

Following the idea of continuity, the current environmental vigilance program being implemented by Minas de Almadén since 1986 as well as its technical and auxiliary personnel, are likely to become an integral part of this new Centre.

The targets of the Almaden Mercury Technological Centre are:

- To promote research and technological development needed for the integral management of this metal, handling, transport, safety storage techniques, treatment, decontamination techniques, expert training, international cooperation, and the diffusion of knowledge on this metal.
- To dispose with data on environmental mercury levels in the Almadén district and promote correction actions where needed. To extend studies, methodology and techniques to any other area in the territory of the EU, EU accession and third countries, particularly to South America.
- Develop an active participation in the inventory of contaminated soils by providing technical support to the determination of chemical parameters, especially for mercury, and processing and data validation.
- Promote the technology transfer process by making available to other agencies and universities, both public and private, national and international levels, those skills and capabilities that have been obtained in the course of research projects sponsored by the Centre for Technology and public funded. Conducting and promoting partnerships with enterprises, universities, and entities for their application to the social and industrial environment. This collaboration will be conducted in particular with the Information and Research Centre for Mercury in Slovenia.
- To use the knowledge and experience in mercury management accumulated by MAYASA, become a technological centre of reference for this metal worldwide and advise governments and institutions thereon.
- To propose and promote the definition of and scientific support to developing policies for this metal that is considered relevant for environmental and social performance.
- Preserve and make available to society the historical and scientific legacy of mercury mining activities in Almadén and to promote their dissemination.

Steps taken in the management of the heritage of Almadén

(MANSILLA, Luis, 2006- b)

The end of the year 1995 saw the creation of the Spanish Society for the Defence of the Geological Mining Heritage (S.E.D.P.Y.M.), whose purpose is to promote, disseminate and coordinate activities focusing on the study, inventory, protection, conservation and restoration of the geological heritage, as well as the mining-metallurgical heritage (Art. 3 of the Society's articles of association).

In order to set up the first initiative of the S.E.D.P.Y.M. at national level (1st Scientific Meeting on Mining and Metallurgical Heritage), the county of Almadén was selected because it is one of the areas of Spain with the greatest tradition in mining and because of the uniqueness of its geological-mining heritage, making it one of the richest and most varied in the country. The number of facilities and elements in its heritage is of outstanding value, as they trace the history of Spanish mining, starting with the Roman works and progressing through the Arab furnaces, the mining vocabulary, the Royal Enforced Labour Prison, the Mining Academy and a long list of other components in this history.

The mercury crisis in the decades of the 70s and 80s was aggravated in the last decade and the county of Almadén has gone from an area that lived for and from the mercury to a land whose economy is based on the diversification of its natural, agricultural and livestock resources, which has also identified a dynamo in its historic heritage with a view to the future, meaning that in recent years, there has been a substantial change in the levels of interest in the acquisition of knowledge about and the rehabilitation of the mining heritage.

A key role in this change has been played by the Francisco Pablo Holgado Historic Mining Museum at the School of Mining and Industrial Engineering and which has served as the embryo and the inspiration since its concept was first outlined in the decade of the 80s, for creating an awareness of the existence of this heritage and secondly, uniting efforts to rehabilitate and valorise this heritage in various forward-looking projects, the results of which have started to show.

The decisive year of 1997 saw the Castilla La Mancha Regional Government, through its Department of Education and Culture, entrust the University of Castilla La Mancha with a project (The Ciudad Real Industrial and Mining Route: Districts of Almadén, Almodóvar del Campo and Puertollano) in order to identify precisely all of the potential in the area for it to be declared a World Heritage Site, together with other proposals from the Regional Government (The Route of Don Quixote, The Black Architecture Towns in Guadalajara, the National Park of Cabañeros and the Ritual Celebrations of *Habeas Christi),* and it was on April 18th of that year when the National Heritage Commission accepted the proposal submitted by the Regional Government.

The arrival of 1999 meant a change of air for Almadén, and it can even be said that things began to move in Almadén with respect to its heritage: we can see how rehabilitation works got under way at the Bullring (an 18th century building declared a National Monument in 1973) in order to turn it into one of the most interesting attractions for visitors as it now combines a high-quality hospitality complex (hotel and restaurant) as well as museums (one devoted to bullfighting and the other to local customs), and the possibility of being used once more as a bullring and for other events in the open air. It successfully re-opened in 2003.

Another important milestone in that same year of 1999 was the re-

habilitation of the dungeons of the Royal Forced Labour Prison now in the School of Mining and Industrial Engineers of Almadén and their subsequent inauguration along with the "Francisco Pablo Holgado" Museum in November, 2001, representing another step forward in the institutionalized conservation of this area's heritage.

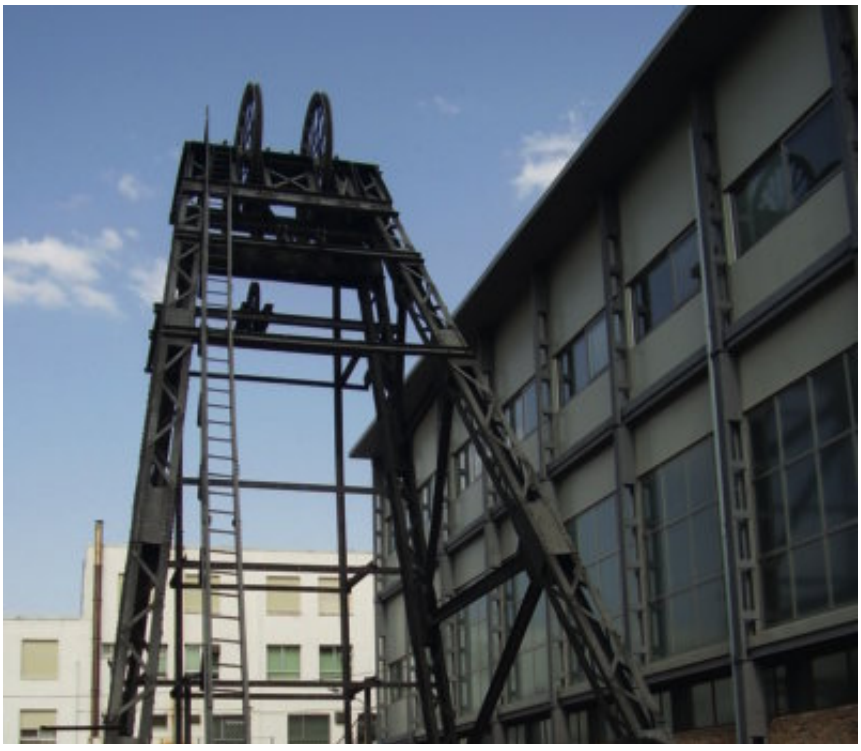
The approval of the European PRODER programme for Almadén and its surroundings at the end of the 1990s has also represented an important reference as, although the money devoted to the recover of heritage proper has been scant, there has been a large amount of investment in development aids for tourism-related projects, rural houses, participation in trade fairs, etc., most of which come under the umbrella of the exploitation of the area's mining heritage.

Following this same path, the Mines at Almadén decided, at the end of 2000, to include the recovery of its mining heritage in the company's realignment plan, creating the Francisco Javier de Villegas Foundation in 2001 with a view to rehabilitating the Historic Heritage of Minas de Almadén y Arrayanes, S.A. (MAYASA) by encouraging and promoting historical and scientific awareness of the operations, at the same time as it began to seek the funding required to ensure this heritage is known about, visited and enjoyed by the largest possible number of people, as well as the drafting of a Master Plan in 2002 to implement the whole refurbishment process.

In this sense, it is easy to understand the inclusion of the Mines at Almadén in the National Industrial Heritage Plan by means of a collaboration agreement between MAYASA and the Directorate-General for Fine Arts and Cultural Assets at the Ministry of Education, Culture and Sport.

Francisco Pablo Holgado" Historic Mining Museum

The creation of the "Francisco Pablo Holgado" Historic Mining Museum at the School of Mining and Industrial Engineers of Almadén was the first serious spur towards a concern for the heritage of Almadén.



V II 001 032 A . FRANCISCO PABLO HOLGADO HISTORIC MINING MUSEUM

The background to this museum must be sought in the 18th century with the earliest collections of minerals at the Mining Academy, but it was not until October 1988 that the idea of establishing a Museum took root. Its creation has been the fruit of the joint initiative of a group of individuals with a keen interest in mineralogy, some of them lecturers at the School, and the first specimens were donated by members of this group and by such institutions as the Official Association of Technical Mining Engineers in Almadén and the Spanish Mining and Geology Institute. Other major donations from private individuals also include those by Mr. Francisco Holgado Sagra and it is in gratitude to him that this Museum has been given the name of "Francisco Pablo Holgado" in memory of his son.

The museum is located in the School of Mining and Industrial Engineers of Almadén and since its creation has occupied three distinct areas before attaining the three exhibition areas covering over 800 square metres it has today. The first of these areas is the courtyard of the School itself, given over to the larger elements of industrial archaeology of which the most outstanding is the Tower Winch nº 1 from the Diogenes Mine in the Alcudia Valley. The second corresponds to the refurbished area in what used to be the dungeons of the Royal Forced Labour Prison from the 18th century and the third area, itself divided into two sections, is devoted to the world of palaeontology and mineralogy in one while the other presents the history of mining in the Almadén district. All of these elements culminate in a 100 square metre display hall and the School's Historic Library from the 18th century.

Since its earliest days, the Museum has provided the foundations for the different educational tasks undertaken at the School, as well as acting as a driving force behind the conservation and preservation of the district's mining heritage. From these hallowed halls emerged the first plans for its recovery and dissemination (Project for the opening of the Forced Labour Tunnel, by Emilio Fuentes Mellado, 1992), which attracted to it the interest of people seeking to find out more about what was beginning to be displayed in its rooms.

Between 1994 and 1995, a group of lecturers and students at the School of Mining and Industrial Engineers of Almadén drew up an exhaustive inventory of each and every one of the items of ethnographic heritage from the surroundings that could be used to support the plans prepared by Ciudad Real Provincial Council on "Strategic Planning of Eco-tourism in the Alcudia Valley" (part of the Futures Programme) and to map out certain action lines for the future.

Through the Almadén District Tourism Society, private enterprise also took the lead in getting the entire process under way, as this association disseminated information about the area's wealth of mining heritage and created a spirit of curiosity and interest for our own past that was previously unheard of in the district.

The definitive final push was the Manifesto for the Rehabilitation of the Historic Mining Heritage in the District of Almadén drawn up by the Spanish Society for the defence of Geological and Mining Heritage on the occasion of its 1st Scientific Session held in Almadén, during the month of October, 1996, which declared the conservation and rehabilitation of all its mining heritage to be of the greatest interest for current and future generations. This manifesto, which was ratified by over a thousand signatories during the scientific session, was circulated around institutions and official bodies and represented the ultimate recognition for a collective awareness among the citizens of Almadén in defence of something that had previously gone practically unnoticed by the majority of the town's residents.

The Bullring

Since its inauguration in the year 2003, the bullring has been the dynamo of tourist activity in Almadén, as well as being a good example of how an historic monument may be respected while comprehensive use is being made at the same time. The hotel is in the three-star category and offers 23 rooms, all of which are different. The restaurant, with seating capacity for 100 guests, has managed to recover the traditional dishes from the area, which are as typical as they are different.

The hotel activity has been one of the main uses of the bullring and the degree of occupation that it presents throughout the year is very positive. The busiest seasons are Autumn and Winter, because of the hunting season, which is of great interest in the area. The restaurant also gives the bullring a high standard of quality.

This bullring has also been destined for cultural purposes, hosting a significant number of the cultural activities that have been organised in

V II 001 033 A . THE BULLRING HOTEL





V II 001 038 A . CHILDREN VISITING SAINT RAFAEL MINERS' HOSPITAL MUSEUM

the town in the last two years – from exhibitions, symphony concerts, regional open-air meetings of choirs, theatre, cinema, musical performances, etc.

However, of all the activities, the one that has awoken the most interest is the recovery of one of the oldest bullrings in Spain, returning it to the splendour of days gone by. The last three bullfighting fairs organised in Almadén have attracted great crowds.

The latest challenges achieved and proposed as part of this dynamism offered by the bullring are as follows:

- The County Tourist Office was set up in September 2005.
- The Bullfighting Museum in Almadén is currently being made up 2008-2010.

The interest shown by the town council and the citizens of Almadén, who give great support to any events organised at the bullring, as well as by the Association of Friends of the Bullring, which works to ensure that the bullring does not suffer any harm and that it may continue to be the neuralgic point of tourist-cultural development in the area, have made major contributions to this work.

San Rafael Miners' Hospital

This was the first asset in the MAYASA mining heritage to be rehabilitated (December 2003) and is the headquarters of the Almadén-Francisco Javier de Villegas Foundation, as well as of the Historic Archive of the Almadén Mines.

As well as these secondary uses, the building, which is located outside the actual mining facilities, has been rehabilitated to house the Museum of the Royal San Rafael Miners' Hospital, which serves as the counterpoint of the themes at the Mining Park facilities, which focus on the technological aspects of mercury mining and metallurgy. In this case, the idea is to bring visitors closer to the human aspects of mining, showing what the daily life of the miners in Almadén was like down through history; a life that was often marked by occupational diseases, which were the reason for the building that has now been rehabilitated as a museum.

Until the inauguration of the Mining Park, this has been the flagship of the great MAYASA project. The museum's carefully decorated rooms and thorough museographic discourse and exhibitions provide visitors with a very interesting study of the human aspects of the miners and their families, their ways of life. Moreover, the building is in itself an architectural gem..



V II 001 034 A SAINT RAFAEL MINERS' HOSPITAL MUSEUM. BROCHURE



V II 001 035 A SAINT RAFAEL MINERS' HOSPITAL MUSEUM. BROCHURE



Desde su nacimiento, a mediados del S. XVIII, hasta comienzos del S. XIX, **El Hospital de Mineros de San Rafael** gozó de una vida de auge en cuanto a asistencia sanitaria se refiere, debido a la dotación económica que recibía y al auge demográfico de Almadén, fruto del desarrollo de la actividad minera.

A partir del S. XIX y debido a los problemas económicos del Establecimiento Minero, la asistencia sanitaria en el Hospital comienza a declinar hasta convertirse en un centro aislar y posteriormente en un hospital de familia.

El Real Hospital de Mineros se ha caracterizado por ser un centro de investigación de la principal enfermedad producida por el mercurio, el hidrargirismo, destacando figuras como José Parés y Franquís y Guillermo Sánchez Martín, así como de los tratamientos para su curación con **"el cajón-sauna" y "la playa"**

La **Comarca de Almadén** posee una gran belleza paisajística, con sierras y valles donde aparece una vegetación típicamente mediterránea. Los pueblos del Sur de esta comarca (Chillón, Almadenejos y, en menor medida, Alamillo) se caracterizan porque a la habitual actividad agropecuaria hay que añadir la minería del mercurio.

Por su parte, el desarrollo urbanístico de Almadén se ha conformado a raíz del crecimiento del Establecimiento Minero, que, debido a su importancia, ha pertenecido al Estado Español desde la Reconquista.

Todo esto ha dado lugar a una sociedad que ha vivido, desde los tiempos más antiguos y sin solución de continuidad hasta nuestros días, de **la extracción y transformación del cinabrio en mercurio.** El oficio de minero, por tanto, ha marcado la vida familiar de esta sociedad e incluso sus manifestaciones festivas.

V II 001 036 A SAINT RAFAEL MINERS' HOSPITAL MUSEUM. BROCHURE



La ciudad de **Almadén**, situada al suroeste de la provincia de Ciudad Real, posee un rico patrimonio histórico e industrial vinculado a la explotación de las **minas de cinabrio** y a su posterior transformación en **mercurio**, llegando a ser el primer productor del mundo de este metal.

Dentro de su extenso patrimonio destaca **El Real Hospital de Mineros de San Rafael**, edificio construido entre 1755 y 1773, recientemente restaurado y puesto al servicio de la sociedad con el fin de ofrecer un mejor conocimiento de la historia y de la significación minera de Almadén.

Actualmente El Real Hospital de Mineros de San Rafael es sede del **Archivo Histórico de Minas de Almadén**, de la **Fundación Almadén-Francisco Javier de Villegas** y del **Museo del Minero.**

El **Museo del Minero**, ubicado en el antiguo Real Hospital de Mineros de San Rafael, está estructurado en dos áreas interpretativas: **El Hospital Minero**, en la planta baja, y la **Sociedad Minera**, en la alta. A ellos se une el área de exposición temporal. Estos espacios se ven completados con la recreación, en su ubicación original, de la enfermería o "sala de forzados".

A través del recorrido que efectuará el visitante por sus instalaciones y mediante la utilización de recursos audiovisuales, dioramas, interactivos, paneles gráficos y piezas originales, tendrá una visión de conjunto de las características que definen a la sociedad minera de Almadén y a uno de sus edificios más señeros: **El Real Hospital de Mineros de San Rafael.**

V II 001 037 A SAINT RAFAEL MINERS' HOSPITAL MUSEUM. BROCHURE

Almadén – Francisco Javier de Villegas Foundation

(ALMADÉN – FRANCISCO JAVIER DE VILLEGAS FOUNDATION: Memoria de actividades 2000-2010/Report on Activities 200-2010 (Almadén, 2010)

The Almadén – Francisco Javier de Villegas Foundation is a not-for-profit organization legally incorporated on December 20th, 1999, by "Mines at Almadén y Arrayanes, S.A.", the National Electrochemistry Association and the Most Honourable Provincial Council of Ciudad Real. It is entered on the Register of Foundations at the Spanish Ministry of Culture (Official Gazette dated March 8th, 2000).

The goals pursued by the Foundation are the conservation, protection and dissemination of the Historic Heritage of Almadén and its Surroundings through the rehabilitation and restoration of buildings and landscapes. In addition, an archive has been created in the "Saint Raphael Royal Hospital for Miners" to bring together the entire documentary sources on the Mines at Almadén, rescuing them or reproducing them from the places where they are currently located. The goal is for the Heritage of Almadén to be known, visited and enjoyed by the largest number of persons, while at the same time strengthening the social economy of Almadén and its Surroundings by encouraging what has come to be called "cultural tourism".

In accordance with its founding goals, the activities conducted by the Almadén – Francisco Javier de Villegas Foundation can be viewed as falling within the following scopes of action: the recovery of the industrial and mining heritage, the rebuilding of its documentary heritage, and the dissemination of the cultural heritage of Almadén and its Surroundings.

Recovery of the industrial and mining heritage

This section includes those actions aimed at the rehabilitation and restoration of buildings, mining and metallurgical installations and other elements making up the real and moveable assets of the Mines at Almadén.

Since it started its activities in 2000, the Foundation has set itself three priority actions in this area: the rehabilitation of the "Hospital de Mineros de San



V II 001 039 A .
CHILDREN VISITING THE MINING PARK

Rafael" (The Miners' Hospital), the rehabilitation of the "Galería de Forzados" (the Forced Labour Tunnel) and the rehabilitation of the "Puerta de Carlos IV" (King Charles IV's Gate). Through various political circumstances, the Most Honourable Provincial Council of Ciudad Real withdrew from the Foundation without having contributed the initial capital promised as an endowment, but it did make up for this by contributions in kind to the Foundation in the form of the first building projects corresponding to the rehabilitation of the Miners' Hospital and the Forced Labour Tunnel.

In March, 2003, the Quality Group joint venture which was awarded the contract submitted the definitive Master Plan for the Almadén Mining Park. This Plan is the instrument for designing, planning and monitoring the transformation of the mining and metallurgical installations of the Mines at Almadén into a Mining Park, understood as a centre for the transmission of cultural, educational and quality tourism values based on the conservation and recovery of its industrial, scientific and technological heritage.

Its goal is to make available to society a suite of heritage items recovered from mining and industrial elements revolving around mercury, so as to be able to explain the geological wealth of the existing deposits, the evolution of the different mining and metallurgical processes throughout its history, the importance of mercury in the historic development of society and the world-wide impact of the operations in Almadén.

The goal pursued by the Plan is to recover the value in this heritage and allow it to act as a driving force for social, economic and cultural development of the town of Almadén and its Surroundings through the growth of cultural tourism, by ensuring the quality of the visit and fostering the creation of tourism-related infrastructure.

The drafting of the Master Plan for the Mining Park has included an architectural survey of all the industrial and real estate elements of the area's heritage; a geological and mining study; a museological and museographical review analyzing the possibilities of using the mining and metallurgical installations for exhibition purposes and proposing the necessary interventions as well as an economic feasibility study.

Following the Plan's guidelines, the preliminary architectural and mu-



V II 001 040 A .
CHILDREN VISITING THE MINING PARK

seological projects were drawn up for the Mining Park and, in the course of 2003 and 2004, these were put out to tender and some of the works included in the Mining Park project, such as the "Rehabilitation and adaptation of the underground installations and external infrastructures of the Mine at Almadén" and the "Rehabilitation of the Entrance to the Mina del Castillo shaft and the Forced Labour Tunnel in Almadén" were started. With the conclusion of these works it has become possible to visit the mining installations of Mina del Pozo and Mina del Castillo (16th to 18th centuries) which contain a number of elements of great mining interest: access mouths, tunnels, shafts, ore picking faces, underground winches, etc.

In 2004, the work to restore the King Charles IV Gate was carried out. This entrance to the Cerco de Buitrones is containing the furnaces and the quicksilver store which was built in 1795, during the reign of the gate's namesake. The preparation and technical supervision of the definitive plans for the restoration of the Puerta de Carlos IV were entrusted to the architect Virginia Cinca Gutiérrez and the surveyor David Rodríguez García. The restoration works were executed by the KÉRKIDE S.L. Company. The cost of the restoration, approximately € 90,000, was financed by the Ministry of Education, Culture and Sports (today Ministry of Culture) through the Spanish Historic Heritage Institute (today Cultural Heritage Institute of Spain, IPCE).

During 2005, the Foundation has been engaged in two types of action related to the recovery of industrial historic heritage: on the one hand, its collaboration with MAYASA in the rehabilitation of two heritage elements of the future Almadén Mining Park: the underground mine and the mercury store; on the other hand, it has carried out the research project into the industrial heritage of Almadenejos. This forms part of the general goal of highlighting the value of the industrial heritage of Almadén and its surroundings, so that it can act as a driving force for the social, economic and cultural development of this area, combining the conservation of its heritage elements and the study of the memory of work with the development of a cultural tourism that will strengthen and safeguard its identity.

In order to produce an inventory, the Foundation received financial assistance in the amount of 8,000 Euros from the Culture Department of Castilla – La Mancha Regional Government. The work was carried out between June and September, 2005.

During 2006, the Foundation has continued to collaborate with the company in charge of readying the heritage elements of the Almadén Mining Park as a museum to obtain items for display by means of deposit loans with their respective owners, the preparation of certain items and advice on historical aspects. Since November, 2006, the underground mine at Almadén can be visited and December, 2006, saw the inauguration of the Mercury Museum, thus completing the first phase of the Almadén Mining Park.

The restoration of the aludel furnaces and the Puerta de Carros (Carriage Gate) was also completed during this year, and work started on the rehabilitation of the former Compressor Building that has become the home of the Mining Interpretation Centre.

Furthermore, the Foundation has carried out a research project into "The Quicksilver Route in Castilla – La Mancha: from the Mines at Almadén and Almadenejos to the border with Andalusia". The aim of this research project was to identify the remnants still visible of the former paths and roads used by the ox-drawn carts transporting the quicksilver from Almadén to Seville, as we consider these elements (bridges, drains, fences, ...) are of undoubted historical value as a testimony of an activity: the transport of mercury

ore, of great economic importance not only for the area surrounding Almadén but also for the whole of the economy of Spain. In order to complete this project, the Foundation received 9,000 euros in financial aid from the Culture Department of Castilla – La Mancha Regional Government. The work was completed between July and October, 2006.

During 2007, the Foundation collaborated with the company in the preparation of the nomination of the Almadén Mining Historic ensemble as a site of Cultural Interest (B.I.C.). Restoration of the Route coming out from the Carlos IV Gate was also carried out in the same year. This route's stretch is the still visible remnants of the beginning of the Quicksilver Route. The cost of the restoration was financed by MAYASA and the Department of Culture of Castile – La Mancha Regional Government.

January 2008 saw the inauguration of the Almadén Mining Park, and the Tejeras furnaces (Tile Kiln) were also restored in this year. These furnaces were used to bake tiles, bricks and *aludeles* for the mining installation, using clay brought in from quarries around Almadén The cost of the restoration was financed by MAYASA and the Department of Culture of Castile – La Mancha Regional Government.

In 2010, the work to restore the Old laboratory building was carried out. It was built at the beginning of the 20th century to accommodate the former chemical laboratory of the Mining Establishment. Works of repair and maintenance of San Rafael Royal Hospital were also undertaken in this year. Both works were partially financed by the Department of Culture of Castile – La Mancha Regional Government.

Rebuilding of its documentary heritage

The creation of the Historic Archive of the Mines at Almadén is an attempt to bring together all of the documentation relating to the Mines at Almadén which, for a variety of historical circumstances, are currently dispersed in a number of archives, so as to foster the study and awareness of the history of these mining and metalworking activities that have been of such great importance throughout history.

The Mines at Almadén document heritage recovery project began in 2000. This programme is structured in two complementary lines of action: the re-organization of the documents and records stored in the Archives of Minas de Almadén y Arrayanes, S.A., the search for and compilation of other documentation contained in other archives.

The re-organization of the documents and records stored in the Archives of Minas de Almadén y Arrayanes, S.A. began in 2000 with the first tasks of identifying the contents. During 2001, the Archive was transferred to a provisional store while work continued on the rehabilitation of the Real Hospital de Mineros de San Rafael, where the archive was later installed. A total of 2,700 linear metres of documentation (more of 13,300 historic documents) had to be transferred.

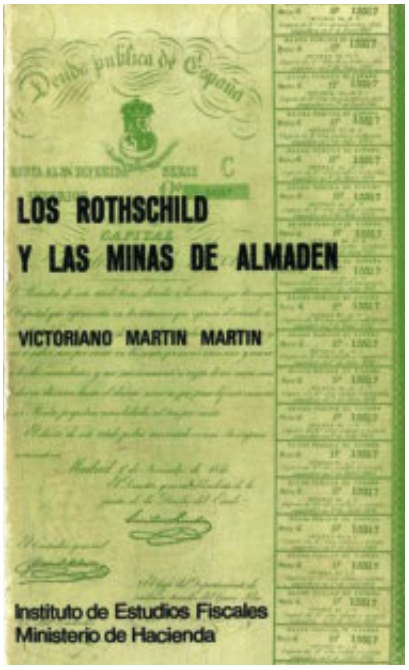
The work of identifying and describing the documents allowed five sections to be established:

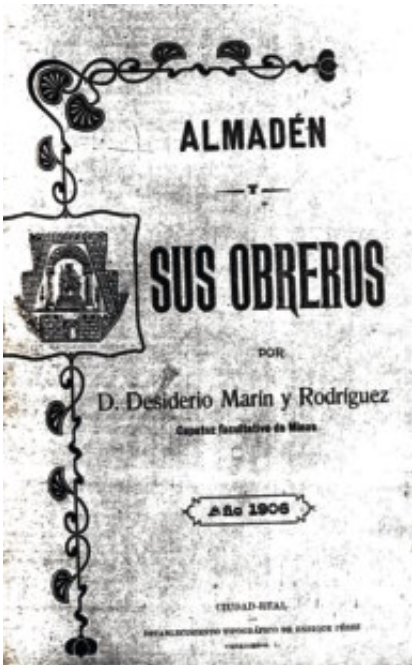
I. Old Documents: containing all the documentation prior to 1918. It includes the personal files of all mine workers with working place and dates (since 1750 to 1910. In 2010, about 1.000 files).

II. Documents from the Board of Directors of Minas de Almadén y Arrayanes (1918-1982). There are catalogued 1.300 documents.

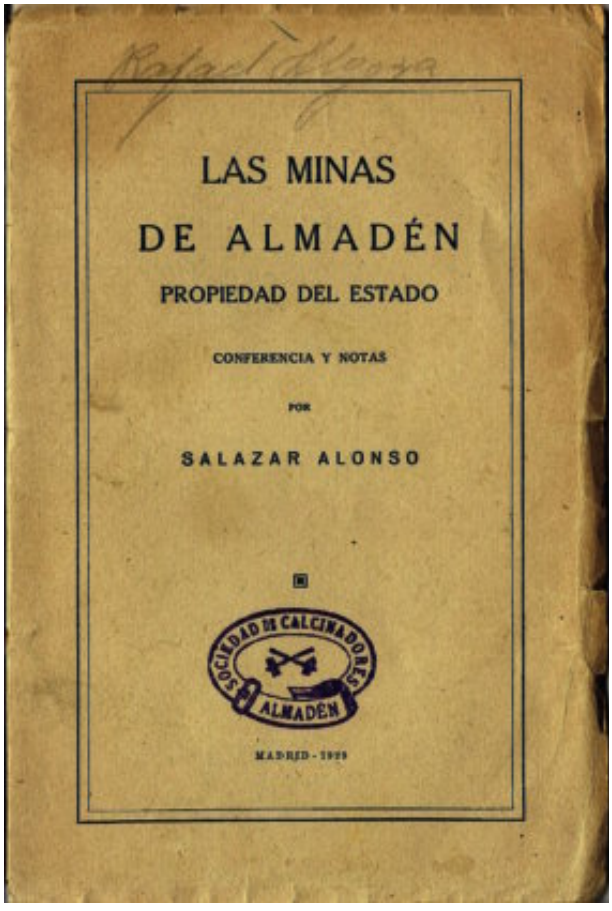
III. Documents from Minas de Almadén y Arrayanes, S.A. (1982 – present, still operational)

IV. Library


Deuda pública de España
LOS ROTHSCHILD
Y LAS MINAS DE ALMADEN
VICTORIANO MARTIN MARTIN
Instituto de Estudios Fiscales
Ministerio de Hacienda

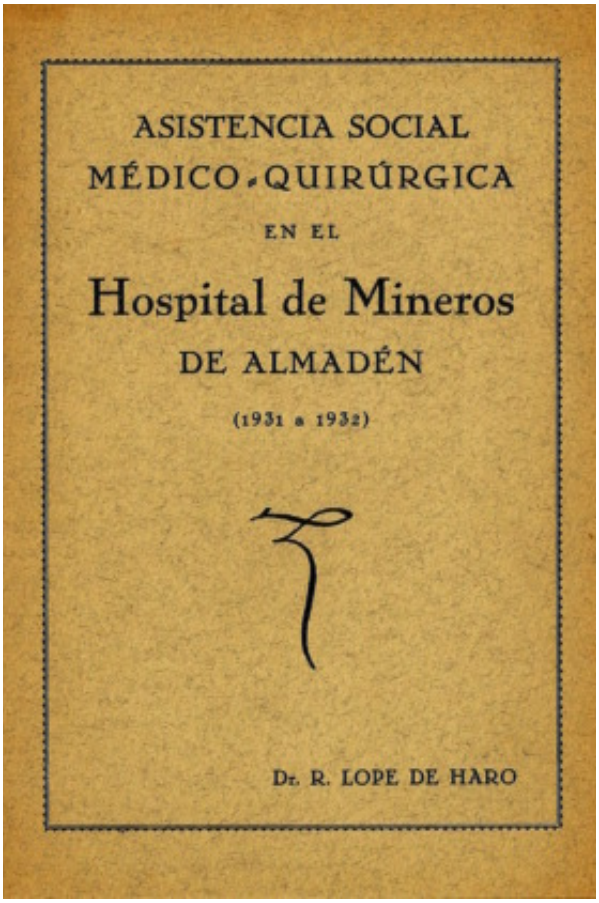

ALMADÉN
—Y—
SUS OBREROS
POR
D. Desiderio Marín y Rodríguez
Año 1906

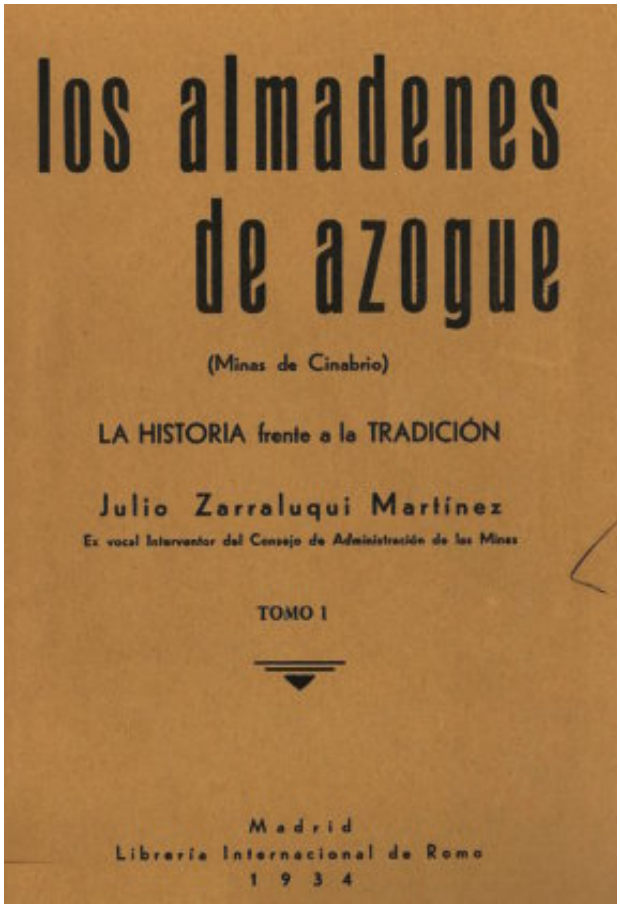

ESTUDIO MÉDICO
DEL
HIDRARGIRISMO
DE LAS MINAS DE ALMADÉN
DR. GUILLERMO SANCHEZ MARTIN
MADRID


LAS MINAS
DE ALMADÉN
PROPIEDAD DEL ESTADO
CONFERENCIA Y NOTAS
POR
SALAZAR ALONSO
SOCIEDAD DE CALCINADORES
ALMADÉN
MADRID - 1929



V II 001 041 A . SOME OF THE BOOKS FROM THE LIBRARY.





V. Map collection.

In October, 2003, the historic documents began to be transferred to the new installations in the Real Hospital de Mineros, which now became known as the Historic Archive of the Mines at Almadén. The archive was equipped with *compactus* type cabinets for the optimal conservation of the documentation and a reading room was prepared for researchers. During this year, the services rendered by the Archive were as follows: 243 document loans, 55 consultations and 3 researchers made use of the facilities. The Archive collaborated closely with the staff of the e-cultura company, providing the information and documentation used in the preparation of the museum contents.

The transfer of documents continued throughout 2004 and, in addition, five new remittances of documents were received, representing an increase of 23 linear metres extra. The volume of the archive attained 2,462 linear metres of documentation. The work carried out to complete its description aimed at bringing the inventories up-to-date. In addition, the following services were provided: 94 document loans, 80 consultations and 14 researchers made use of the facilities.

In 2005, the archive's document storage increased by another 205 linear metres, the tasks of describing the documents continued and the following services were provided: 125 document loans, 94 consultations and 22 researchers made use of the facilities. Although all of the services increased, the most significant was the greater demand for information from external users: over one third of the consultations were received and answered by post or e-mail.

The Historic Archive of the Mines at Almadén provided the following services throughout 2006: 57 document loans, 71 consultations and searches, and 29 researchers made use of the facilities. With respect to the previous year, there was a significant drop in the number of loans directly related to the activities of MAYASA. On the other hand, the number of people making direct use of the archive's facilities has increased. In addition, almost half of the consultations correspond to outside users and their queries have been answered by telephone, e-mail or post.

In addition, the Historic Archive has seen an increase in its available documents during 2006 with further transfers, representing approximately an additional 25 metre of shelving. Work has continued to complete the computerization of the inventories, organize the archive's contents and prepare the indices.

In order to foster the recovery of the documentation and its relocation from other archives to the Mines at Almadén, the Foundation invited applications, in February 2003, for four research internships for the location of documents to do with the Mines at Almadén. The interns, all graduates in History, began their work in the following archives: one at the General Archive in Simancas, one at the General Archive of the Indies and two at the National History Archive. In October, 2004, one of the two interns at the National History Archive resigned from the position.

During 2005 and 2006, the Foundation has had the services of three interns working in the archives listed.

The results of this work have been very positive, as some very interesting documentation is coming to light, and which we have already taken advantage of in the research into "The quicksilver route", in the resolution of consultations posed by external users and in the collection of data for the new publications in preparation.

In 2005, the Foundation undertook for the first time the restoration of documents making up the rich

documentary heritage of the Mines at Almadén. Thanks to a subsidy of 2,000 euros from the Ministry of Culture, it has been possible to start work on the restoration of four historic plans forming part of the Historic Archive's map collection. This activity has continued in the years 2006, 2008 and 2009 with the restoration of another twenty-two historic plans, also partially subsidized by the Ministry of Culture.

The Historic Archive has 6,600 plans, 5,550 are already catalogued (1,870 of them are also digitaled).

The Royal Forced Labour Prison in Almadén and its Interpretation Centre

(MANSILLA, Luis, updated 2010) History on occasions reminds us of moments from the past that are far from pleasant for a people or for a particular cultural area, but which nonetheless form part of its collective memory and persists over time through manuscripts, the fragility of oral literature or forming part of buildings and constructions that evoke a particular moment.

Forced labour left its mark on the town of Almadén through major constructions such as the Prisons where convicts were kept in the centuries when this form of exploitation existed.

The continued presence over time of this incorporated workforce and its important for the mines makes it mandatory to deal with this phenomenon which is now only reflected in the memories of a few, the pages of a history book and the ruins of a gaol of which only some cells remain, below what is today the School of Mining and Industrial Engineering of Almadén.

In order to ensure that this part of Almadén's historic memory is not lost, an Interpretation Centre was set up for the Royal Forced Labour Prison in Almadén under the auspices of the University of Castilla La Mancha with the aim of reflecting and explaining to visitors a transcendental feature of the town's history and part of its memory, but eclipsed by the splendour of the mines. Be that as it may, this institution is crucial to understand the history of Almadén in its entirety.

In order to open this centre and bearing in mind its location, as well as the precision of the subject discussed, quite a closed museological and museographic discourse has been established in order to adapt to the site yet using innovative and impactful resources to create an appropriate route through which visitors to the centre can flow smoothly.

Mission and functions of the Interpretation Centre

The basic mission is to highlight the values of the remains under the building now used for the School of Mining and Industrial Engineering of Almadén. With the considerable assistance of the architectural remains, it has been possible to establish the context of a past event that formed an inexcusable part of the history of Almadén.

It is hoped that it will fulfil the following functions:

a) Research. As can be clearly understood, one of the main goals set for a newly opened centre is the creation of sufficient expectation and motivation in visitors to stimulate in them an interest in researching further the issue at hand or other related matters.

b) Conservation of tangible culture. Converting a space, in this case what remains of the cells of the New Forced Labour Prison, into a museum is a way of sacralising the space in question, enabling people to take it more seriously.

c) Recovery of Almadén's historic memory.

d) Dissemination. This is one of the centre's main functions exemplified by its exhibitions.

In addition, if one adds to these specific functions the profitability to be gained from Cultural Heritage in a town, this space converted into a museum becomes a resource. Apart from this important characteristic, the centre also meets a variety of needs:

1) Education. Apart from research, the institution may form part of structured education. In this regard the term education is used in a wide sense as it refers to both the level of instruction within the educational system and also the level of general education of the population with regard to respect for others and awareness, in this case, through a clear and brutal exposé of the facts to provoke their emotional rejection by visitors.

2) Leisure. Of course, apart from teaching, a Museum is an essential tool as a leisure resource.

3) Economic development. The museum's profitability is reflected in this point as it may be a useful resources to meet the population's needs as listed above and it is a good idea to turn an asset into a useable resource that can provide benefits of all kinds, including economic benefits. However, we must not fall into the mistake of turning a piece of real estate into a theme park, where realism and drama are used to point of exaggeration and become mere fiction.

Structuring of areas and contents

The accumulation of this large amount of information has made it necessary to organize and structure it to make it more intelligible. The method chosen has been to separate the contents into categories, ignoring the time line although the re-appearance of this chronological thread is inevitable in the various categories to ensure a logical sequence in the narrative.

This division into thematic areas makes it easier to understand the overall message by creating consistent and significant units that stand independently yet reinforme the general message, from which they never stray and which serves as Ariadne's thread throughout the journey.

As for the distribution of the available space, since the hall is clear and uncluttered, various resources have been used to create a distinctive route by allowing glimpses of different rooms and areas containing the proposed material.

In this way, taking into account the material and the areas available, the contents have been divided into themes and rooms. The themes cover identical content categories whereas each room comprises a defined space which may house different thematic areas.

On the other hand, the space has been distributed in such a way that no room can be fully understood without having seen the one before it, therefore the route is not arbitrary or free for visitors but rather a guided itinerary in which the visitors themselves can identify where to go next simply with the aid of a voice or lighting effects.

As for the themes or interpretative areas, these are quite difficult to define, as their contents tend to overlap. For this reason, the themes considered for the sake of reference are as follows:

- Theme 1. Forced labour in Almadén. This is the room adjoining the remains and deals with all of the aspects referring to forced labour: from the introduction of this kind of sentence to the living conditions of the prisoners. (Within this theme, the contents will divide the space into rooms and areas)
- Area 2. Ruins of the Gaol. The ruins are visible in the two rooms available at the centre.

The theme areas are included within the two rooms:

- Room 1. The Mercury Prisons. This room discusses the bulk of the contents referring to interpretative area 1. But, on the other hand, this room also contains some remains belonging to interpretative area 2, specifically parts of the Gaol wall and the drainage tunnel. Thus, the themed areas overlap in this space.
- Room 2. The Ruins of the Gaol. This room is where the remains of the cells belonging to the "Cárcel Nueva" (New Gaol) can be found.

Of the rooms above, room 1 is divided into the areas and sub-areas listed below:

- Area 1. A journey through the history of the mines at Almadén. (This area only deals with theme 1: Forced labour in Almadén).

  The Centre's doors open to show visitors an impressive scene: a dim Light impregnates all of the setting. The resources begin to be visible with their expressive illustrations and visitors set off on the tour accompanied by a mysterious voice that will become a constant companion on their journey through the first area. The mysterious voice will introduce the Centre with a brief outline of the theme, creating in the audience a sense of uncertainty and motivation to move forward and begin the tour.
  From now on a single narrative begins to unfold the history of this kind of punishment, using an enhanced narration with sufficient dramatic nuances to ensure that the visitors achieve a sense of empathy with the message and the context described.

  - Sub-area 1. The introduction of forced labour at Almadén.
  Once the voice of the narrator has filled us in, a large spotlight illuminates the next space, sub-area 1. The same voice finally discovers his identity: it is none other than the 17th century author, Mateo Alemán, an eye-witness of the dreadful conditions the convicts lived in.
  The voice is accompanied by powerful images placed on a large canvas. The illustrations chosen visually express and reinforce the message conveyed by the voice.
  This space will explain how, when and why forced labour was introduced to the mines at Almadén.
  Once the voice has completed its presentation, the lights in this sub-area will go
  out and the next area will be illuminated so that the audience moves on.

  - Sub-area 2. The Crujía and the Cárcel Nueva.
  The light spreads out and visitors find themselves in a new sub-area. Once more the guide's voice will describe the cells the convicts were placed in and the great suffering they endured.
  The voice is accompanied by chains, grunts, thuds, etc., evoking the sounds that might have been heard in this area.

  - Sub-area 3. Once a prison, always a prison.
  Once more, visitors are led toward the desired position by means of a switch of lighting to sub-area 3. In this way, the spectators are brought before the next set of images and the voice explains the story behind them. After a century and a half of disuse (for forced labour, at least), the Spanish Civil War was the trigger for the revival of this practice. Political prisoners became the new slave labour that helped rebuild companies or the State itself, free of charge, once more repeating the experiences of centuries earlier.

- Area 2. From Galley Slaves to Forced Labourers. (This area involves both themes: 1. Forced

Labour at Almadén; and 2: The Ruins of the Gaol).

Once the audience has been able to appreciate, through words and images, the preceding part of the history with the context and time in which this forced labour was imposed, the scene moves on to the next area where an impressive audio-visual describes the people who suffered this kind of situation, starting with the prisoners sentenced to this kind of punishment, the illnesses they had to endure until the end of their imprisonment.

- Area 3. The drainage tunnel (This area deals with the theme of the Ruins of the Gaol).

After the end of the audio-visual presentation, visitors continue to the drainage tunnel, where a sign identifies these remains, comprising a wall and the tunnel. Visitors will be able to enter the tunnel to appreciate how narrow it is and understand its usefulness.

Room 2. Ruins of the Gaol.

Emerging from the first room, we can now access the second, right beside the ruins of the Gaol. From the pathway providing access to the old cells, we have a first view of how they looked. An explanatory panel indicates that we can see the remains of the dungeons where the prisoners were kept. While viewing this panel, we can also see the ruins and visitors can imagine the living conditions of these prisoners.

Route

The route followed starts on the ground floor of the building where the Interpretation Centre is located, at the entrance hall, next to the visitors' reception and waiting area, leading to the other rooms in the building. The Centre's personnel will organize the appropriate groups in this space, before visiting room 1, a gloomy space in which the audience is welcomed by the voice of a narrador explaining the history they are about to experience.

The group will pass through the various areas following the lighting, as the illumination acts as the guide for the tour.

To conclude the tour after emerging from room 1, the Centre's personnel and the signage will indicate where visitors should continue to access the ruins in room 2.

In this way, after experiencing room 1, visitors see the ruins to reinforce the context of the history they have just been told about

Bearing in mind the spaces and the tour's duration, the calculation of the maximum number of visitors to achieve a satisfactory level of concentration and motivation at each area and resource is estimated at eight to ten people per visit, and the next group will not be able to enter the first resource until the last has been viewed. The mean duration is estimated at 40-45 minutes.

Conclusions

1) The Interpretation Centre will be useful to highlight the value of the remains of the Royal Forced Labour Prison at Almadén, still visible under the building of the School of Mining and Industrial Engineers of Almadén.

2) The Interpretation Centre will be a means for disseminating this history running in parallel with the work in the mines and, at the same time, helping the mines at Almadén to attain their maximum splendour.

3) The recovery of this part of the historic memory of Almadén has to pass through this Interpretation Centre, so as to enlighten coming generations on an important part of this town's cultural legacy.



V II 001 042
A. ROYAL FORCED LABOUR GAOL



V II 001 043 A. ROYAL FORCED LABOUR GAOL. BROCHURE.

MANIFESTO FOR THE REHABILITATION OF THE HISTORIC MINING HERITAGE OF ALMADÉN.

The Spanish Society for the Defence of Geological and Mining Heritage, on the occasion of the 1st Scientific Session on Mining and Metalworking Heritage, held in Almadén on October 21st and 22nd, 1996

HEREBY DECLARES the conservation and rehabilitation of all the Historic Mining Heritage of Almadén to be of the greatest interest for current and future generations, insofar as:

- This district hosts one of the World's oldest operational mines, in existence of over TWO THOUSAND years (known to Phoenician, Romans, etc.).

- Within the realm of metal mining, the deposit of mercury at Almadén is unique in terms of its geology, mineralogy etc., and has produced over one third of all the mercury in the world.

- For hundreds of years, it was the support for the royal coffers of many different crowned heads in Spain, as mercury was essential to obtain the silver and gold being shipped from America to Europe.

- The range of operational methods used on its workface provides an unequalled teaching model to discover the history of mine working in Spain.

- The study of the craft of mining in Spain, and by extension in America, began in Almadén (Royal Decree dated July 14th, 1777) with the creation of the first Spanish Mining Academy and the fourth-oldest in the world after the schools of Freigberg (Germany), Schemnitz (Hungary) and Saint Petersburg (Russia).

- The classrooms of the former Mining Academy were graced, either as students or renowned Lecturers, by the likes of Fausto Délhuyar (the discoverer of tungsten) and Andrés Manuel del Río (the discoverer of vanadium).

- The mining and related installations to be found in this area form part of the Mining Heritage of Mankind as many of them are now the only surviving examples in use.

- Within this catalogue of heritage sufficient to form a true mining park, we draw attention to the following unique buildings and installations:

  - The mines: Vieja, in Almadén, and Nueva Concepción, in Almadenejos.
  - The Mining Academy (18th century)
  - The Miners' Hospital (18th century)
  - The Bullring (hexagonal and unique in the world, 18th century)
  - The Palace of the Függer family (16th century)
  - The winch of the San Carlos shaft (18th century)
  - The Aludeles or Bustamante Furnace (17th century)
  - The Gate of King Charles IV and the Cerco de Buitrones area (18th century)
  - The Cerco de Buitrones area in Almadenejos (18th century)
  - The Forced Labour Tunnel (18th century)
  - The archaeological remains of the Royal Forced Labour Prison (18th century)
  - Retamar Castle (Mediaeval)
  - The Tower Winches (in the San Aquilino, San Teodoro, San Joaquín and Mina Diógenes shafts)
  - The Superintendent's House.

Francisco Pablo Holgado Historic Museum. Didactic Guide. (Information is included in item 5.g. (001)

(002) Idrija

A comprehensive and balanced programme of management of cultural heritage in Idrija, which will establish a single tier of management, is currently being drawn up. The drafting of the document has brought together the main specialist institutions in the field, which are already playing an important role in preserving cultural heritage in Idrija.

It proposes an upgrade of current state of management by introducing proper legislative framework and appointing a site manager responsible for coordination among various stakeholders, as well as the preparation, supervision, and implementation of the joint programmes related to the heritage preservation, interpretation, promotion, fundraising, and monitoring of the heritage elements.

The proposed management model is based on linking the existing entities dealing with heritage and stresses unified management and sustainability of the heritage.

Information and Research Centre that is being established as part of the restructuring of the Mercury Mine Idrija.

The creation of the Information and Research Centre for Mercury will take over the role of supervision of the mine. It will at the same time continue to provide training and information on environmental studies that have already been carried out in Idrija over the past decades. These results will aid in planning environmental protection measures to safeguard man and nature from the harmful effects of mercury. Rules on the protection of the visitors to the mine museum at the Mercury.

1	**Plan**	**Date of implementation**
Municipality of Idrija. Management Plan for cultural heritage in Idrija.		First half 2011: Introduction of Idrija Mercury Information and Interpretation Centre. 2011: implementation of the efficient management network within the serial property.
The management plan is intended to be a tool for coordinated and comprehensive management of heritage sites in the Idrijan area. Its main aim is to establish cooperation and communication channels between all the subjects involved in managing the heritage sites in the area, as well as forming an all-inclusive analysis of the situation and possible improvements in protecting and developing the area. Goals: Maintain, protect and develop the monuments and the zone. Monitor and analyse the state of the heritage. Coordinate the research and development activities. Present and interpret the heritage. International cooperation. Educational activities. Draft operational programmes. Counselling. The model of management will be established by local community in three stages: Formation and the beginning of the UNESCO information-interpretation Point activities; Establishment of contractual alignments between institutions and organizations in the area of cultural heritage and the establishment of local partnership among social actors; Formation of legal organizational form.		
1.1.	Idrija Heritage Centre	Established in 2010
1.2.	Idrija Mercury Heritage Information and Interpretation Centre	In the first half of 2011
1.3.	Information and Research Centre for Mercury	Introduction in 2008
It should execute and coordinate the research activities related to impacts of the mercury mining on the environment as well as pursue the research, educational and interpretative activities in the field of mercury mining and use of mercury.		

Pollution and its control in Idrija

Mercury was extracted in Idrija continuously from 1490 onwards. By its quantity of extracted metal, the Idrija Mine is the second largest mercury mine in the world, boasting an output of more than 147,000 tons of mercury. However, more than 37,000 tons had been lost to the environment during processing. Mercury production ended in 1995 on the basis of a decision adopted in 1987 on the complete and permanent cessation of production in the mine and the liquidation of pit facilities.

The winding up of mercury ore mining and excavation activities in the Idrija Mercury Mine has significantly decreased mercury content levels in the environment, especially in the air. The results of various studies, however, show that comprehensive preventive measures to reduce the sources of environmental contamination have not yet begun to be implemented.

This is the international dimension of the previously developed methodological approach to the issue of mercury in the area of Idrija, the Posočje region and the Gulf of Trieste. It serves as a model for similar contaminated areas worldwide (more than 1,200, according to UNEP). In this regard, Slovenia has played an important part in highlighting the importance and long-term consequences of polluted areas that are left as a burden to future generations.

Framework methodologies have been developed and are supported by scientific and research data. A transfer into practice is to follow.

The entire impact area of the Idrijca River, the Soča River, and the Gulf of Trieste requires an integrated policy of economic, environmental and social development. This is the only way to control and contain the present consequences and, most importantly, prevent increased risks in future.

It is evident from the results of many research studies that, throughout the entire 500-year period of the mine's operation, mining activities had a permanent, strong impact on the health and lives of miners and the population.

Therefore, a detailed examination of the impacts of Hg production and use on the environment and human health (environmental pollution and health risks to humans caused by mercury production and use) is still needed.

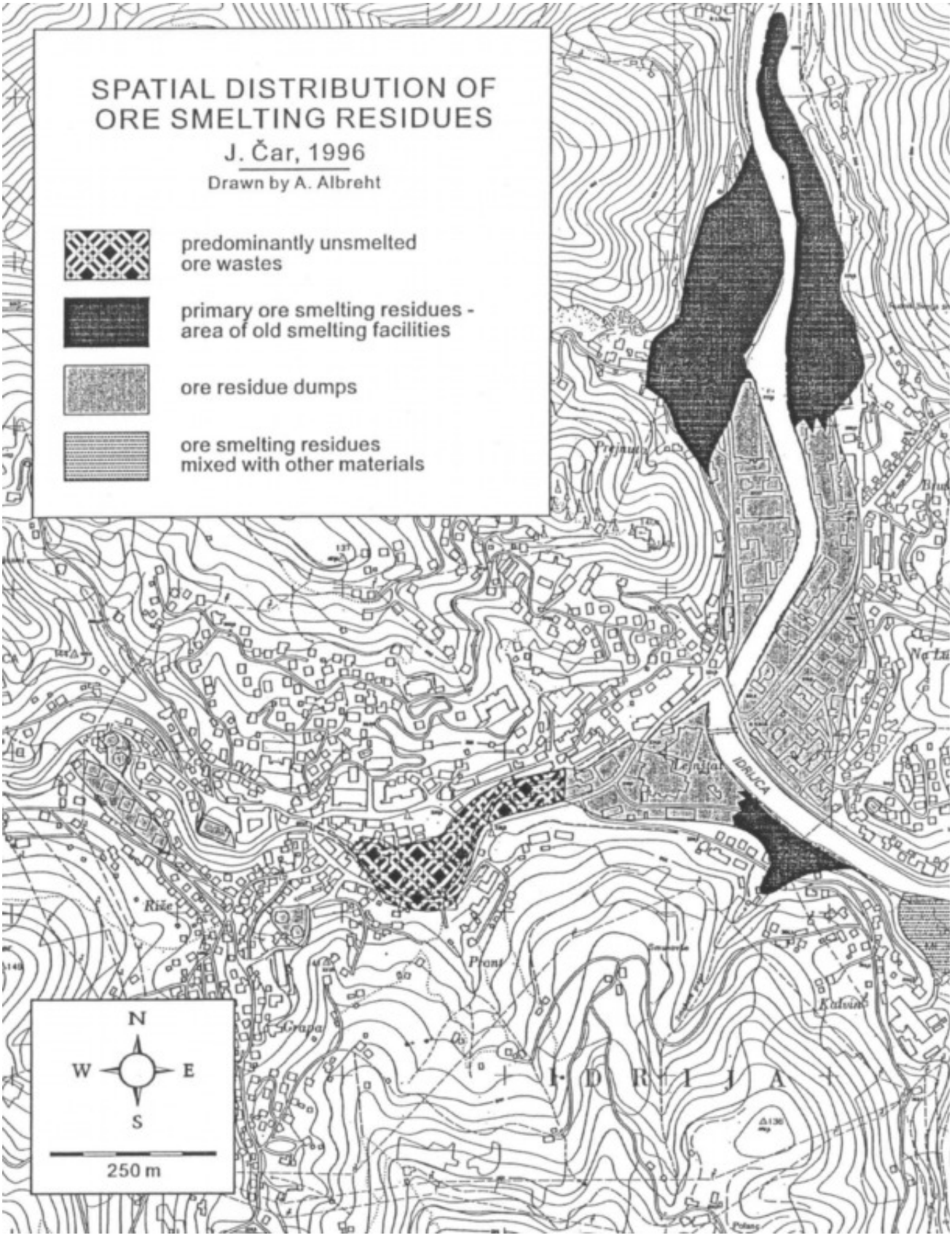
Environmental quality and management in Idrija

In Idrija, 6% of the world's known mercury reserves remain safely underground in the form of a geological reserve. All of the processes relating to the closing down of pit activities are described in other chapters and in the dossier.

Rocks containing cinnabar and native mercury can be found in Idrija and its surroundings at the following primary and secondary locations:

- primary locations – places where the ore deposit reaches the surface,
- secondary locations – dumps of unprocessed or partly processed ores, and
- deposits of ore residues.

All three types of "mineralized rocks" frequently appear side by side throughout the Idrija region, and their specific locations cannot be distinguished with precision. Such spatial distribution may be attributed to the fact that the ore deposit reaches the surface in the immediate vicinity of the town, and to the changing economic criteria governing ore extraction over the centuries. However, the primary factors were the changes introduced in processing technology and the frequent repositioning of ore-burning activities in the area.



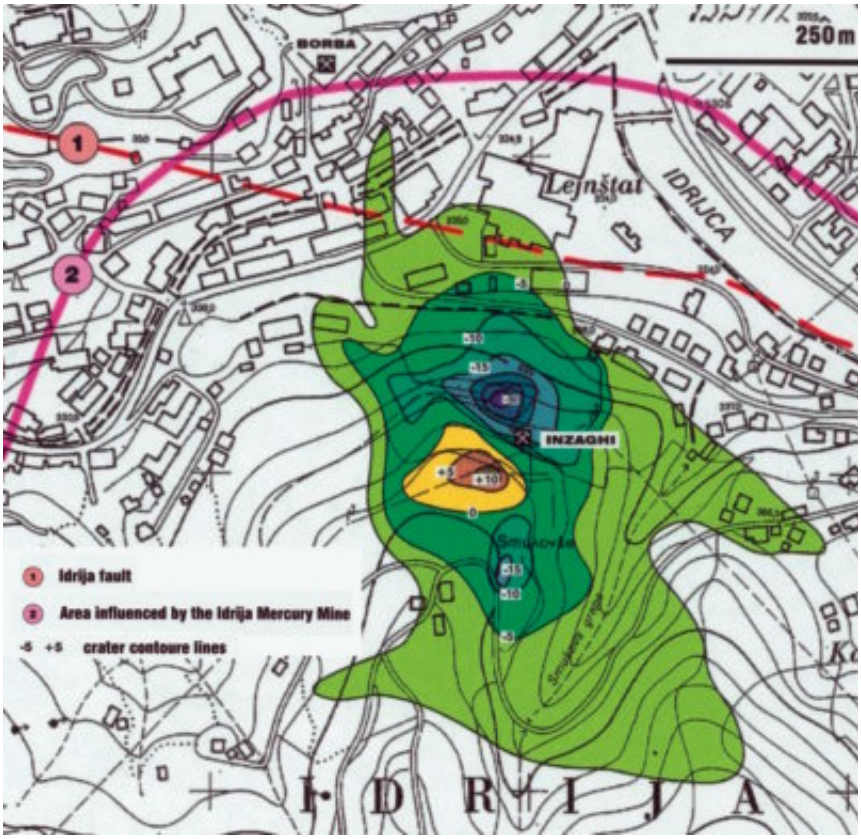
002 161 ORE SMELTING RESIDUES DISTRIBUTED OVER THE TOWN OF IDRIJA

The rapid increase in ore production caused problems concerning the disposal of ore residues. The first two smelting plants were situated in the close vicinity of the town, near the main entrances to the mine (1490, 1537). Both of the last two smelting plants (1641, 1880) were located along the Idrijca River. In the period up to 1977, most of the burnt ore was deposited along the banks of the Idrijca River (70%), the remainder being transported back into the pit and used as backfill material (30%). Today, the erosion of ground polluted with mercury in the Idrija area is the main source of Hg in the Idrijca River, which flows directly into the Soča River and, finally, into the Gulf of Trieste. Dumping into the Idrijca River ceased after the shutdown of the Idrija Mercury Mine. Mercury levels along rivers in this area are regularly monitored, and a gradual decrease in mercury concentrations has been detected. A problem that still remains is methylmercury, the organic form of mercury found in the water-food chain.

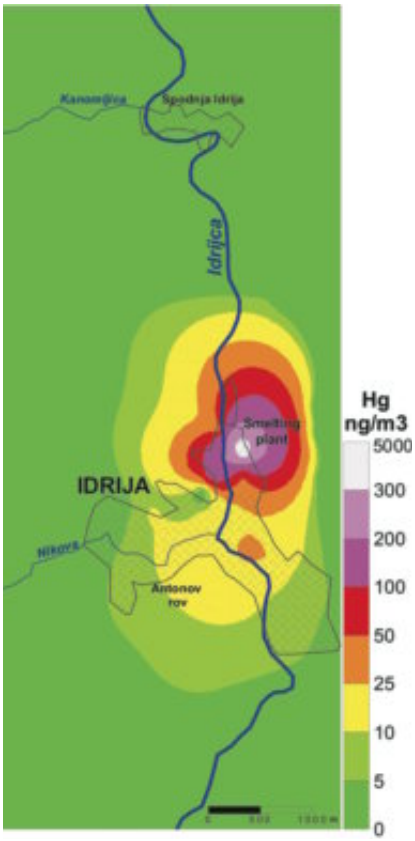
Due to the use of ore residues in road sanding and the laying of road beds, such residues were transported in small or large quantities (as the need arose) to practically all parts of the Idrija and Cerkno region. Part of the smelting residues of Skonca shale deposited in the Idrija town area also contain high concentrations of radioactive elements (U-238, Ra-232), which are causing increased exposure to radon and its short-lived progeny for those inhabitants living in houses built on these smelting residues. An example of a best practice in Idrija is the new kindergarten. The old one was built on mine residues and was hazardous to children (radon emissions), so the municipality decided to demolish the old building, restore the surrounding area, and remove the hazardous residues. The new building is now safe for future generations. As regards radon and mercury emissions, the affected areas with smelting residues were also rehabilitated, reconstructed, and adequately rebuilt in Idrija.



002 162 DUMPING OF ORE SMELTING RESIDUES INTO THE IDRIJCA RIVER IN THE 1960'S



002 164 SINKING AND SLIDING EFFECTS CAUSED BY MINING, VISIBLE ON THE SURFACE



002 163 DISTRIBUTION OF HG^0 (ng/m^3) IN THE AIR IN IDRIJA IN DIFFERENT PERIODS IN 2007

In the impacted area of the mine's operation, 500 years (1490-1995) of exploatation and mercury extraction strongly burdened the environment and inhabitants living in the town and nearby sourroundings. During mercury ore smelting, more than 38,000 tons of mercury was released into the environment, mostly into the atmosphere as Hg0 vapours. or dumped into the Idrijca River or along its banks as smelting residue. Such high emissions of mercury into the environment resulted in elevated mercury levels in all parts of the environment throughout the Idrijca Valley, i.e. water, air, soil, sediments and vegetation. The investigations of the environment conducted in the impacted area of the mine over the past 40 years have shown highly increased Hg concentrations in the ground, water, air, flora and fauna.

In the early seventies, when mercury production was at its peak, the mercury concentrations in the atmosphere enveloping the town of Idrija were known to reach levels as high as 20,000 ng/m3. After the mine was shut down, the mercury concentrations in the air decreased dramatically, reaching levels of 10 ng/m3 or lower. Mercury concentrations in the air have been monitored continuously at several locations in Idrija and its surroundings.

Another consequence of mercury mining is also visible in the sinking and sliding of ground above the mine. The long-term programme for the gradual, complete and permanent shutdown of the Idrija Mercury Mine also addresses this problem on the basis of the existing knowledge about the pit, stability conditions in the pit area, and the impacts of the production and use of mercury on the environment. For the purpose of monitoring developments in the pit and on the surface, cave surveying, survey-

ing, inclinometric and geotechnical measurements are being performed. After the shutdown works were intensified (injection of old, uncompressed backfills and the filling of pit areas), the measurable shifts gradually decreased by nearly 100% in only the first four years of monitoring. Since that time, a decreasing trend in horizontal and vertical shifts above the ore deposit has been recorded. Flooding of the pit began at the same time. Due to the geological conditions and pit composition, it was decided that the four upper levels of the mine would remain unsubmersed. All of these preventive measures were carried out to minimise further movements on the surface and in the pit. Geotechnical measurements showed that the submersed part of the pit is settled and stabilized. The measurements of strain states at higher, unsubmersed levels indicate that the stresses caused by shifts traced back to sinking over time are gradually concentrating in fortified areas, and thus do not pose any major hazard.

In line with the provisions of the EU Strategy for Mercury (2005) relating to areas that are suffering the consequences of mercury mining and the shutdown of such mines, as well as the applicable laws and implementing regulations of the Republic of Slovenia stipulating the final rehabilitation of the environment and elimination of the consequences of mining works, a project of monitoring in the period after the termination of mining activities in the Idrija Mercury Mine was prepared.

The monitoring of the narrow and broader affected area of the Idrija Mercury Mine comprises: (1) visual monitoring, (2) geodetic monitoring, (3) geomechanical monitoring, (4) monitoring of ground water, and (5) environmental monitoring, which also includes the health surveillance of miners and the population.

The technical solutions and implementation of the observation system project include the following:

- Visual monitoring is conducted at certain facilities in the affected area of the Idrija Mine simultaneously with other types of monitoring, and comprises the inspection and evaluation of the condition of areas above the ore deposit and the state of rehabilitated or abandoned mining facilities.
- Geodetic monitoring comprises the monitoring of surface and underground shifts in the area of the town of Idrija and the unfilled part of the closed underground part of the mine. For this purpose, meshes of geodetic-surveying observations were set up on the surface and in the pit.
- Geomechanical monitoring comprises geotechnical measurements of deformations and/or shifts and stresses and their transformations in the broader affected area of the mercury mine in various rock strata or old mining areas, as well as in certain facilities in the pit and consequently on the surface.
- Monitoring of ground water, mine and surface waters comprises the identification of aquifers, and the dynamics of underground and mine waste waters and pollutants in them.
- Environmental monitoring comprises the monitoring of concentrations of mercury and other heavy metals in soil, water, air, ground and vegetation, and the impact of pollution on the food chain and humans.

The scope, area, duration and aims of environmental monitoring (Ad 5.), and measures are:

- Air and precipitation,
- Soil, crops, forest fruits, mushrooms and game (roe deer),
- Surface waters, sediments and fish,
- Biological monitoring and eco-morphological evaluation of watercourses,
- Periphyton (community of organisms),

- Macroinvertebrates (water invertebrates),
- Physical and biological elements of the riverbed, riverbanks and the land next to watercourses, with additional information on water vegetation (microphytes), fish and water invertebrates.

The erosion and water model has the next aim:

Calibration of the erosion and river model (MERIMOD) for mercury transport and transformations in the water system: This model will also be applicable to simulations of various scenarios, as predicted by modeling according to the DPSIR (drivers, pressure, impact and response) principles. It shall facilitate decision making with regard to additional remediation procedures of the contaminated environment in the wider area of Idrija and the entire Idrijca and Soča river basins.

The principal objective of the final phase of the monitoring project is the strategic evaluation of impacts on the environment and health (SEA), which is divided into two main parts:

1. »a look back«, determining the advantages and detriments of mining in Idrija, the contribution of this activity to the development of the area, reasons for shutdown of the mine, balance sheet, etc.;

2 »a look ahead« (vision of the future), presenting development possibilities, the necessity of caring for the abandoned mine, and benefits, all connected by ideas, programs and endeavors with human potential in the local and broader environment, which among others also calls for the establishment of an information, education and research centre for mercury in Idrija.

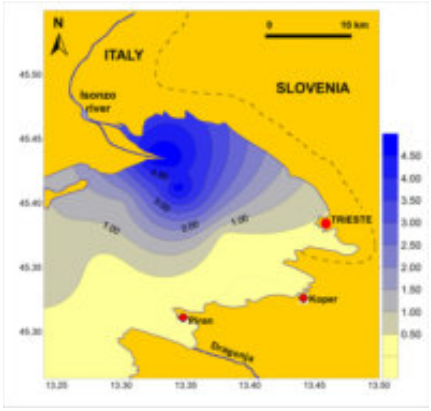
All environmental pollution control activities have been joined in two projects:

- Strategic environmental impact assessment (SEA)
  - preparation and implementation of an environmental control program after shutting down the Idrija mercury mine;
  - identifying the role of the closed mine in the local (regional) environment.
- The "Integrated methodology for remediation of the environment aggravated by past mining" research project, L1-0367 (2008-2011), IJS Ljubljana, FGG University of Ljubljana, Idrija Mercury Mine.

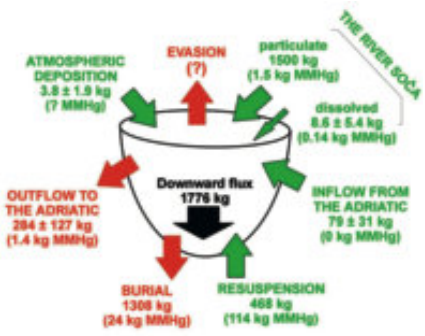
The results of the most recent research works (2008) reveal that the quantity of Hg stored in the catchments, soils and sediments of the Idrija River significantly exceeds the annual quantity of Hg leaving the catchment (890 kg/y). Although in the past decade there have been several attempts at modelling mercury transport and transformations in the wider Idrija region, it will be necessary to develop an integrated model system that will provide us with a better understanding of the numerous segments of mercury circulation in the polluted area (entire catchment area and inshore sea waters). The model and results will be combined into a tool designed to provide support in decision-making, and thus help us to implement the EU Directive on Mercury and the EU Framework Water Directive. A new approach in the project is the integration of environmental sciences with a socio-economic approach.

Workers' environmental control plan in Idrija

Due to intermittent exposure to dust, ionising radiation and elementary mercury in the pit, miners and other workers at the Idrija smelting plant suffered mostly from subacute and chronic mercury poisoning (mercury intoxication – mercurialism). A higher incidence of lung cancer and silicosis was also observed. Idrija participated in an IARC multi-centre study of cancer risk (Boffeta et al, 1998, 2004). In the years following the Second World



002 165 DISSOLVED HG IN THE SURFACE WATER OF THE GULF OF TRIESTE



002 166 MASS BALANCE OF HG IN THE GULF OF TRIESTE

War, the incidence of mercury poisoning was very high, but following the intensification of targeted medical examinations associated with biological monitoring of exposure and the application of other health safety measures, a continuous decrease in the incidence of mercury intoxications was observed. The number of intoxicated workers fell from 104 in 1964 to 2 in 1975. From 1976 onwards, no more workers have suffered intoxication.

All impact monitoring programs of the Idrija Mercury Mine relating to health have been joined in two projects:

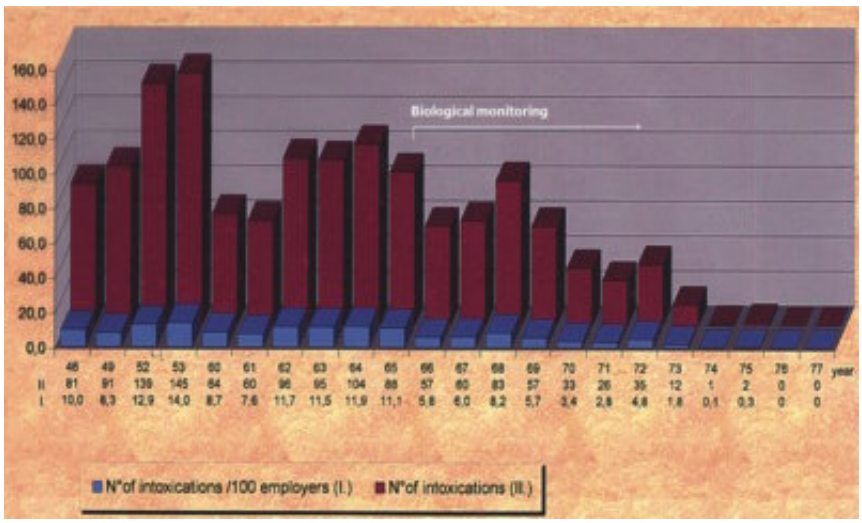
- The impact monitoring program of the Idrija Mercury Mine on the health of ex-miners; The content and scope of monitoring the health of former miners (retired and former Idrija mercury mine workers) in the period after working in the Idrija Mercury Mine (early detection of late effects of those vocational risks that have been the main cause of an increase in the number of workers that have fallen ill or died): Detection of late effects of previous exposure to silicogenic dust, ionizing radiation and mercury.
- The impact monitoring program of the Idrija mercury mine on the health of local population target groups. Local population target groups (inorganic and methyl mercury, radon and its daughters).
-

The results of the two programs should help to guide future measures for improving the living environment of the people in Idrija.

The studies performed support the assumption that the mine's operation increased the risk for certain types of cancer in the inhabitants of Idrija. The lower Hg concentrations in the blood and urine of pregnant women and children point to the reduced risk of Hg impacts. Owing to the possibility of increased Hg intake with food, we proposed that pregnant women and children refrain from consuming vegetables from domestic gardens lying in contaminated areas, and that they refrain from consuming fish with increased methyl-Hg content from the Idrijca River.

Fundamental rehabilitation measures for the prevention of further exposure to radon and its short-lived progeny in buildings standing on smelting residues with increased radionuclide content were presented to the public and to the Municipality of Idrija.

The principal purpose of rehabilitation and recultivation of an environment degraded by mining is by all means to ensure public health and safety, as well as environmentally stable conditions.



02 167 NUMBER OF MERCURY INTOXICATED WORKERS SINCE 1946.FROM 1976 ONWARDS, NO MORE WORKERS HAVE SUFFERED INTOXICATION.

Research, information, public awarness, and international cooperation in Idrija

Owing to the negative effects of mercury on ecosystems, wildlife and humans, a Strategy for Mercury was adopted in the European Community in 2005. The objective of the Strategy is to reduce the environmental load of and exposure of humans to mercury. The Idrija Mercury Mine had understood the adoption of this strategy as an opportunity to offer the world the knowledge we have developed over half a century to an enviable level. Now integrated into the European environment, the Idrija Mercury Mine ia able to use this knowledge to embrace new challenges, particularly in those areas where the issue of mercury appears in one way or another. Most important is by all means the rehabilitation of degraded areas, where our experts are capable of finding the best solutions for inhabitants and the environment. For this purpose the Information and Research Centre for Mercury at the Idrija Mercury Mine was established in 2008. The Centre for Mercury will preserve and develop the knowledge accumulated in Idrija, and in this way contribute to strengthening the reputation of the town as a supporter of development of world technologies. Idrija has earned this reputation through history with the production of mercury; today, the internationally recognized leaders of our economy are preserving this reputation and guaranteeing the future – not only of the town of Idrija, but of the entire region.

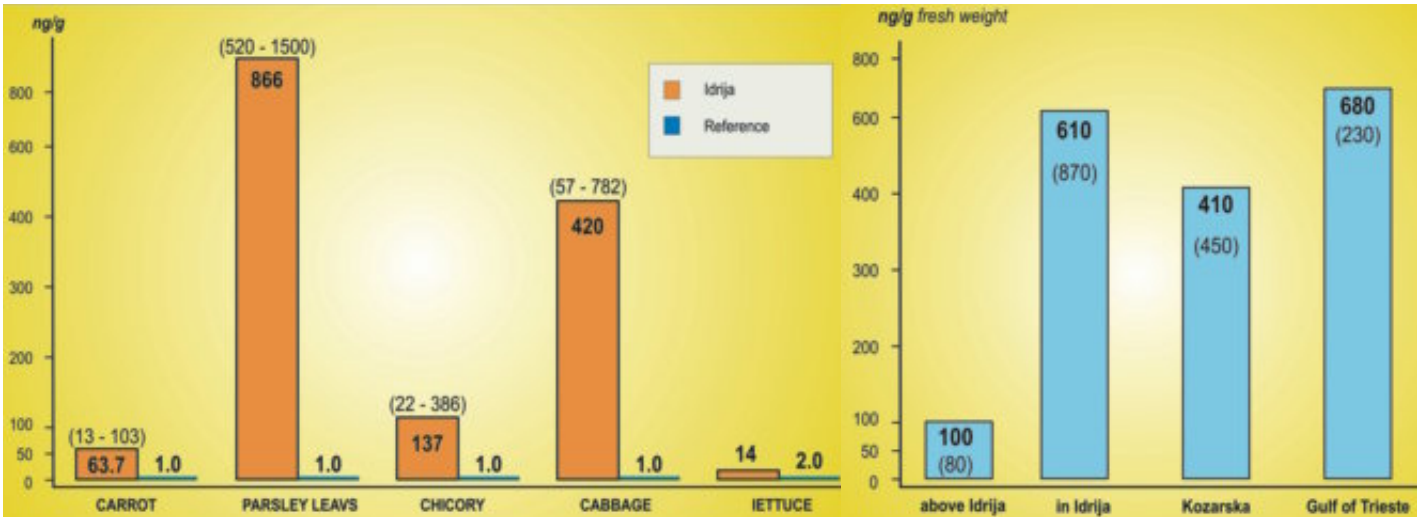
The Idrija Mercury Mine is being transformed from a mining and metallurgical company into an active institution for the following:

- Comprehensive protection of technical heritage in Idrija and its surroundings,
- Technical maintenance of those sections of the mine that are still accessible,
- Restoration of objects and machines,
- Environmental monitoring due to toxic remains caused by 500 years of mercury excavation,
- Research,
- Transfer of knowledge,
- Promotion of local, national and world heritage, and
- The possibility of safe storage of metallic mercury and disposal facilities should be studied (to implement Regulation (EC) No 1102/2008).

Information and Research Centre for Mercury (IRC-Hg)

On the basis of 500 years of mercury excavation, a whole range of

002 168 HG (NG/G) IN VEGETABLES...
002 169....AND FISH FROM IDRIJA REGION



sciences has been developed in Idrija. These sciences relate to acquisition and processing, ecological issues involving mercury, natural and technical sciences, and occupational medicine. The idea of establishing an information and education centre for mercury is partly linked to the European Community Strategy for Mercury (2005). Slovenian researchers, who are among the leading researchers in this field world-wide, also played an important role in shaping the strategy.

The principal objective is for the Centre IRC-Hg to become a meeting point of existing and tangible knowledge, as well as scientific and research activities. Of key importance are contacts with numerous institutions whose activities extend to this area of activity, the establishment of connections between individual levels (local, national, international), and the concern that scientific and expert findings will not remain an end in themselves, but will be further used in practice.

The proposed setup of a mercury information and research centre and its activities in the area of the smelting plant complements the idea of protecting the heritage of mercury, which is why the Centre's operation is partially harmonized with the management plan being prepared by the working group responsible for Idrija's candidacy for entry in the UNESCO list of world heritage (Almadén, Idrija).

After all the shutdown works are completed (the deadline is scheduled for the end of 2009), the main activities of the Idrija Mercury Mine shall be as follows:

- Technical maintenance of those sections of the mine that are still accessible;
- Maintaining the museum section of the mine;
- Draining excess waters (Francis' Shaft);
- Maintaining external facilities;
- Monitoring the Idrija Mercury Mine impact area after closing-down works.

On the basis of government decisions and the provisions of the Decree amending the Decree on the transformation of the Idrija mercury mine company, p. o. (OJ RS No. 41/08, Article 2, item g), the »Information and Research Centre for Mercury« (IRC-Hg) was officially established on 22 June 2008. Since its establishment, it has operated as a special organizational unit within the Idrija Mercury Mine company. The Centre was established in accordance with the Agreement on inter-partner co-operation within the framework of the nomination for inscription on the UNESCO World Heritage List project, with special emphasis on awareness-raising and informing the wider public on the environmental issues related to mercury mining and use. In December 2009 the decision was adopted by the Government of Slovenia on the liquidation of the company Idrija Mercury Mine. IRCHg will be established within "The Idrija Heritage Center" in 2011.

Planned IRCHg activities

Research (environmental protection, safety and health):

- Carrying out research on the load on the narrow and broader Idrija mine impact area due to 500 years of mining;
- Monitoring and evaluation of changes due to harmful impacts on the environment and human health;
- Facilitating and guiding research on the impact of the previously mentioned harmful impacts on the environment and humans;
- Integration and co-operation with domestic and international institutions.

Comprehensive protection of heritage in Idrija and its surroundings:w

- Maintenance and protection of technical heritage and buildings that bear witness to the rich

500-year-old history of mining and life in the town, as well as the most interesting sections of the mine, as natural heritage;
- Restoration of objects and machines;
- Expert co-operation with the Idrija Municipal Museum and other domestic and international institutions;
- Education on heritage conservation;
- Promotion of local, national and world heritage.

Information and Communication Technologies (ICTs):
- Creating a database of all studies, research, projects in the fields of geology, mining, metallurgy, ecology, human health and heritage in Idrija and its surroundings;
- Creating a database of all previous environmental studies and impact assessments of mercury on former miners and the local population;
- Creating a database on positive and negative health indicators of the local population in the area of Idrija and the entire mine impact area;
- Creating and regularly updating an internet portal (in English and Slovene).

Education:
- Educating on mercury ore excavation and processing processes (geology, mining, metallurgy), ecological issues (geochemistry, geomechanics, chemistry, ecology, health,…), and heritage; performing small-scale experiments for students (mercury house of experiments...) and target-group oriented presentations (primary and secondary school students, university students, experts);
- Educating on heritage conservation (co-operation with the Idrija Municipal Museum…);
- Co-operating with expert groups in Slovenia in defining viewpoints for strategic starting points put forward by the EU;
- Co-operating with mining experts at the European Commission;
- Co-operating with international organizations that deal with similar issues;
- Organizing conferences;
- Preparing publications and presentations in technical literature;
- Participating in international congresses and conferences.

Informing the public and raising public awareness through:
- Workshops, presentations and lectures;
- Access to the database and archives (internet portal);
- Information on mercury heritage protection and conservation;
- Publication of a regular bulletin featuring summaries of all publications related to mercury issues;
- Preparation of promotion materials.

Smelting plant area restoration and integration of IRCHg
- Restoration conservation plan
- Restoration implementation plan

Today, the Idrija Mercury Mine is, among other things, endeavouring to restore, preserve and arrange the mining technical heritage in the area of the smelting plant, and to adequately present the Čermak-Špirek's and rotary furnaces to the general public. It is establishing the Information and Research Centre for Mercury (i.e. a study and research centre), a part of which will be set up in the smelting (separation) plant complex. The Centre will serve the needs of various target groups (pupils, secondary and university students, experts, interested individuals, tourists), and will be designed for various activities, informing and educating on the processes of mercury extraction and production (geology, mining, metallurgy), environmental issues (geochemistry, geomechanics, chemistry, ecology, …), access to the data base and archives, and the conduction of

minor experiments for schoolchildren (mercury house of experiments, …). The Information and Research Centre for Mercury will disseminate knowledge obtained in 500 years of mercury mining in Idrija.

International model for academic and scientific-technical collaboration:

As explained previously, the Bipartite Agreement contemplates not only coordinated cooperation in the management and monitoring of conservation of the components of the serial property, but also scientific development and knowledge management through the institutions that are linked to them.

The concept on which the proposal is based is that of an open model for training, research and scientific-technical development that uses the resources available at the two proposed components of the serial property on a coordinated basis. This model would span pre-professional and postgraduate teaching, the training of specialists, research and dissemination in all possible modalities and aimed at the various population groups.

The following is a list of the institutions and entities that would undertake the various responsibilities.

Country	Institution	Entity	Function
Spain	School of Mining and Industrial Engineering of Almadén (University of Castile-La Mancha)	Francisco Pablo Holgado Historic Mining Museum	Academic, research, dissemination
		Royal Forced Labour Prison Interpretation Centre	Dissemination
	School of Mining and Industrial Engineering of Almadén / Municipality of Almadén	The Almadén International Environmental Geo-mining Practices Centre	Academic, research, Decontamination, dissemination
		The Interpretation Centre for the Intercontinental Camino Real.	Dissemination
		Laboratory on Biogeochemical research on Heavy Metals of the Applied Geology Institute.	Research, decontamination, dissemination
	Francisco Javier de Villegas Foundation	Museum of the Royal San Rafael Mining Hospital	Dissemination
		Technological National Centre of Mercury Decontamination in Almadén	Research, decontamination, dissemination
		Historic Archive of the Almadén Mines.	Academic, research
		Almadén Mining Park, Mercury Museum, Mining Interpretation Centre	Academic, research, dissemination
Slovenia	Municipality of Idrija	Information and Research Centre	Academic, research, dissemination
		UNESCO information-interpretation Point activities	Dissemination, general information on the protected site

5.f. Sources and levels of finance

As explained in 5. e, there is a common approach for the management of the serial property being proposed, although, as we have already highlighted in previous sections, the political, legal, economic and social characteristics are different in the two locations. This means that the financial resources and the channels in which the latter are obtained are different, but the departure point is a shared objective.

(001) Almadén

Regulations and sources of finance aiming to the protection and preservation of heritage. Public spending and private financial contributions.

(SUÁREZ - INCLÁN, María Rosa, 2004, reviewed 2010).

1) Legal framework and main public sources of finance

The General State Budget Act establishes each year the funds to be applied by the State Administration in different fields. Thus, the Ministry of Culture manages its funds according to its own budget in order to make the necessary investments. Besides direct investments, the Ministry makes different complementary agreements with the Autonomous Communities, which also have their own budget and funds, to assist them on the protection and preservation of cultural heritage in their territories.

Another important source of finance is the *"one per cent for culture"*. Although this figure had already existed before (State legislation brought it in for the first time in Royal Decree 2832/1978), it was consolidated as a consequence of the "Steps for Development" contemplated in Section VIII of the Law on Spanish Historical Heritage of 1985 (LPHE), which were developed in the following provisions: Royal Decree 111/1986 of January 10th as a partial development of the said Law, modified in part by Royal Decree 64/1994 of January 21st (Official State Gazette of March 2nd).

"One per cent for culture" is a promotional measure in Spanish legislation, intended to fund heritage conservation or enhancement work or to promote artistic creativity. It consists of including an item that is equivalent to at least one per cent of the funds contributed by the state in each public work that is totally or partially funded by the State. This means that every public work with a budget of over six hundred thousand euros must include an item, equivalent to one per cent of the funds from the

public treasury, towards the funding of heritage conservation or enhancement activities.

This legislation on the "one per cent for culture", with which the State Administration must comply on a mandatory basis, was not, however, for investments in public works carried out by the Autonomous Community Administrations. The latter have gradually incorporated this figure into their respective legislations, with the result that they benefit doubly from the State investments and their own investments in public works.

Thus, Chapter I of Title V of Act 4/1990, of 30th May, on the Historic Heritage of Castilla-La Mancha, stipulates in article 59 that the Castilla-La Mancha general budgets shall include a line equivalent to at least 1% of the funds destined for public works, intended to fund conservation work on Historic Heritage, preferably on the works themselves or on their surroundings. Therefore, this finance shall be used towards protected elements in Almadén, either on an individual basis or because they are part of its protected areas.

2) The establishment of stimulating measures and tax incentives.

The above "Steps for Development" contemplated in Section VIII of the Law on Spanish Historical Heritage of 1985 (LPHE), were also developed and updated by the Law 49/2002 of December 23rd on the Tax Regime of Non-profit Entities and Tax Incentives for Patronage, and by the Law 50/2002, of 26 December on Foundations. Also, Personal Income Tax and Corporate Income Tax Laws, if later in time, may have an effect on the tax benefits fixed by the above previsions by determining some percentages in tax reductions foreseen by the former.

The General State Budget Act may amend, in accordance with the provisions of article 134, paragraph 7 of the Spanish Constitution: a) The tax rate of non-profit entities; b) The percentage of deduction and limits for their application provided for in the Law 49/2002 of December 23rd on the Tax Regime of Non-profit Entities and Tax Incentives for Patronage. Likewise, the General State Budget Act may establish a list of preferential Patronage activities, as well as the beneficiary entities, in the areas of general interest determined by the above Law 49/2002 of December 23rd. In this case, the General State Budget Act may also establish for this activities and entities up to a five-percentage increase in deduction percentages and in the percentage amount of the maximum levels of deduction admitted by the Law 49/2002.

Apart from the above-mentioned Law 49/2002 of December 23rd on the Tax System of Non-profit Entities and Tax Incentives for Patronage, there are other related provisions, like the new Organic Law 1/2002 of 22 March 2002 on Associations and the above mentioned new Law 50/2002 of 26 December, on Foundations.

The State Sphere's Foundations was regulated by Royal Decree 316/1995, of February 23rd and is implemented by other complementary dispositions.

The provisions of the Law on the Tax Regime of Non-profit Entities and Tax Incentives for Patronage apply notwithstanding whatever may be established by Agreements and Conventions entered into by the State with churches, confessions and religious communities[6]. The religious entities and foundations created or developed by the same legal instruments may optionally benefit from the stimulating measures established by this Law if they wish so, provided that they are inscribed in the Register of Religious Entities and meet the requirements fixed by the Law.

The following are *the most important stimulating measures in financial terms :*

[6] The Financial Agreement made between the State and the Holy See, and the Cooperation Agreements signed with the Spanish Federations of Religious Evangelic Entities (Law 24/1992 of 10 November), Israeli Communities (Law 25/1992 of 10 November) and the Islamic Community of Spain (Law 26/1992 of 10 November).

1) Relating *constructors and firms involved in public works, as well as restorers, owners and holders,* the Law establishes preferential access to official credit for funding, public works, conservation, upkeep and rehabilitation, as well as archaeological prospectuses and excavations carried out in areas declared to be of cultural interest. In order to do this, the Public Administrations may establish, by means of agreements with public and private entities, the conditions of using credit benefits.

2) As regards *public works built and development by private persons by virtue of State dispensation without financial contribution from the State,* 1 per cent of the overall budget shall be applied to funding conservation or enrichment works for the Spanish Historical Heritage, preference being given to the works themselves or their immediate surroundings. An exception is made in the case of public works with and overall budget under 600,000 Euros, which affects State Security and the security of public services. The Ministry of Culture drafts a yearly Plan for Conservation and Enrichment debited to the said funds. In order to execute the projects and programs one must request cooperation from the Administration.

3) *Debt payment in different taxes:* Succession and Gift Tax, Property Tax, Personal Income Tax and Corporate Income Tax may be paid *by handing over assets belonging to the Spanish Historical Heritage* which are registered at the General Registry of Assets of Cultural Interest or included in the General Inventory. In such case, the said assets shall be appraised, for this purpose, by the Board of Classification, Appraisal and Export of Assets belonging to the Spanish Historical Heritage.

4) *Exemptions and other benefits: Assets belonging to the Spanish Historical Heritage registered in the above Registry and Inventory* are exempt from Property Tax. These assets may be reappraised for tax purposes up to their market value, being exempted from increased capital tax, unless they are part of the holder's floating assets. Likewise, the following are exempt from Local Real State Tax:

- Monuments and gardens each declared to be assets belonging to the Spanish Historical Heritage;
- Those classified as "specially protected" by the urban development plan for archaeological areas;
- When included in classified Historical Sites, those at least 50 years old which receive complete urban protection;

There is an exemption from other local taxes on property or its use and conveyance when owners or holders of real property rights have undertaken conservation, improvement or rehabilitation works on Real State declared to be of cultural interest.

These exemptions shall be applied in the terms established by respective municipal regulations.

5) *Tax incentives for patronage* established in Act 49/2002 of 23 December on the Tax Regime of Non-profit Entities and Tax Incentives for Patronage:

The tax incentives provided for in this Act are applicable to gifts, donations and contributions made *in favour of:* 1) Registered foundations and non-profit associations recognized to benefit the public that opt for the special tax regime provided for them and fulfil the requirements set out in the Law; 2) the State, Autonomous Communities and Local Entities, as well as official autonomous institutions linked to them; 3) Universities; 4) Other public institutions determined by the Act.[7]

[7] With regard to churches, religious confessions and communities having agreements of cooperation with the State, as well as the religious associations and entities contemplated in such agreements, the Act provides that they are considered qualified entities to benefit from patronage as well as from the special tax regime provided for under this law, without prejudice to the provisions of said agreements. With regard to the foundations belonging to these entities, and also without prejudice to said agreements and the regulations developing them, they may opt for the special tax regime set out in this Act.

The tax regime allows deductions for *outright and irrevocable gifts, donations and contributions of the following nature:* a) Monetary gifts, gifts of properties or rights; b) Membership fees; c) Establishment of a right of usufruct *in rem* over properties, rights or securities, without compensation; d) Gifts or donations of properties belonging to national historic heritage that are registered in the General Registry of Properties of Cultural Interest or included in the General Inventory; e) Gifts or donations of cultural properties of guaranteed quality to entities whose purposes include the pursuit of museum activities and the promotion and dissemination of historic art heritage.

In the case of revocation, the donor will be liable for payment of the amounts of the deductions made as well as possible late payment interests.

The tax base for deductions made for the aforementioned gifts, donations and contributions will be the following: a) For monetary gifts, their amount; b) For gifts or donations of properties or rights, their book value, or, otherwise, their value as determined by the rules for Property Tax. c) For the establishment of a right of usufruct over immovable properties, 2 % of their cadastral value. d) For the establishment of a right of usufruct over securities, the annual amount of the dividends or interests perceived by the beneficiary. e) For the establishment of a right of usufruct over properties or rights, the annual amount resulting from applying the legal interest rate for money. f) For gifts or donations of works of art of guaranteed quality and properties that belong to national historic heritage, the assessment made by the Classification, Valuation and Exportation Board. In the case of properties not belonging to national historic heritage, the Board will assess whether they are of sufficient quality. The maximum limit for the assessed value of these properties will be their usual market value at the time of transfer.

With regard to the *deduction from personal income tax,* taxpayers are entitled to deduct 25% of the value of donations from their net taxable income. This value will be computed according to the limit provided in Personal Income Tax Act[8] and other tax regulations. Non-resident taxpayers operating in Spain through a permanent establishment may apply the same deduction. Non-resident taxpayers operating in Spain not through a permanent establishment can apply the income tax deduction to taxable events occurring within one year of the date of the gift, donation or contribution and the amount of the deduction may not exceed 10 % of the taxable base of all returns submitted in this period.

With regard to the *deduction from corporate income tax,* the deduction will be 35%, after applying all other tax deductions and credits corresponding to this tax, and the amounts not deducted in the first year can be deducted in the returns of the tax periods concluding in the subsequent ten calendar years. The amount of this deduction cannot exceed 10 % of total taxable income in the tax period. The amounts in excess of this limit can be deducted in the tax periods concluding in the subsequent ten calendar years.

Priority patronage activities. The General State Budget Act may establish a list of priority patronage activities within the scope of the general interest purposes cited in this Act, as well as the qualifying entities for patronage. With respect to these activities and entities, the General State Budget Act may increase up to a limit of 5 % the percentages and limits of the deductions established in this Act.

Exemption of incomes and capital gains derived from gifts, donations and contributions. Capital gains and revenues resulting from gifts, donations and contributions will be exempt from personal income tax, corporate income tax and non-resi-

[8] Act of 28th November 2006 on Personal Income Tax and of partial modification of Acts on Corporate Income Tax, Non Residents Income Tax and Property Tax.

dent income tax. Gains derived from transfers of urban land or the establishment or transfer of rights of enjoyment restricting the ownership rights to real property, when carried out for the same purposes will be exempt from the Urban Land Gains Tax.

The beneficiary entity must issue a *certificate* of the gifts, donations and contributions received and file it with the tax administration.

The Act also covers the *Tax regime for other forms of patronage: a) Business- non-profit entity agreements on general interest activities,* by which these entities, in exchange for financial support to achieve their specific aims, agree in writing to publicize by any means the involvement of the company in their activities. The amounts paid or the expenses incurred will be considered deductible expenses and the tax regime applicable to these amounts will be incompatible with the other tax incentives provided for under this law. *b) Expenses on general interest activities* will be considered as deductible expenses in the determination of taxable income for corporate income tax, non-resident income tax of taxpayers operating in Spain or the net taxable income of the economic activity of taxpayers subject to direct evaluation regime of personal income tax, provided that they are included in the expenses made for the general interest purpose specified in the Act.

This deduction will be incompatible with the other tax incentives provided for under this Act. *c) Support programs for events of exceptional public interest* which may be established by the Act, as appropriate. This Act will regulate their duration and the creation of a consortium or the designation of an administrative body in charge of implementing the program and certifying the suitability of the expenses and investments made with respect to the established aims and plans, the basic lines of action and the tax benefits that will be applicable. These entities may deduct from their net taxable income 15 % of the expenses and investments corresponding to, among others, the rehabilitation of buildings and other constructions that contribute to enhancement of the physical area concerned. These works must comply with the requirements established in architectural and urban planning regulations that may be established in this regard by both the municipalities affected by the respective program and the designated consortium or administrative body. When advertising support refers specifically to dissemination of the event, the deduction will be for the total amount of the investment; otherwise, the tax base for deduction will be 25 % of the investment. This deduction, when added to the other corporate income tax deductions, cannot exceed 35 % of net taxable income after subtracting deductions and credits to avoid double taxation. Non-deducted amounts may be deducted in the returns of the subsequent ten calendar years. Calculation of the time period may be deferred until the first year within the period of prescription in which profits are obtained by newly created entities or losses from previous years are offset by the provision of new resources. Taxpayers are entitled to the deductions provided for in this Act for donations and contributions to the consortium. The priority patronage regime will be applicable to programs and activities related to the event, provided that they are approved by the consortium or competent administrative body and are undertaken by the entities foreseen in the Law and the aforementioned consortium, with an increase of 5 % in the percentages and limits of the established deductions. Transfers subject to the Transfer Tax and Stamp Duty will benefit from a 95 % tax credit on the tax due when the properties and rights acquired are used directly and exclusively by the taxpayer for the purpose of investments eligible for deduction including, among others, the rehabilitation of the buildings and constructions

indicated above. Companies or entities implementing the aims of the respective program will receive a 95 % tax credit on all local taxes and duties that may be chargeable on operations related exclusively to implementation of this program.

6) Additional Provision 1 of this Act introduced some *amendments to Personal Income Tax Act 40/1998 of 9 December and other tax regulations,* of which the most notable are the following:

- *"Public grants by the competent administrations to owners of properties belonging to national historic heritage* registered in the General Registry of Properties of Cultural Interest referred to in National Historic Heritage Act 16/1985 of 25 June, for the sole purpose of their conservation or rehabilitation, may be allocated in fourths to the year they are obtained and the following three years, provided that they comply with the requirements established in this Act, in particular with respect to the obligations of public visiting and exhibition of said properties".

- Taxpayers will be entitled to a 15% deduction on the tax due for the amount of the investments or expenses made for: a) *Acquisition of properties belonging to national historic heritage outside of Spain for their introduction in Spain,* provided that the properties remain within Spain and part of the possession of the holder for at least three years. The tax base for this deduction will be the valuation made by the Classification, Valuation and Exportation Board or by the corresponding bodies of the Autonomous Communities. b) *Conservation, repair, restoration, dissemination and exhibition of properties owned by the holder that are classified as properties of cultural interest according to the National Historic Heritage Act,* provided that they comply with the requirements of this Act, in particular with respect to the obligations of public visiting and exhibition of said properties. *c) Rehabilitation of buildings, maintenance and repair of roofs and facades, as well as improvements in infrastructures of property owned by the holder* located in a protected area of Spanish cities or in architectural, archaeological, natural or landscape ensembles or assets located in Spain declared World Heritage by the UNESCO."

7) Additional Provision 2 also introduced amendments to Corporate Income Tax 43/1995 of 27 December, including:

- Companies subject to corporate income tax will be entitled to a 15 % deduction from net taxable income for the amount of the investments or expenses carried out in for the protection and dissemination of national historic heritage and cities, ensembles and assets declared World Heritage, *in the same circumstances as those specified above for private individuals.*
- *Non-profit entities to which the tax regime established Act 49/2002 of 23 December* [9] *is not applicable,* will be subject to corporate income tax at a rate of 25 %.
- *Non-profit entities to which the tax regime established Act 49/2002 of 23 December is applicable*, will benefit from the tax exemptions provided for in this Act and pay only 10 % of income derived from non-exempt economic activities.

8) Additional Provision 3 included another amendment to Royal Legislative Decree 1/1993 of 24 September approving the Transfer Tax and Stamp Duty Act. By virtue

[9] Non-profit foundations and associations recognized as public utility entities that opt to be included in the special tax regime established in this Act and meet the necessary requirements.

of this amendment, the aforementioned non-profit entities that opt for the special tax regime provided in Act 49/2002 of 23 December will be exempt from this tax.

3) The role of NGOs in the process of protection of cultural heritage and mechanisms existing to stimulate voluntary shareholding: Special Tax Regime of Non-profit Entities:

Among other entities, both foundations and associations declared of public utility may benefit from the special measures provided for in Act 49/2002 of 23 December on the Tax Regime of Non-profit Entities and Tax Incentives for Patronage.

These entities must meet the following requirements:

1) They must pursue general interest purposes (such as cultural, scientific, promotion of volunteer work or other aims of general interest);

2) They must allocate to pursue their specific purposes at least 70% of the income and revenues derived from: a) economic activities; b) transfers of properties and rights of ownership (income from onerous transfers of immovable properties where they conduct their activity is not included, provided that such income is reinvested in properties and rights of like nature); c) income obtained by any other means, after deducting the expenses incurred to obtain such income and excluding from this calculation the expenses incurred for compliance with statutory aims or the purpose of the non-profit entity. Calculation of income will not include contributions or donations received in the form of a capital asset. Non-profit entities must allocate the remainder of income and revenue to increasing capital assets or reserves.

3) They must not carry out economic activities unrelated to their purpose or statutory aim. This requirement will be understood to be fulfilled if annual net income from this type of non-exempt activities does not exceed 40 % of the total annual income of the entity and does not violate the laws for the defence of free competition. The leasing of immovable property belonging to the entity does not constitute an economic activity for this purpose.

4) The founders, associates, patrons, statutory representatives, members of the governing board and their spouses or relatives to the fourth degree inclusive must not be the principal beneficiaries of the foundation's activities or benefit from special conditions. Nevertheless, this rule will not apply to foundations whose purpose is the conservation and restoration of properties belonging to national historic heritage that comply with the requirements of this specific regulation, in particular with respect to the obligations of public visiting and exhibitions of said properties.

5) The positions of patrons, statutory representative and member of the governing board must not be remunerated, notwithstanding the right to be reimbursed for duly justified expenses incurred in the performance of their functions, as long as they do not exceed the limit for per diem allowances exempt from taxation. Patrons, statutory representatives and board members may receive remuneration for giving services to the entity, including those given within the framework of an employment relationship, other than those involved in the performance of the functions corresponding to them as patrons or members of the governing board, but such persons may not participate in the economic results of the entity, either directly or indirectly through a third party person or entity.

6) In the case of dissolution, the assets of the foundation must be transferred in their entirety to foundations and associations qualifying as beneficiaries of patronage or other public entities pursuing general interest purposes, and this circumstance must be expressly provided for in the founding business or in the statutes of the dissolved entity.

7) They are legally registered in the corresponding Registry.

8) They comply with their accounting obligations, prepare a detailed financial report in accordance with applicable regulations and file it in due time with the public body in charge of the corresponding registry.

These entities will be granted the following tax benefits:

1) Corporate Income Tax

1. Exempt Income[10]

1. Income derived from the following will be exempt:
a) Gifts and donations received to support the purpose of the entity, including contributions and donations in the form of capital assets and financial assistance received through the business-non-profit entity agreements regulated in article 25 of this Act;
b) Membership fees paid by associates, collaborators or benefactors;
c) Public grants, except those used to finance non-exempt economic activities.

2. Income derived from the movable and immovable property of the entity.

3. Income from acquisitions or transfers, whatever their modality, of properties or rights.

4. Income obtained from exempt economic activities in the cases foreseen in the Act.

5. Income obtained from other exempt income sources included in the above items.

1.1. Exempt Economic Activities

Income derived from the following economic activities carried out in compliance with the specific purpose of the foundation will be exempt:

4. Economic activities related to properties declared of cultural interest in accordance with the National Historic Heritage Act and respective regulations of the Autonomous Communities, as well as museums, libraries, archives and documentation centres, provided that they meet the requirements established in said Act, in particular with respect to the obligations of visiting and public exhibition of these properties.

8. Economic activities consisting of the organizations of exhibits, lectures, symposia, courses or seminars.

9. Economic activities related to the preparation, editing, publication and sale of books, magazines, brochures, audiovisual and multimedia materials.

11. Economic activities that are merely ancillary or complementary to the exempt economic activities or to the activities aimed to comply with statutory aims or purpose of the non-profit entity. Economic activities will not be considered as ancillary or complementary if their net income exceeds 20 % of the total income of the entity.

12. Economic activities of minor importance. Economic activities will be considered as minor if their net income does not exceed 20,000 euros.

1.3. Determination of taxable base and tax rate

[10] Corporate Income Tax Act 43/1995 of 27 December specifies that these entities will be exempt from payment of corporate income tax on the following income: a) Income derived from the conduct of activities constituting its specific purpose or aim b) Income derived from lucrative acquisitions and transfers, provided that they are carried out in compliance with its specific purpose or aim; c) Income resulting from the onerous transfer of properties related to the pursuit of its specific purpose when the total amount obtained is allocated to new investments related to said specific purpose or aim; New investments must be made within the period of one year prior to the date of delivery or availability of the asset and the three following years and remain in the assets of the entity for seven years, unless the asset has a shorter useful life. These three exceptions will not apply to income from economic activities, movable or immovable property or transfers different from those indicated above. Income from economic activities will be considered to be all income from either work by staff or capital gains, when it constitutes the organization by the entity on its own account of either the means of production or human resources with the purpose of undertaking the production or distribution of goods or services. Determination of the taxable base will only include income derived from non-exempt economic activities and will be taxed at a rate of 10%. The following expenses will not be considered tax-deductible: a) Expenses attributable solely to exempt income. Expenses partially attributable to non-exempt income will be deductible in the percentage they represent of the income obtained in the year from economic activities with respect to the total income of the entity. b) The amounts corresponding to the application of results and, in particular, those allocated to support exempt activities. Entities subject to this tax must maintain their accounting in accordance with the Code of Commerce or the specific regulations governing them.

1. Non-profit entities will only be subject to corporate income tax on income derived from non-exempt economic activities.

2. The following will not be considered as tax-deductible expenses: a) Expenses attributable solely to exempt income. b) Amounts allocated to amortize assets not related to taxable economic activities. c) Amounts corresponding to the application of results and, in particular, surpluses from non-exempt economic activities.

3. The positive taxable base corresponding to income derived from non-exempt economic activities will be taxed at a rate of 10 %.

1.4. Income not subject to withholding

Exempt income provided for in this Act will not be subject to withholdings or payments on account.

1.5. Obligation to file

Entities that opt for this tax regime are obliged to file a Corporate Income Tax return for their total income, both exempt and non-exempt.

1.6. Conditions required for application of this special tax regime

Application of this special tax regime is subject to compliance with the conditions and requirements described above. Failure to comply will result in the obligation to pay all amounts that would have been paid if the entity had not benefited from this special tax regime and late payment interests, without prejudice to any fines that may be applicable.

2) Local taxes

1. Properties in the ownership of entities that have opted for this special regime will be exempt from payment of Real Estate Tax (except those related to economic activities not exempt from Corporate Income Tax) and the Transfer Tax on properties acquired by onerous transactions.

2. These entities will also be exempt from the Urban Land Gains Tax. The application of both exemptions will be subject to communication to the municipal government concerned that the entity has opted for this special regime and compliance with all applicable conditions and requirements. These exemptions are established without prejudice to those provided for in the specific regulation of local taxes.

Non-profit foundations and associations that opt for this special tax regime are also *qualifying recipients for patronage,* since the gifts, donations and contributions they receive enjoy the tax incentives provided for in this Act.

Regard to *charitable building entities* established under article 5 of Act of 15 July 1954, *they may opt for the special tax regime* foreseen for non-profit foundations and associations, provided that: a) they comply with the requirements established in the specific Act regulating these entities, b) those specifically indicated in Act 49/2002 of 23 December regulating the Tax Regime of Non-profit Entities and c) they are duly registered in the corresponding registry of the state or autonomous administration. However, *the status of qualifying recipients for patronage will not be applicable to them* and, therefore, they will not be eligible for the tax incentives for patronage provided for in this Act.

With regard to *religious entities*, refer to the information given at the end of section III and footnotes 2 and 3.

The General State Budget Act may amend, in accordance with the provi-

sions of article 134, paragraph 7 of the Spanish Constitution: a) The tax rate of non-profit entities; b) The percentage of deduction and limits for their application provided for in this Act.

With respect to *Value Added Tax (VAT),* non-profit entities may expressly request exemption from this tax for the activities carried out in compliance with their purposes that do not imply a financial gain of a non-exempt nature.

4) Public spending and private financial contributions.

As stated in section 5.b.3. , the total amount of public spending specifically for the protection, conservation, study and rehabilitation of historic heritage both by the State and Autonomous Communities as well as Local Corporations accounts for 15 to 16% of public spending on culture, amounting to approximately 0.2% of total public spending.

Of this total amount, approximately 31.35% is provided by the State; 44.56% by Autonomous Communities; 6.13% by Province and Island Councils; 6.54% by City Councils of more than 50,000 inhabitants; and 11.42% by City Councils of less than 50,000 inhabitants.

Aside from these public funds, the Church contributes from its own resources a slightly lower amount than Autonomous Communities. To this amount, the investments made by entities such as Banks, Savings Banks and Foundations should be added. Adding together these and the previous contributions, the approximate percentages of each of the above mentioned investment sources are as follows: State, 22.30%; Autonomous Communities, 31.70%; Regional and Island Councils, 4.36%; City Councils of more than 50,000 inhabitants, 4.65%; City Councils of less than 50,000 inhabitants, 8.13%; Church, 26.78%; Banks, Saving Banks and Foundations, 2.8%.

Financial contributions by private individuals must also be taken into account, these being particularly difficult to assess because their primary purpose is for ordinary maintenance. Many restoration, conservation or rehabilitation works of cultural properties are taken on by private individuals. They obtain government subsidies covering a varying percentage of the total cost of the required investment (amounting to 30 or 40% of the total investment value, and even to 80% in some cases), as well as low-interest or preferential rate loans.

The management plan for Almadén Cultural Heritage shall benefit of the above measures and budgets.

Funding of the Mining Park in Almadén

Measures contemplated in the Management Plan:

Finance options (subsidies)

Financial aid from the Castilla-La Mancha Regional Government, Department of Industry and Labour

- Title: Subsidies for the recovery of the environment affected by mining activities carried out by companies and local bodies (Order dated July 24th, 2001). OFFICIAL JOURNAL OF CASTILLA - LA MANCHA (DOCM): NO.: 88 DATED: 07/08/2001 real page: 9469
  Calendar for submissions: From January 1st to March 31st in each financial year.
  Purpose: Improvement and recovery of the environment affected by former mining activities and structures.
  Beneficiaries: Companies carrying out activities to take advantage of mineral raw materials.
  Actions that qualify for subsidies:

Plans for the restoration and improvement of the environment and projects intended to correct the environmental impact on areas affected by mining activities. Former mining deposits no longer in use, abandoned, lapsed or in the process of becoming lapsed.
Amount of the financial aid: Maximum of 30% of the investment with a limit of € 54,000.

- Title: Subsidies for new business investments generating employment and the extension and/or modernization of companies. (Order dated July 25th, 2002). DOCM: Order dated July 25th, 2002, regulating the award of financial aid to business investments stipulated in Decree 53/1998 dated May 26th, 1998, on competitiveness and incentives for business investment in Castilla - La Mancha. DOCM no. 96, dated August 5th.
  Calendar for submissions: Start of period: August 6th, 2002
  End of period: June 30th, 2003
  Purpose: To encourage business investment generating employment and the extension or modernization of companies.
  Beneficiaries: Industrial and service companies (particularly SMEs), joint ventures and partnerships of companies and intermediaries. Those companies listed in point three of article 2 of the Order are expressly excluded.
  Amount of the financial aid: Maximum of 30% of the approved investment.

- Title: Financial aid within the scope of Department of Industry and Labour with no specific prior call for submissions (Order dated August 1st, 2000).
  DOCM: Order dated July 5th, 1994 (DOCM no. 83) inviting submissions for financial aid within the scope of Department of Industry (DOCM no. 35). Order dated August 1st, 2000, partially amending the previous Order.
  Beneficiaries: Local bodies in Castilla - La Mancha and private individuals or bodies corporate and public or private institutions intending to engage in the activity referred to in the application for the subsidy in the territory of the region.
  Actions that qualify for subsidies: The activities that qualify for subsidies include: promotion and dissemination of products from Castilla - La Mancha, industrial designs, improvements in competitiveness, social and economic studies of Castilla - La Mancha, premises of a commercial, industrial or tourism-related nature, etc.
  Amount of the financial aid: This will depend on the expenses or investments necessary for the activities to be undertaken.
  In excess of € 120,000 the corresponding collaboration agreements must be signed.

- Title: Financial aid for museographic initiatives.
  DOCM: Order dated December 27th, 2002, inviting submissions for museographic initiatives in Castilla - La Mancha (DOCM no. 1, dated January 3rd).
  Calendar for submissions: Start of period: 4/1/2003
  End of period: 4/3/2003
  Purpose:
  To encourage investment in museographic initiatives and projects, with regard to the production of inventories, cataloguing of holdings and museographic installations, particularly systems for the exhibition, lighting, security, storage and conservation of museums and visitable collections located in the territory of Castilla - La Mancha.
  Beneficiaries: Local authorities, individuals, bodies and not for profit institutions, registered owners of museums, visitable collections located in the territory of Castilla - La Mancha and planning to execute museographic

plans and projects in 2003.
Amount of the financial aid:
Up to 100% of the costs; in no case shall the amount of each financial aid exceed € 90,000.

- Title: Assistance to finance the execution of work on real estate associated with the historic heritage of Castilla - La Mancha.
DOCM: Order dated December 11th, 2002, from the Department of Education and Culture, regulating the subsidies intended to finance the execution of work on real estate associated with the historic heritage of Castilla - La Mancha (DOCM no. 157, dated December 18th).
Calendar for submissions:
Start of period: December 19th, 2002
End of period: February 19th, 2003
Purpose: To provide economic assistance to finance the execution of work on real estate associated with the historic heritage of Castilla - La Mancha.
Criteria: Intrinsic cultural value of the asset. Diminished economic capacity of the beneficiary.
Architectural interest of the planned building works. The inclusion of works improving the external treatment of buildings. An undertaking regarding the intensification of tours and the cultural function of the assets forming part of the historic heritage.
Beneficiaries: Private individuals and public or private bodies owning elements related to the Historic Heritage of Castilla - La Mancha. Holders of *in rem* rights on such elements and their lessees providing they can show the agreement of the owners with the works proposed.
Actions that qualify for subsidies:
Types of elements that can be subsidized:
1. Assets declared to be of Cultural Interest.
2. Those included on the Inventory of Architectural Heritage of Historic and Artistic Interest.
3. Those that have been given special planning consideration in view of their historic values.
4. The components of the surroundings of the property classified as Cultural Interest Property.
5. Assets of an ethnographic nature.
Amount of the financial aid:
Buildings in sections 1, 2 and 3 (section one of the Order): Up to 50% of the total estimate of the building works, up to a maximum of € 30,000. Properties in sections 4 and 5: Up to 40% of the total estimate, up to a maximum of € 12,000.
New building works for on the properties in section 4: Up to 10% of the total estimate without exceeding € 12,000.
For works considered to be of particular social or cultural utility, in buildings classified in sections 1, 2, 3 and 5: Up to 50% of the total estimate of the work without limit in the amount.

- Title: Financial assistance to carry out archival projects against credits for current operations.
Official State Gazette (BOE): NO. 21 dated January 24th, 2003 (page 3235).
Calendar for submissions: 30 days following publication in the BOE.
Beneficiaries: Public institutions and private not for profit bodies.
Amount of the financial aid: Competitive Procedure. Less than or equal to 90% of the total cost.

Financial aid from the Castilla-La Mancha Regional Government, Department of Culture, Tourism and Handcrafts:

- Title: Subsidies for the rehabilitation of the Historical Heritage of Castile-La Mancha of the program A PLENA LUZ FOR 2010 (Order dated February 1th, 2010). OFFICIAL JOURNAL OF CASTILLA - LA MANCHA (DOCM): NO.: 24/2010 DATED: 05/02/2010 real page: 4383

Beneficiaries: Private individuals and public or private bodies owning elements related to the Historic Heritage of Castilla - La Mancha.
Amount of the financial aid: Maximum of 50% of the investment with a limit of € 60,000.

- Title: Subsidies for the rehabilitation of the of works in real estate linked to the Historical Heritage of Castile-La Mancha for 2010 (Order dated February 1th, 2010). OFFICIAL JOURNAL OF CASTILLA - LA MANCHA (DOCM): NO.: 24/2010 DATED: 05/02/2010 real page: 4397
  Beneficiaries: Private individuals and public or private bodies owning assets related to the Historic Heritage of Castilla - La Mancha.
  Amount of the financial aid: Maximum of 50% of the investment with a limit of € 60,000.

Financial aid from the State Administration

Article 68 of the Spanish Historic Heritage Act (Law 16 dated June 25th, 1985) and article 58 of Royal Decree 111 dated January 10th, 1986, which developed that Act in part, stipulate the obligation for the budget for each public work financed in whole or in part by the State to include an item equivalent to at least 1 per cent of the funds provided by the State to be used to finance works for the conservation or enrichment of the Spanish Historic Heritage or to foster artistic creativity, preferably on the work itself or in its immediate surroundings. In order to achieve this purpose and in the light of article 58.7 of Royal Decree 111 dated January 10th, 1986, all services, bodies and state-owned companies that cannot make credit transfers must deposit the mandatory 1 per cent at the Public Treasury, which deposit shall generate the corresponding credit in favour of the Ministry of Culture.

The public body in charge of the building work must specify in the project for the same that is to be submitted to the Public Investment Committee for the preparation of the Triennial Plan for Public Investments or to the Ministry of Culture when the project for the work has not been submitted to the said Committee, the option chosen from those indicated below as the destination of the funds corresponding to the said 1 per cent:

To finance works for the conservation or enrichment of Spain's Historic Heritage or to foster artistic creativity.

To perform works for the conservation or enrichment of Spain's Historic Heritage preferably on the work itself or in its immediate surroundings, or on any of the cultural interest assets related to the activities of the corresponding body.

Financial Aid from the European Union

INTERREG III

Of the various Community programmes and initiatives, the one which most closely adapted to the needs of the Mines at Almadén project is the INTERREG III Initiative.

The Interreg III Initiative applies within the scope of "cross-border, transnational and inter-regional co-operation intended to foster harmonious, balanced and sustainable development of the Community space as a whole". Interreg III comprises three chapters and has a total budget of 4,875 million euros.

Chapter A: Cross-border co-operation
The purpose of cross-border co-operation between adjacent areas is to develop cross-border economic and social centres through the application of common development strategies.

Chapter B: Transnational co-operation
The purpose of transnational co-

operation between national, regional and local authorities is to encourage greater territorial integration in the Union thanks to the formation of large groups of European regions.

Chapter C: Inter-regional co-operation

The purpose of inter-regional co-operation is to improve the efficacy of regional development policies and instruments through a wide-ranging exchange of information and mutual sharing of experiences (membership of networks). For the Mines at Almadén Project, specific reference is made to the INTERREG III B SUDOE Initiative, which is the one that comprises the south of France and all of the Iberian Peninsula. The following measure is included in the operational programme for the area known as SUDOE:

MEASURE 1-2:
INCREASE THE DYNAMISM OF RURAL AREAS AND DEVELOP COMPLEMENTARY CHARACTERISTICS OF THE TERRITORY BY THE SUSTAINABLE ORGANIZATION OF THE SUDOE

This measure is intended: On the one hand, to promote the potential of the rural spaces, particularly those classified as fragile due to a high degree of desertification. On the other hand, to define clearly the role that can be played by the metropolises and the small and medium-sized cities as well as their economic fabric for urban interconnection and territorial organization of areas with scant density that makes up most of the spaces in the SUDOE. The promotion of alliances and strategic co-operation between political, economic and social actors in small, medium-sized and large cities is viewed as a means of developing the territory so as to fill the empty spaces in the regions involved, generated by the great polarization effect of large conurbations. Through their particular position, small and medium-sized cities play an essential role with respect to territories and it is necessary to strengthen them.

Specific goals:

- To correct territorial imbalances by instituting co-operation between different territorial levels, particularly in the economic and social arenas.
- To promote and activate the creation of networks between institutions, small, medium-sized and large cities.
- To strengthen the engineering capacities of spaces with scant density (rural areas, mountain areas, etc.).
- To identify and promote new territorial types and practices associating rural and urban area for complementary and solidarity goals.
- To foster innovative forms of co-operation, particular between cities and the country. To identify new ways of ensuring the provision of services to populations and companies in the areas with a strong demographic decline.
- To ensure the promotion of local quality products through, in particular, the organization of market access.

STRUCTURAL FUNDS

Four Structural Funds constitute the main bulwarks for solidarity in Europe, in addition to the existence of a Specific Fund applicable to Spain, Greece, Ireland and Portugal (the Cohesion Fund).

The four Structural Funds are:

- The European Regional Development Fund (ERDF) finances infrastructure, productive investment, local development initiatives and assistance for SMEs.
- The European Social Fund (ESF) helps the unemployed and people at a disadvantage in the labour market people to find work by financing training actions and systems to help them be hired.
- The Financial Instrument for Fisheries Guidance (FIFG) is intended to adapt and modernize equipment in this sector.
- The "Guidance" section of the European Agricultural Guidance and Guarantee Fund (EAGGF/

Guidance) for rural development and aid actions for farmers, mainly in the least developed regions. In order to ensure the maximum impact and the best results, 94% of the Structural Funds focus on three objectives defined as high priority:

- Objective 1 (territorial): to foster the recovery of less developed regions, i.e., to provide them with the basic amenities they still lack and favour investments in companies to allow economic activities to take off.
- Objective 2 (territorial): to support economic and social reconversion in areas with structural deficiencies, whether urban or dependent on fishing.
- Objective 3 (thematic): to modernize the training systems and improve employability.

The Structural Funds are not assigned directly to projects chosen by the European Union. Although the main priorities of a development programme are defined in collaboration with the Union, the choice of projects and their management are the sole responsibility of the national and regional authorities. In the light of the description of Axis no. 5 in the 2000-2006 Operational Programme for Castilla - La Mancha, included within the Objective 1 regions, it was understood that the project for the Recovery and Valorization of the Mines at Almadén could receive funding.

Almadén – Francisco Javier de Villegas Foundation. (Report on activities 2000-2010).

In 2004, the work to restore the King Charles IV Gate was carried out. The cost of the restoration, approximately € 90,000, was financed by the Ministry of Education, Culture and Sports through the Spanish Historic Heritage Institute.

During 2005, the Foundation has carried out the research project into the industrial heritage of Almadenejos. This forms part of the general goal of highlighting the value of the industrial heritage of Almadén and its surroundings, so that it can act as a driving force for the social, economic and cultural development of this area, combining the conservation of its heritage elements and the study of the memory of work with the development of a cultural tourism that will strengthen and safeguard its identity.

In order to produce this inventory, the Foundation received financial assistance in the amount of 8,000 euros from the Culture Department of Castilla – La Mancha Regional Government. The work was carried out between June and September, 2005.

The Foundation has carried out a research project into "The Quicksilver Route in Castilla – La Mancha: from the Mines at Almadén and Almadenejos to the border with Andalusia". In order to complete this project, the Foundation received 9,000 euros in financial aid from the Culture Department of Castilla – La Mancha Regional Government. The work was completed between July and October, 2006.

In 2005, the Foundation undertook for the first time the restoration of documents making up the rich documentary heritage of the Mines at Almadén. Thanks to a subsidy of 2,000 euros from the Ministry of Culture, it has been possible to start work on the restoration of four historic plans forming part of the Historic Archive's map collection. This activity has continued in 2006 with the restoration of another three historic plans, also subsidized by the Ministry of Culture.

The restoration of the the Route coming out from the Carlos IV Gate was carried out. The cost of the restoration, approximately € 73,000, was partially financed by the Department of Culture of Castilla – La Mancha Regional Government.

The cost of works for the creation of the Almaden Mining Park was par-

tially financed by the European Regional Development Fund (ERDF), which provided 5,400,000 € during the years 2005-2008. The rest was financed by MAYASA. (the total inversion was 7,800,000 €).

In 2008, the Tejeras furnaces (Tile Kiln) were restored. The cost of the restoration, approximately 53,000 €, was partially financed by the Department of Culture of Castilla – La Mancha Regional Government.

Restoration works in the Old laboratory building were carried out. In 2010. Cost of this restoration was approximately 46,000 €. Works of repair and maintenance of San Rafael Royal Hospital were also undertaken with a cost of 17,000 €. Both works were partially financed by the Department of Culture of Castilla – La Mancha Regional Government.

Funds and grants received at the School of Mining and Industrial Engineering of Almadén for the Francisco Pablo Holgado Historic Mining Museum and the remains of the Royal Enforced Labour Prison.

Year 2000:

- PRODER funds for the rehabilitation of the remains of the Royal Enforced Labour Prison: 10,000€
- University of Castilla - La Mancha, for the new facilities of the Francisco Pablo Holgado Historic Mining Museum: 150,000 €

Year 2006:

- Department of Industry and Tourism, Almadén Town Council, for the creation of the Interpretation Centre at the Royal Enforced Labour Prison: 90,000 €.
- University of Castilla - La Mancha, for the creation of the Interpretation Centre at the Royal Enforced Labour Prison: 20,000 €.

Years 2007-2010. Purchase of show-cases for the museum: 4,000 €.

Sources of funding in the area of cultural tourism[11]

Subsidies from PRODER and the Provincial Council of Ciudad Real for the creation of promotional material in paper format (leaflets, directories, pamphlets, posters, etc.) and in audiovisual and interactive format (promotional DVD and webpage). Since the end of the decade of the nineties.

Subsidy amounting to approximately 2 million euros from the Autonomous Community of Castilla – La Mancha, for the rehabilitation of the Bullring in Almadén.

PRODER subsidies for the construction and rehabilitation of various restoration and hotel and catering projects: Inquisitor's House, *Los Rosales* Cottage, *La Encina* Cottage, etc.). Since the year 2000.

PRODER subsidy for rehabilitation of the surroundings of Retamar Castle. 2004-5.

Subsidy from the Regional Government of Castilla-La Mancha for equipping and managing the Tourist Office. 2006

Subsidy for the creation of the Interpretation Centre at the Royal Enforced Labour Prison, following agreement with Almadén Town Council. 2006.

Subsidy from the Regional Government of Castilla-La Mancha for equipping a Bullfighting Museum at the Bullring. 2007 -2010.

Other sources of finance.

Complementary sources of finance are derived from the different programs and plans mentioned in 5.d., which both in a direct and indirect way provide important means for the economic, social and cultural development of Almadén.

It should also be taken into account that the different cultural establishments created in Almadén, like museums, interpretation centre, etc., as well as the Mining Park will generate new sources of finance.

[11] DEPARTMENT OF TOURISM OF ALMADÉN: *Information on subsidies for tourism.*- Almadén, 31-8-2007.

(002) Idrija

The activities related to the protection and development of cultural heritage in the area will be funded in line with existing legislation dealing with cultural heritage and legislation related to the funding of municipalities and local and national budgets. The systemic funding will on occasion be supplemented with funds obtained through public competitions for cross-border cooperation (INTERREG, etc.) and on the basis of public-private partnership.

The Idrija Municipality earmarks between 8% and 15% of its annual budget for activities related to the conservation and renovation of monuments. The funding of renovation works is carried out through public competitions. The municipality also funds the work of a curator of Idrijan lace. The Idrija Municipal Museum, which manages a number of local monuments, proposes each year to the Ministry of Culture additional funding for activities related to the conservation and renovation of cultural heritage sites. In addition to funding these activities, the Ministry of Culture also funds in whole the work of specialist staff (curators, technical staff and the director of this public institution). The museum also funds its activities in preserving and renovating local heritage sites through own funds, which it generates primarily through entrance fees.

In the past, renovation of national monuments was carried out on the basis of programming documents. While state-owned facilities managed by the Idrija Mercury Mine have in the past years not been subject to systematic conservation and development activities - with the exception of Anthony's Main Road, which is used for tourism purposes - maintenance work has been carried out as part of the closure activities, which means that there has been investment in the conservation and protection of natural and cultural heritage.

Working with specialist institutions, the appointed manager will in the coming years oversee: the drafting and harmonisation of development projects, analysis of the state of cultural heritage, investment projects, the drafting of annual and multi-annual plans for funding of cultural and development programmes and projects.

The main deficiencies of the existing methods of financing the protection of heritage in the area:

- Open issues related to management of individual cultural and natural heritage sites and areas;
- The absence of long-term planning as well as a protection and development strategy;
- The lack of systematic financing and integration of financial sources;
- Limited investment capacities of the local community.

Possible sources of funding for management of the area:

Public funds

- funds from the Idrija Municipality's budget - used as a means of funding public programmes;
- funds from the national budget dispensed by the Ministry of Culture - used as a means of funding activities related to the protection of national cultural monuments;
- funds from the national budget dispensed by various ministries - obtained for various programmes as part of public competitions.

Own funds

- funds obtained through money-making ventures;
- funds obtained through the lease or licensing of tourism activities and other services to contractors, etc.

Programmes: Development projects in the framework of the European

Union's budget framework for 2007-2013, which include activities of protecting and developing cultural heritage, tourism, etc.:

- An operational programme of enhancing regional development potentials;
  - integrating and developing natural and cultural potentials;
  - regional development.
    - Cross-border operational programmes (cross-border cooperation with Italy, Croatia; the Adriatic Initiative);
    - Regional operational programmes (the Alps, Southeast Europe, Central Europe, the Mediterranean);
    - Select Community programmes:
  - 7th Framework Programme;
  - Life+;
  - European Neighbourhood and Partnership Instruments.

Donations:

- Funds for activities related to the protection and development of cultural heritage can also be obtained from donators.

The manager's activities are to complement those of the local community in establishing public business infrastructure and environmental infrastructure as well as rehabilitating degraded areas.

Our assessment for the first five years of operations of the managing organisation envisages the organisation being funded for the most part with public funds (from the local and national budget and through public competitions). The foreseen ration is 70:30 in favour of public funds. However, in the ensuring period, the share of own funds is expected to increase on the basis of measures related to the establishing efficient business management in the area.

The management costs are assessed at around EUR 250,000 per year. In funding projects, the value of the projects will be higher to include the costs of drafting the investment plan, oversight, etc.

Financial stability is one of the key factors in ensuring sound protection and development of cultural heritage in the area. Financial stability will be achieved by means of:

- A detailed plan of the required funds and sources of funding;
- Drafting of financial outlooks and analysis of operations;
- The drafting of projects for local, national and international public competitions;
- Periodic income plans.

5.g. Sources of expertise and training in conservation and management techniques

As explained in 5. e, the representatives of the two components of the serial property have entered into an agreement for coordinated collaboration in scientific development and knowledge management through the institutions that are related to them.

This agreement is based on cooperation among the educational and research bodies and the interpretation centres and museums that are linked to mining activity, mining culture and other aspects related to mercury. Moreover, academic and technical training in the specific aspects of heritage conservation that are related to the issues included in this serial property nomination have also been taken into account.

This has led to the preparation of joint research programmes and exchanges of experts and bibliography. Of particular importance is the agreement between the universities in the various locations, involving the granting of scholarships and the exchange of teaching staff and students.

There is already a platform in place and in operation, formed by mercury mines and other facilities that have been converted into interpretation centres, museums, information centres, archives and research centres, which allow for the development of training at all levels, while also guaranteeing ongoing monitoring of the conservation status, integrity and authenticity of the sites.

Therefore, the important sources of expertise and training in conservation and management techniques existing in the two countries and locations are supplemented by those derived from a particular form of international cooperation that is characteristic of the proposed series.

Particularities of each of the proposed components of the serial property:

(001) Almadén

The complexity of the conservation and use of the heritage in Almadén means that considerable diversity is required in training the technicians and specialists in charge at the various stages of heritage protection, conservation and management. However, the success of the rehabilitation work already done, both in the mine and in the settlement, demonstrates that Almadén is a major source of professionals, technicians and qualified workers that will continue to guarantee quality of conservation and management of the component of the serial property being proposed.

It is important to highlight the fact that the majority of the heritage is a mine, which means that the people that look after it are not necessarily the usual experts in heritage. However, the School of Mining and Industrial Engineering of Almadén guarantees that specialists will be trained not only from the perspective of mining engineering, but also with an emphasis on the valorisation and conservation of the mining heritage.

Spain also has a high standard of training in various speciality areas of heritage conservation, via centres that are specialised both in conservation techniques & methods and in knowledge and the principles that are taught in some university degrees and, especially, in Doctorate programmes. There are also several Master courses. In the case of Almadén, the specialists are in general graduates or postgraduates from the University of Castile-La Mancha.

The Ministry of Culture, on a direct basis and via bodies like the Institute of Spanish Cultural Heritage, organises several specific courses and workshops dedicated to training in the field of knowledge and management of cultural properties. This same activity is also carried out in various Autonomous Communities, universities and many other public and private institutions.

On the other hand, the high degree to which the population of Almadén identifies with the mine and its history guarantees an additional level of responsibility in performing any work or task. It should also be highlighted the tradition of knowledge management throughout the academic history of Almadén, which reinforces the feeling of belonging among the population, the authorities and professors and teachers of Almadén. This spirit of motivation, which is palpable at the University School of Almadén, but also at educational centres of other levels of teaching, is one of the most important resources in guaranteeing the training of specialists and technicians linked to conserving the heritage of the place.

Study Plans at local and regional level:

- University of Castilla-La Mancha. School of Mining and Industrial Engineering of Almadén. Degree: B.Sc.(Eng.) Speciality in Mining Engineering Technology.
- University of Castilla-La Mancha. Building Architecture. Toledo Campus.
- Specialised Training Programmes. Module: Stonemasonry I and II. Almadén.
- Master in Culture and Historic Heritage, University of Castilla-La Mancha.

Moreover, and as an example of the humanist focus in the teaching of mining and the work of disseminating knowledge at the various educational levels, the Secondary Education Guide from the Francisco Pablo Holgado Historic Museum (School of Mining and Industrial Engineering of Almadén) is also included in this presentation:



001 088A FRANCISCO PABLO HOLGADO HISTORIC MUSEUM

University of Castilla-La Mancha., School of Mining and Industrial Engineers of Almadén.

Degree: B.Sc.(Eng.) Speciality in Mining Engineering Technology.

CENTRE: (106) SCHOOL OF MINING AND INDUSTRIAL ENGINEERING OF ALMADÉN
DEGREE: B.Sc.(Eng.) in MINING. SPECIALITY IN MINING ENGINEERING TECHNOLOGY.

SYLLABUS CODE: 127 – DEGREE: 56 – GROUP 1 / OVERALL CLASS LOAD: 225 CREDITS

		Formacion Básica/ Core Subjects	Obligatorias/ Compulsory Subjects	Optativas/ Optional Subjects	Practicas Externas/ Work Placement	Trabajo Fin de Grado/ Undergraduate Dissertation	Créditos Totales/ Total Credits
		66	120	42	0	12	240
Módulo/ Module	Materia	General Subject	Denominación asignatura	Subjects	Type1	ECTS Credits	Semester2
Formación básica Basic Training	Matemáticas	Mathematics	Álgebra	Algebra	CS	6	S1
			Cálculo I	Calculus I	CS	6	S1
	Química	Chemistry	Química	Chemistry	CS	6	S1
	Expresión gráfica	Engineering Graphics	Expresión Grafica	Engineering Graphics	CS	6	S1
	Física	Physics	Física	Physics	CS	12	S1/S2
	Informática	Computer Science	Informática	Computer Science	CS	6	S2
	Matemáticas	Mathematics	Cálculo II	Calculus II	CS	6	S2
			Estadística	Statistics	CS	6	2S
	Geología	Geology	Geología General	General Geology	CS	6	S2

SECOND YEAR/ SEGUNDO CURSO

Módulo/ Module	Materia	General Subject	Denominación asignatura	Subjects	Type1	ECTS Credits	Semester2
Formación común rama minera/ General training in Mining	Ampliación de Matemáticas	Advanced Mathematics	Ampliación de Matemáticas	Advanced Mathematics	CPS	6	S1
	Fundamentos de teoría de estructuras	Theory of structures: fundamentals	Resistencia de Materiales	Strength of materials	CPS	6	S1
Formación específica en explotación de minas/ Specific Training in Mining	Legislación	Legislation	Legislación y gestión del territorio	Legislation and Land Management	CPS	9	S1/S2
	Ingeniería geológica	Geological Engineering	Geología Aplicada	Applied Geology	CPS	9	S1/S2
	Mineralogía y petrología	Mineralogy and Petrology	Mineralogía y petrología	Mineralogy and Petrology	CPS	6	S1
Formación común rama minera/ General training in Mining	Fundamentos de Topografía	Fundamentals of Topography	Topografía	Topography	CPS	6	S1
	Fundamentos de Mecánica y Termodinámica	Principles of Mechanics and Thermodynamics	Fundamentos de Mecánica y Termodinámica	Principles of Mechanics and Thermodynamics	CPS	6	S2
	Fundamentos de mecánica de fluidos	Fundamentals of Fluid Mechanics	Mecánica de Fluidos	Fluid Mechanics	CPS	6	S2
Formación básica Basic Training	Empresa	Business	Gestión de Empresas	Business Management	CS	6	S2

THIRD YEAR/ TERCER CURSO							
Módulo/ Module	Materia	General Subject	Denominación asignatura	Subjects	Type1	ECTS Credits	Semester2
Formación común rama minera/ General training in Mining	Fundamentos de geotecnia	Fundamentals of Geotechnics	Ingeniería y Morfología del Terreno	Engineering and Morphology of the Land	CPS	6	S1
Formación específica en explotación de minas/ Specific Training in Mining	Prospección e investigación	Prospecting and Research	Investigación minera	Mining Research	CPS	6	S1
Formación común rama minera/ General training in Mining	Fundamentos de electricidad	Fundamentals of Electricity	Energía Eléctrica	Electrical Energy	CPS	6	S1
Formación específica en explotación de minas/ Specific Training in Mining	Tecnología Mineralurgica	Mineral Processing Technology	Plantas de tratamiento de minerales y rocas	Mineral and Rock Treatment Plants	CPS	6	S1
	Yacimientos	Deposits	Yacimientos minerales	Mineral Deposits	CPS	6	S1
	Tecnología de explosivos	Explosives Technology	Explosivos	Explosives	CPS	6	S2
			Optativa*	Optional Subject*	OS		S2
			Optativa*	Optional Subject*	OS		S2
Formación común rama minera/ General training in Mining	Construcción	Construction	Construcción y organización de obras	Construction and organisation of works	CPS	6	S2
	Medio ambiente	Enviroment	Tecnología Ambiental	Environmental Technology	CPS	6	S2

FOURTH YEAR/ CUARTO CURSO							
Módulo/ Module	Materia	General Subject	Denominación asignatura	Subjects	Type1	ECTS Credits	Semester2
Formación específica en explotación de minas/ Specific Training in Mining	Laboreo	Mining	Laboreo de minas y obras subterráneas I	Mining Engineering: Underground Mining I	CPS	6	S1
			Optativa*	Optional Subject*	OS		S1
Formación común rama minera/ General training in Mining	Ingeniería de proyectos	Project Engineering	Proyectos	Projects	CPS	6	S1
			Optativa*	Optional Subject*	OS		S1
			Optativa*	Optional Subject*	OS		S1
			Trabajo Fin de Grado	Undergraduate Dissertation	UD	12	S2
Formación específica en explotación de minas/ Specific Training in Mining	Laboreo	Mining	Laboreo de minas y obras subterráneas II	Mining Engineering: Underground Mining II	CPS	6	S2
			Optativa*	Optional Subject*	OS		S2
			Optativa*	Optional Subject*	OS		S2

El alumno deberá cursar 2 optativas en el 6º cuatrimestre, 3 en el 7º cuatrimestre y 2 en el 8º cuatrimestre. Si realiza Prácticas en Empresas, descontaría una optativa. Otras actividades con reconocimiento de créditos descontarían una optativa.

MENCIÓN 1: INGENIERIA GEOLÓGICA (Sondeos y Prospecciones Mineras)							
Módulo/Module	Materia	General Subject	Denominación asignatura	Subjects	Type[1]	ECTS Credits	Semester[2]
Formación optativa/ Optional Training			Geofísica y geoquímica	Geophysics and Geochemistry	OS	6	
			Hidrogeología	Hydrogeology	OS	6	
			Topografía aplicada	Applied Topography	OS	6	
			Tecnología de sondeos I	Drilling Technology I	OS	6	
			Tecnología de sondeos II	Drilling Technology II	OS	6	

OPTATIVAS OFERTADAS NO ADSCRITAS A MENCIÓN/ OPTIONAL SUBJECTS NOT INCLUDED UNDER THE MINOR HONOURS							
Módulo/Module	Materia	General Subject	Denominación asignatura	Subjects	Type[1]	ECTS Credits	Semester[2]
Formación optativa/ Optional Training			Ofimática aplicada a la ingeniería	Office Suites applied to Engineering	OS	4.5	
			Inglés para la comunicación personal y académica	English for academic and personal communication	OS	4.5	
			Gestión de proyectos	Project Management	OS	4.5	
			Metalurgia	Metallurgy	OS	4.5	
			Complementos de expresión gráfica para tecnología minera	Engineering graphics applied to mining technology	OS	4.5	
			Minerales y rocas industriales	Industrial minerals and rocks	OS	4.5	
			Inglés técnico minero	Technical English for Mining	OS	6	
			Tratamiento de aguas	Water Treatment	OS	4.5	
			Teledetección y SIG	Remote Sensing and G.I.S.	OS	4.5	
			Prácticas en Empresas	Work Placement	WP	6	

1 Type: Core Subject (CS), Compulsory Subject (CPS), Optional Subject (OS), Work Placement (WP). Undergraduate Dissertation (UD); Carácter: Formación Básica (FB), Obligatoria (OB), Optativa (OP), Prácticas Externas (PE), Trabajo Fin de Grado (TFG)
2 Semester: Semester One (S1), Semester Two (S2). Temporalidad: 1º semestre (1S), 2º semestre (2S)

Study programme for the degree in building engineering.

TEACHING BODY: CUENCA POYTECHNIC SCHOOL, CASTILLA-LA MANCHA UNIVERSITY (ESCUELA POLITECNICA DE CUENCA DE LA UNIVERSIDAD DE CASTILLA LA MANCHA).

2010-2011 Academic Year			
FIRST			
Subject	**Type**	**Semester**	**Credits**
59300 – FOUNDATIONS OF MATHEMATICS I	BT	1st	6
59301 - FOUNDATIONS OF MATHEMATICS II	BT	2nd	6
59302 - 59300 – FOUNDATIONS OF PHYSICS I	BT	Year	9
FOUNDATIONS OF PHYSICS II	BT	2nd	6
59304 - REPRESENTATION SYSTEMS	BT	Year	9
59305 - FOUNDATIONS OF CONSTRUCTION MATERIALS	BT	1st	6
59306 - CONSTRUCTION MATERIALS I	OB	2nd	6
59307 - CONSTRUCTION I	OB	1st	6
59308 - CONSTRUCTION II	OB	2nd	6

SECOND			
Subject	**Type**	**Semester**	**Credits**
59309 - LAW	BT	1st	6
59310 – ENTERPRISE MANAGEMENT	BT	2nd	6
59311 - DRAWING I	BT	1st	6
59312 - DRAWING II	OB	2nd	6
59313 – BUILDING FACILITIES I	OB	Year	9
59314 – BUILDING STRUCTURES I	OB	Year	9
59315 - CONSTRUCTION MATERIALS II	OB	Year	9
59316 - CONSTRUCTION III	OB	Year	9

THIRD			
Subject	**Type**	**Semester**	**Credits**
59317 - INTRODUCTION TO HEALTH & SAFETY & TECHNICAL PROJECTS	OB	1st	6
59318 - TECHNICAL PROJECTS	OB	2nd	6
59319 – HEALTH & SAFETY IN THE WORKPLACE	OB	2nd	6
59320 – BUILDING FACILITIES II	OB	1st	6
59321 – BUILDING STRUCTURES II	OB	1st	6
59322 – SITE PROJECT TEAMS	OB	2nd	6
59323 - SURVEYING AND LAYOUTS	OB	1st	6
59324 - CONSTRUCTION IV	OB	1st	6
59325 – PATHOLOGY AND RESTORATION	OB	2nd	6
59326 – PLANNING, ORGANIZATION AND CONTROL OF WORKS	OB	2nd	6

FOURTH			
Subject	**Type**	**Semester**	**Credits**
59327 – QUALITY IN BUILDING	OB	1st	6
59328 – TOWN PLANNING MANAGEMENT & URBAN CONSTRUCTIONS	OB	1st	6
59329 - MEASUREMENTS & BUDGETS	OB	1st	6
59330 - EXECUTION OF WORKS AND FINANCE MANAGEMENT	OB	1st	6
59331 - SURVEYS APPRAISALS	OB	1st	6
59332 – UNDERGRADUATE DISSERTATION	OB	2nd	12
OPTIONAL, WORK EXPERIENCE & OTHER ACTIVITIES	OP	2nd	18

OPTIONAL			
Subject	**Type**	**Semester**	**Credits**
59333 – GEOTECHNICS & FOUNDATIONS	OP	2nd	4.5
59334 – HERITAGE INTERVENTION	OP	2nd	4.5
59335 - PREVENTION MANAGEMENT	OP	2nd	4.5
59336 – PLANNING AND FINANCE MANAGEMENT TOOLS	OP	2nd	4.5
59337 –CALCULUS OF STRUCTURES AND PREFABRICATION	OP	2nd	4.5
59338 – ADVANCED DRAWING FOR ARCHITECTONIC APPLICATIONS	OP	2nd	4.5
59339 – ENERGY CERTIFICATION & RENEWABLE ENERGIES	OP	2nd	4.5
59340 - SUSTAINABILITY, ENERGY AND ENVIRONMENTAL QUALITY	OP	2nd	4.5
59341 – URBAN GEOGRAPHY	OP	2nd	4.5
59342 – WORK PLACEMENT	OP	2nd	4.5

(BT = Basic training, OB = Compulsory, OP = Optional)

ARCHITECTURE DEGREE STUDY PLAN

LOCATION OF THE TEACHING CENTRE:
TOLEDO SCHOOL OF ARCHITECTURE OF THE UNIVERSITY OF CASTILE-LA MANCHA

Degree in Architecture

The Degree in Architecture from the UCLM is a class-based course of face-to-face learning. It is organized as 330 ECTS credits distributed over five years plus a final degree project. Fifty places are available for new enrolments in the 2010/2011 academic year.

Our architecture course provides a generalist technological training aimed at the development of Projects, from individual buildings to urban and territorial planning. In order to achieve this goal, The Toledo School of Architecture bases its learning process on Integrated Workshops (grouping various knowledge areas together), personalized monitoring through small class groups and the availability of an individual workspace for each student. In view of the challenges of globalization and modern society, the School proposes three lines of specialization: Technology – Sustainability, Landscape - Urban Project, and New Building – Refurbishment of Heritage ssets.

The degree offers three specialization itineraries through the choice of optional subjects:

- Innovations in Architectural Projects: Landscape, Sustainability and Technology
- Planning and urban/territorial projects
- Intervention and Refurbishment of Buildings and Urban Heritage

Primer Curso/ First Year

Primer Cuatrimestre/ First Four Months of the academic year

- Fundamentos de Matemáticas / Foundations of Mathematics
- Geometría / Geometry
- Física / Physics
- Dibujo Libre / Free Drawing
- Dibujo I. Elementos de Composición / Drawing I. Elements of Design

Segundo Cuatrimestre/ Second Four Months period of the academic year

- Dibujo II. Representaciones arquitectónicas / Drawing II. Architectonic representations.
- Bases de los materiales de construcción / Bases of construction materials
- Taller de Proyecto de Arquitectura y Urbanismo I – Architecture and Urbanism Design Studio I

Segundo Curso / Second Year

Primer Cuatrimestre/ First Four Months of the academic year

- Dibujo III. Análisis de formas arquitectónicas / Drawing III. Analysis of Architectonic Form
- Mecánica para las Estructuras / Mechanics of structures
- Taller de Proyecto de Arquitectura y Urbanismo II / Architecture and Urbanism Design Studio II

Segundo Cuatrimestre/ Second Four Months period of the academic year

- Construcción I / Construction I
- Estructuras I / Structures I
- Taller de Proyecto de Arquitectura y Urbanismo III / Architecture and Urbanism Design Studio III

Tercer Curso / Third Year

Primer Cuatrimestre/ First Four Months of the academic year

- Construcción II / Construction II
- Bases Físico-Químicas para las Instalaciones / Physical-chemical bases for Facilities
- Taller de Proyecto de Arquitectura y Urbanismo IV / Architecture and Urbanism Design Studio IV

Segundo Cuatrimestre/ Second Four Months period of the academic year

- Estructuras II / Structures II
- Bases para el Paisaje, Patrimonio y Sostenibilidad / Bases for Landscape, Heritage and Sustainability
- Taller de Proyecto de Arquitectura y Urbanismo V / Architecture and Urbanism Design Studio V

Cuarto Curso / Fourth Year

Primer Cuatrimestre/ First Four Months of the academic year

- Construcción III / Construction III
- Estructuras III / Structures III
- Taller de Proyecto de Arquitectura y Urbanismo VI / Architecture and Urbanism Design Studio VI

Segundo Cuatrimestre/ Second Four Months period of the academic year

- Construcción IV / Construction IV
- Instalaciones I / Facilities I
- Taller de Proyecto de Arquitectura y Urbanismo VII / Architecture and Urbanism Design Studio VII
- Optativa (vinculada al taller VII) / Optional Subject (connected with Workshop VII)

Quinto Curso / Fifth Year

Primer Cuatrimestre/ First Four Months of the academic year

- Taller de Proyecto de Arquitectura y Urbanismo VIII (incluye 6 créditos de Construcción, 3 de Estructuras y 6 de Instalaciones) / Architecture and Urbanism Design Studio VIII (includes 6 credits from Construction, 3 credits from Structures and 6 credits from Facilities I)

Segundo Cuatrimestre/ Second Four Months period of the academic year

- Construcción V / Construction V
- Instalaciones II / Facilites II
- Taller de Proyecto de Arquitectura y Urbanismo IX / Architecture and Urbanism Design Studio IX
- Optativas (2 asignaturas) / Optional Subjects (2 subjects)
- Trabajo Fin de Grado / Undergraduate Dissertation

Optativas / Optional Subjects

Itinerario: Itinerary

- Innovaciones en el Proyecto Arquitectónico: Paisaje, Sostenibilidad y Tecnología / Innovations in Architectural Projects: Landscape, Sustainability and Technology
- Proyectos altamente tecnificados: diseño e instalaciones / Highly technical projects: design and facilities
- Composición arquitectónica: propuestas innovadoras recientes/ Architectonic design: recent innovative proposals
- Ampliación de Sostenibilidad en la edificación / Applied sustainability in construction
- Urbanismo Sostenible: planeamiento y gestión urbana y territorial / Sustainable Urbanism: Urban and land management and planning
- Estructuras especiales y Procedimientos avanzados de construcción / Special structures and advanced construction procedures
- Itinerario: Planeamiento y proyecto urbano y territorial / Urban and Land planning and projects
- Proyecto del espacio público y ordenación del tráfico rodado y peatonal y Planeamiento de escala intermedia / Project for public spaces, road and pedestrian traffic planning, and average scale planning
- Composición arquitectónica: propuestas innovadoras recientes / Architectonic design: recent innovative proposals
- Ordenación del Territorio, de las Infraestructuras y del Paisaje / Spatial, infrastructure and landscape planning
- Urbanismo Sostenible: planeamiento y gestión urbana y territorial / Sustainable Urbanism: Urban and land management and planning
- Composición avanzada del jardín y del paisaje / Treatment of historical centers and sets: the cultural landscape
- Tratamiento de centros y conjuntos históricos: el paisaje cultural / Treatment of historical centers and sets: the cultural landscape
- Itinerario: Intervención y Rehabilitación del Patrimonio Edificado y Urbano / Intervention and Rehabilitation of Urban and Built Heritage Sites
- Transformación (restauración, ampliación, modificación y mejora) de edificios / Building transformation (restoration, extension, modification and improvement)
- Tratamiento de centros y conjuntos históricos: el paisaje cultural/ Treatment of historical centers and sets: the cultural landscape
- Historia y teoría de la restauración/ Restoration history and theory
- Evaluación, restauración e intervención sobre estructuras, materiales e instalaciones históricas/ Evaluation, restoration and intervention with structures, materials and historical facilities
- Proyecto del espacio público y ordenación del tráfico rodado y peatonal y Planeamiento de escala intermedia / Project for public spaces, road and pedestrian traffic planning, and average scale planning
- Composición avanzada del jardín y del paisaje / Advanced garden and landscape design

Optativa Común/ Common Optional Subject

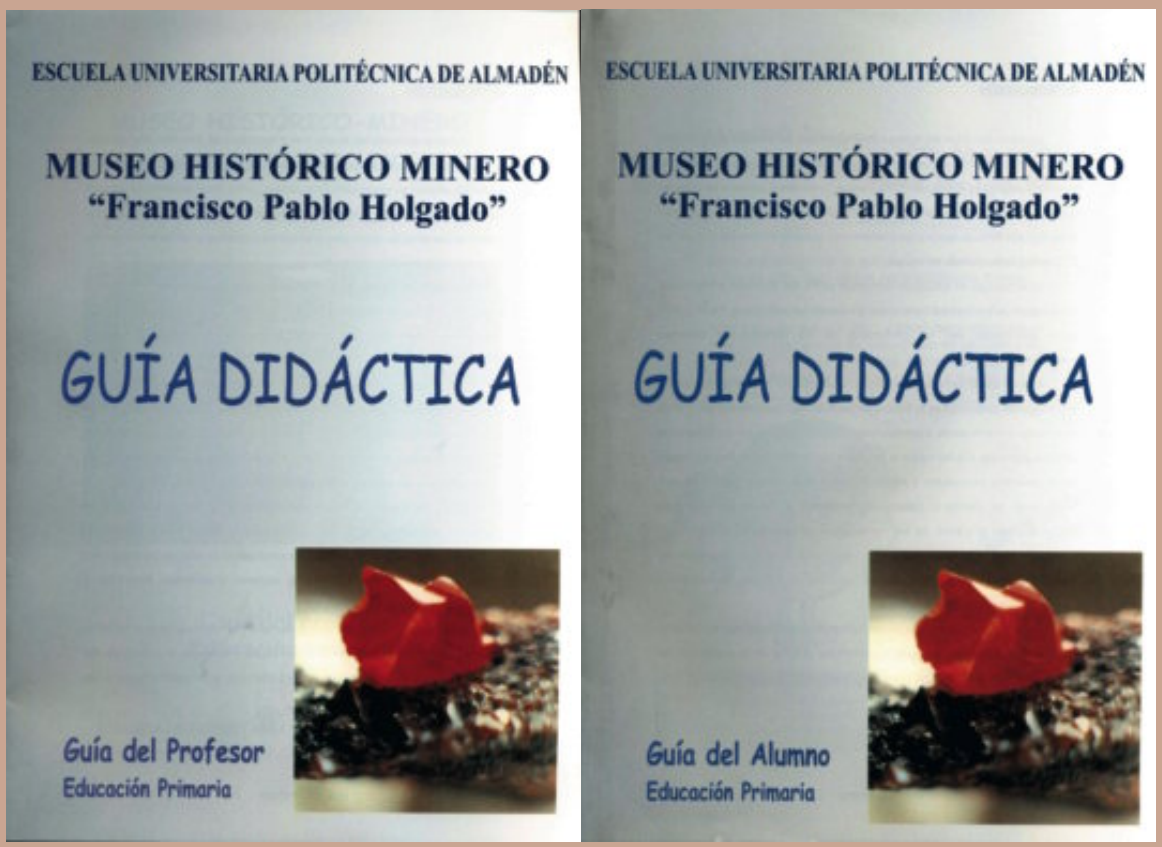
- Prácticas externas / Work Placement

Master Degree Program on Culture and Heritage. University of Castilla-La Mancha.



V II 001 46 A . MASTER DEGREE PROGRAM ON CULTURE AND HERITAGE. UNIVERSITY OF CASTILLA-LA MANCHA.

Francisco Pablo Holgado Historic Museum. Didactic Guide.



V II 001 044 A. FRANCISCO PABLO HOLGADO HISTORIC MUSEUM. DIDACTIC GUIDE.
V II 001 45 A . FRANCISCO PABLO HOLGADO HISTORIC MUSEUM. DIDACTIC GUIDE.

GUIA DIDÁCTICA DEL MUSEO HISTÓRICO MINERO FRANCISCO PABLO HOLGADO (ESCUELA UNIVERSITARIA POLITÉCNICA DE ALMADÉN) PARA EDUCACIÓN SECUNDARIA.

Luis Mansilla Plaza. Universidad de Castilla la Mancha.
Juliana Parras Armenteros. Universidad de Castilla la Mancha.
Irene Pinacho. Universidad de Castilla la Mancha.
Julia Castaño. Universidad de Castilla la Mancha.
Ana Isabel Gallego-Preciados Algora. Colegio Público Hijos de Obreros de Almadén (Ciudad-Real).

I.- Introducción.-

El Museo Histórico Minero Francisco Pablo Holgado de la Escuela de Ingenieros de Minas e Industriales de Almadén ha tenido, desde su creación, una gran vocación didáctica, constituyendo esta uno de sus principales objetivos, lo que ha permitido que por sus diferentes ubicaciones a lo largo de sus catorce años de historia, hayan pasado ya miles de estudiantes de toda España, de los diferentes ciclos de la enseñanza no universitaria (primaria, secundaria y bachillerato) y universitaria.

Este bagaje y experiencia acumulados durante estos años ha sido uno de los motivos, junto con el aumento de fondos y el descubrimiento y rehabilitación de los calabozos de la Real Cárcel de Forzados (siglo XVIII), para emprender la acometida de la ampliación del Museo, conformando un espacio de gran interés, donde se conjugan los testimonios del pasado de un material de gran valor arqueológico (restos de los calabozos y galerías de saneamiento) con un edificio multidisciplinar que alberga parte de la historia de Almadén y buena parte del futuro de la Escuela de Ingenieros de Minas e Industriales de Almadén

Esta ubicación, la disponibilidad expositiva y los nuevos materiales del Museo, necesitan de nuevos desarrollos didácticos para que sus múltiples visitantes aprovechen al máximo el gran potencial que ofrece este Museo para conocer la comarca de Almadén desde los puntos de vista histórico, geológico y minero, de aquí que se haya planteado la necesidad de la elaboración de nuevas guías didácticas (para primaria y secundaria) que sustituyan a las ya existentes, con el objetivo de que sirvan de apoyo a profesores y alumnos en su acercamiento y recorrido de este nuevo espacio museístico.

En la preparación de esta guía para el ámbito de la educación secundaria, se ha tenido en cuenta la riqueza histórica de Almadén. Los primeros indicios de pobladores de esta comarca datan del periodo Calcolítico (A. Caballero, 1983). En ella se contemplan, no sólo contenidos propios de la exposición del museo, sino también aquellos temas relativos a la historia de la Escuela de Ingenieros de Minas e Industriales de Almadén (primera escuela de minas de España, 1777) y de la minería que en esta comarca fue iniciada hace ya más de dos mil quinientos años.

La actual Ley de Educación contempla entre sus objetivos primordiales la educación de los alumnos como una actividad globalizadora que puede y debe estar impregnada por los contenidos de las denominadas materias transversales. Una de estas materias que adquiere especial relieve en las nuevas orientaciones didácticas es la educación para la paz. Los alumnos que visiten el museo lo harán desde la perspectiva de una trayectoria que comenzó en un edificio destinado a la tortura y la privación de libertad para llegar a través de un itinerario ascendente a un centro impulsor de la cultura. Junto con esta transversal, se aborda la educación ambiental, a fin de conseguir una utilización más eficiente de los recursos naturales y también la educación para la salud, al analizar las condiciones de vida de los presos, los cuales durante varios siglos fueron esclavos y galeotes, sometidos a condiciones de vida muy lamentables.

II.- Desarrollo de la Guía.-

La Guía se ha estructurado en los siguientes bloques:

A) Objetivos y Contenidos.

Los objetivos que se quieren alcanzar con la realización de esta guía son:

- Dar a conocer la historia de la comarca de Almadén a través de su minería.
- Fomentar la utilización del museo como recurso didáctico.
- Motivar a los alumnos de cara a su formación mediante actividades de carácter lúdico.
- Acercar a los alumnos al estudio de los minerales, sus propiedades, explotación minera y aplicaciones industriales.
- Acercar a los alumnos a la realidad ambiental del mercurio.
- Potenciar la educación integral de los alumnos con el desarrollo de temas transversales.

Los contenidos que se trabajan en la guía se circunscriben a las áreas de Conocimiento del Medio (física y química, biología, geología, etc), Matemáticas, Lengua y Literatura y Educación Artística. Estos son:

- El cuerpo humano. Se plantean varias cuestiones sobre salud.
- El paisaje, atendiendo principalmente al tema de los asentamientos humanos.
- El medio físico. Se presta especial atención a los conceptos relativos a las propiedades físico-químicas de los minerales y sus aplicaciones.
- Los materiales y sus propiedades. Se contempla el uso de los materiales y la utilización de herramientas y maquinaria.
- Población y actividades humanas. Se centra en los conceptos relacionados con la extracción, transformación y comercialización de productos, así como con el trabajo y las profesiones.
- Máquinas y equipos: se hace referencia a la evolución de las máquinas y equipos más frecuentes en la minería del mercurio.
- Los cambios históricos y la historia reciente de Almadén, a través de dos edificios históricos como son la Real Cárcel de Forzados y la Academia de Minas.
- Formas de vida y paisajes históricos, evolución de la vida cotidiana de los mineros. Vestigios del pasado como diversos testimonios de la extracción del mercurio en esta comarca desde hace más de dos mil quinientos años.

B) Guía didáctica del profesor.-

Se ha preparado este material para que pueda ser utilizado por el profesor antes, durante y después de la visita, sirviendo así mismo como elemento para clarificar aquellas cuestiones que pudieran surgir. La guía está estructurada en tres apartados:

1) Antes de la visita.

Este apartado lo conforman dos áreas:

Información básica.-

Tiene como fin la ayuda al profesor para conocer la historia de la comarca de Almadén, la elaboración de los contenidos a trabajar antes de la visita y asumir el papel de guía durante la visita.

Los aspectos de máximo relieve que conformarían esta información serán:

- Historia sobre Almadén y comarca.
- Creación de la Academia de Minas y posterior conversión en Escuela de Ingenieros de Minas e Industriales de Almadén
- Transformaciones acaecidas en el edificio donde se sitúa el Museo, desde la antigua real Cárcel de Forzados hasta el nuevo edifico universitario.

Contenidos.-

Se proponen contenidos del siguientes corte:

- Historia y localización de Almadén.
- Reseña histórica del edificio donde se halla enclavado el Museo.
- El cinabrio como mineral del que se obtiene el mercurio.
- Efecto del sol y la vitamina D sobre los huesos.
- Proporcionalidad entre magnitudes.
- Conceptos cristalográficos y mineralógicos.

- Propiedades físico-químicas de los minerales.
- Significado de algunas palabras relacionadas con el Museo.
- Los materiales usados por el hombre en el paleolítico.
- Otros.

2) Durante la visita.

El profesor asumirá el papel de guía durante la visita, consistiendo este en llevar a los alumnos por las distintas dependencias del museo (contará con un mapa y recorrido tipo) fijando áreas de interés y haciendo hincapié sobre algunos aspectos de la visita que aparecen en las actividades a realizar por el alumno (uso del castillete, empleo de herramientas mineras, la metalurgia del mercurio, propiedades físicas de los minerales y sus aplicaciones, etc.).

3) Después de la visita.

En este apartado el profesor dará las orientaciones oportunas para el desarrollo de las actividades que el alumno habrá de realizar en el aula después de la visita al museo, teniendo como apoyo el material ya conocido y la propia visita

C) Guía Didáctica del Alumno.-

Con el fin de hacer de esta un elemento motivador para la consecución de los objetivos, la guía va acompañada de comentarios, curiosidades, gráficos y fotografías que le dan una presentación muy atractiva y atrayente para los alumnos. La estructuración se ha realizado teniendo en cuenta los aspectos siguientes:

1) Actividades durante la visita.-

Tienen como objetivo que los alumnos centren su atención en determinados contenidos para aprender y/o afianzar conocimientos. Los bloques de contenidos son:

- De carácter histórico y tecnológico.
- Los elementos que permiten trabajar estos contenidos se sitúan en espacios previos a la sala de exposiciones del Museo, como el antiguo castillete de la Minad Diógenes que se encuentra ene. Patio, la maqueta de la real Cárcel de Forzados y los restos arqueológicos de las celdas de castigo. El acceso a la sala de exposiciones permite trabajar el bloque de contenidos que hacen referencia a la evolución histórica de la minería. En este sentido se plantean actividades sobre la arqueología minera, útiles mineros, incluyéndose en este apartado los inicios de la creación de la Academia de Minas (actual Escuela de Ingenieros de Minas e Industriales de Almadén.
- De carácter biológico y ambiental.
- La sala de exposiciones es el mejor medio para hacer este seguimiento y en este sentido se plantean actividades sobre salud humana y condiciones de vida en ambientes extremos.
- De carácter Geológico y minero.

Por último se desarrolla también un bloque de contenidos relativo propiedades físicas de los minerales y sus aplicaciones, prestando especial atención al cinabrio y al mercurio, por ser la comarca de Almadén la principal productora de este mineral a escala mundial.

2) Actividades después de la visita.

Estas se identifican con una simbología especial, con el fin de que el alumno pueda identificarlas rápidamente. Se han establecido dieciséis actividades que tratan los mismos contenidos que las actividades programadas para el desarrollo de la visita y tienen como finalidad el afianzamiento y ampliación de los temas vistos durante el recorrido por el museo.

3) Comentarios de interés.

Se ha incluido un apartado que con el epígrafe “sabías que” introduce una serie de comentarios que presenta un gran número de curiosidades relacionadas con los contenidos del Museo, que hacen que el alumno no pierda el interés en ningún momento, creando la chispa para ahondar más en los temas que desarrolla el Museo.

4) Bibliography.

MINISTERIO DE EDUCION Y CIENCIA (1989) Diseño Curricular base. Educación secundaria.

(002) Idrija

Cultural and technical heritage in Idrija plays an important role in educational and other business activities. The successful protection and preservation and active presentation and interpretation of heritage are important for all levels of education. The most demanding conservation and restoration activities are carried out with the assistance of the Institute for the Protection of Cultural Heritage of Slovenia, with the most demanding work on buildings and technical heritage done by experts from the Restoration Centre of the Institute.

The transfer of know-how at the practical level is conducted in cooperation with non-governmental organisations (ICOMOS, IUCN, ICOM, ICA, IFLA) in association with the Slovenian Conservation Society and the Society of Slovenian Restorers as well as the Slovenian Museums Association.

Attention is paid to adding skills to the National Vocational Qualification system, thereby allowing young people to learn rare trades and skills.

Cooperation ranges from international consultations, with which the latest achievements in restoration and conservation are exchanged, to extensive workshops for individual professions and trades. Training in new techniques and technologies of conservation and restoration is conducted as part of regular training of experts at the Institute for the Protection of Cultural Heritage of Slovenia.

The training of tourist guides follows the latest standards in the field of interpreting cultural heritage, with attention paid to differences among the targeted audience.

5.h. Visitors facilities and statistics

(001) Almadén

Almadén has traditionally welcomed specialised visitors, academics, scientists, students and even a significant part of the county population, largely for cultural reasons, such as schoolchildren or retired people. For this type of visitors, the existing capacity was sufficient, as they were very short stays or one-day trips.

The number of visitors has gradually increased as the rehabilitation work on the mine has been concluded and the Almadén Mining Park has been set up and therefore there is no doubt that the forecasts in the management plan will materialise. Insofar as the plans described in item 5.d. and which refer to the county as a whole materialise, it is very probable that the numbers of visitors will increase. It should be highlighted that tourism in Almadén is almost entirely of a cultural nature and that visitors also come for scientific and educational purposes.

At present, the visitor staying-times are short, but these will increase as more cultural options as well as the Mining Park and its related centres are disseminated, as this is added to an already-planned extension in the accommodation capacities and as the communication infrastructure improves according to the plans.

The Almadén Mining Park includes within its limits the Mercury Museum and the Mining Interpretation Centre, both opened in 2007.

Outside the park area, other museums or interpretation centres, already described are as follows:

- Museum of the San Rafael Miners' Hospital
- Francisco Pablo Holgado Historic Mining Museum (School of Mining and Industrial Engineering of Almadén)
- Royal Forced Labour Prison Interpretation Centre (School of Mining and Industrial Engineering of Almadén) Ethnographic Museum in Chillón
- Waldo Ferrer Museum (Elementary and Grammar School for Children of Almadén's Workers)[12]
- Bullfighting Museum at the Plaza de Toros (Bullring) of Almadén. Built in 2007-2010. It provides a historic panorama of bullfighting, especially in Almadén and its surrounding area.

Other infrastructure facilities

- Walking routes in the district Almadén, on public pathways

[12] This museum was inaugurated on 16th January 2008. Number of visitors: 3000 in 2008; 2550 in 2009, and 2475 in 2010.

managed by Proder Montesur. In 2008-2009, marking-out and signposting was completed for 10 routes for walking or mountain bikes. Initiated in 2008-2009.

- 'Mina a la Luz'. Marking-out and signposting of approximately 1500m of galleries in the town's streets, mainly in the historic centre, almost all of them corresponding to those which can be visited underground in the Almadén Mining Park. 2010. Almadén Town Council is the manager.
- Signalling of tourist resources in Almadén. 2008. Consists of a short explanation with methacrylate plaques of the town's different resources. The Joint Council of Ríos Eva Municipalities is in charge of management.

Values present in the region.

From the perspective of the natural and landscape values, Almadén offers visitors very interesting options for enjoying nature.

The Montesur district is located to the South West of Castilla-La Mancha, close to the region's limits with Andalusia and Extremadura, less than one hour away from the high-speed train service thanks to the considerable improvement in road communications. The district extends over eight townships making up the "Mancomunidad de los Ríos Esteras, Valdeazogues and Alcudia": Agudo, Alamillo, Almadén, Almadenejos and its adjacent suburb Gargantiel, Chillón, Guadalmez, Saceruela and Valdemanco del Esteras.

Part of the district includes the Special Protection Area for Birdlife, ZEPA, so it is easy to see birds of prey and storks flying in its cloudless skies. It is also an area that is ideal for trekking, cycling or horse riding thanks to the peaceful paths crisscrossing it.

Along with these overflowing natural merits, Montesur surprises travellers with cave paintings, Roman roads and bridges, medieval castles, the only walled area in Ciudad Real province, churches and shrines, as well as its centuries-old traditions and festivities.

Almadén is located very close to the Valley of Alcudia that forms part of the northernmost mountains of the Sierra Morena range, with east-west alignments. The river network is highly developed and some noteworthy stretches include the Valdeazogues, or the Castilseras Reservoir. To the north is the Reservoir of Quejigo Gordo, on the Gargantiel river, and to the east, the Entredicho Reservoir. The town is surrounded by various mountain ranges: the Osa, the Canalizos, the Duranes, the Cerrata, the Alcudia and the Hoyuelas. To the north lie the Cerro del Ciervo (Deer Hill) and the Dehesa de Almadén (Almadén Common) and the elevations of Lobera and Confieso are worth a mention. In the centre of the municipality is the pass known as Puerto Grande.

The district of the Alcudia Valley is closed to the north by the Sierra de la Solana de Alcudia and to the south by the Sierra de Alcudia, both of which form part of the Sierra Morena range. It runs from East to West between San Carlos de Calatrava and Alamillo, following the axis of the river Alcudia, and its heart lies in the triangle comprising Veredas, Venta de la Inés and Bienvenida.

The excellences of this Valley have long been appreciated and in ancient days the Romans established here one of the oldest and most important colonies in Oretania close to the village of Bienvenida. During the Arab domination of Spain, this valley was known as "Fehs al Balout" or Acorn Plain. It then fell under the control of the Order of Calatrava and later to the Spanish Crown, except for a brief period in which it was given to Godoy as a lordship.

Close to the source of the Magaña river, Cervantes placed the amorous penitence of Cardeño and the Knight of the Sad Countenance, and close to

Brazatortas, he set the amusing adventure with the clothbeaters.

The end of the valley leading towards Andalusia leads through the passes of Niefla and Valderrepisa. The summit of the first of these gives a splendid view over the whole valley on one side and Sierra Morena on the other.

The plant life in the area of Alcudia Valley and its adjoining mountains is distributed around the space according to some evident natural factors. Although an incredibly wide variety of plant species can be found, mainly due to the steep gradient of altitudes, those most easily observable and most representative of the whole plant community in the valley are the holm oaks *(Quercus rotundifolia),* which form extensive grazing plains in those areas where the weather conditions are driest; groves of cork oaks *(Quercus suber)* occur on the sunny slopes while Pyrenean oaks *(Quercus pyrenaica)* populate the wetter shadier hillsides. Although these are the most abundant plant landscapes to be seen, it is also possible to view important collections of riverbank vegetation, such as stands of willow *(Salix sp.)* and alder *(Almus glutinosa),* very valuable and infrequent formations as they require watercourses that never dry up.

As for animal life, the Alcudia Valley is home to some very significant species in danger of extinction such as the Spanish Imperial eagle *(Aquila adalberti),* the Black Stork *(Ciconia nigra),* Bonelli's Eagle *(Hieraetus fasciatus),* and wolves *(Canis lupus signatus)*. Apart from these species, it is also common to spot communities of stags *(Cervus elaphus),* roe deer *(Capreolus capreolus)* and boar *(Sus scofra),* although the last two named are considerably more difficult to find.

Other cultural values present in Almadén

As explained in 2.a this territory also contains a certain number of archaeological sites which are also protected under the Asset of Cultural Interest (BIC) category. These are sites located in the *Sierra de Cordoneros* and *Sierra de la Virgen del Castillo* mountain ranges.

The zone presents a very important heritage of locations with schematic rupestrian painting, exceptional in terms of quantity as well as for the quality and diversity of its representations. In the majority of cases, they are schematic paintings with flat ink and continuous strokes – although there are some examples of incise decoration – the chromatic range of which is restricted to various tones of red and less frequently, black. There are also representative scenes, such as some images of the Sierra de Cordoneros mountain range. They are from the Chalcolithic and early-mid Bronze Age periods. In the municipality of Chillón, special mention should be made of the *Virgen del Castillo (Our Lady of the Castle)* collection of paintings *(Virgen del Castillo Rocks 1 to 12, Reboco de la Virgen del Castillo Rocks 1 and 2, Puerto de Vistalegre Rocks 1 and 2* (CABALLERO KLINK, Alfonso, 1980. Quoted HEVIA GÓMEZ, Patricia and Germán Esteban Borrajo, 2006)

In the case of Almadén, agriculture and livestock farming were overlapped by mining. Its inhabitants felt the need to go to the countryside to pursue recreational and leisure activities (Holy Week, Resurrection Sunday, All Saints' Day, etc.) Moreover, a minority used to go to the country for healing, because of the need to "detox" after their work inside the mine. This was made possible because of the natural surroundings of Almadén, which also offered a wide variety of elements that were used in popular medicine, although the remedies extracted from the rural environment, which are based on centenary traditions, were gradually abandoned as a consequence of the adoption of scientific remedies from veterinary science and modern medicine.

The dietary habits have historically been characterised by their austerity and closeness to nature. The home-grown fruit and vegetables and the products provided by the domestic animals in the traditional killings have evolved into a typical Almadenian gastronomy that has influenced typical cuisine in La Mancha, Extremadura and especially in Andalusia, given the variety of spices used (Arab influence).

As regards the issue of Almadenian folklore, one component stands out, i.e. music in various aspects: the Municipal Music Band, the Miners' Choir and the Carnival. The Municipal Music Band, which was founded in 1885, has continued to exist uninterrupted since then. The Miners' Choir has undergone a certain degree of evolution, but it has been a choir of male voices singing mining songs since the 19th century. This choir reached its summit with the annual celebration of a Choir Meeting in Almadén, organised for the first time in 1988, along with two other local groups, all of which are derived from this mining music tradition.

In Almadén, carnival is celebrated in a somewhat peculiar way, as it has maintained over time the most authentic traditional aspects of masks, music, student bands, etc. there is even a competition for the best "Murgas y Comparsas" (satirical carnival groups). On Carnival Sunday, all of the groups parade together through the town. There is also a traditional "Entierro de la Sardina" (Burial of the Sardine) at the end of the festivities.

The music in the Carnival in Almadén is reflected by street bands and student groups, in the annual creation of musical works with their respective lyrics containing the traditional "review", referring to events that have occurred in the town society during the year. One interesting theme is the current Almadén Anthem; this musical work was created as a passacaglia in carnival in the decade of the 1940s and the lyrics were added later on.

Nowadays, the Almadén Carnival is considered to be interregional and is in the process of being declared a Festival of Regional Tourist Interest because of its great personality and duration, as it goes beyond Ash Wednesday and enters the Lenten period (Piñata Saturday and Sunday).

One of the mostly deeply-rooted traditions in Almadén which is also influenced by music is encapsulated in the local expression *"hacer la vaca"*. This refers to a group of friends who meet for an aperitif or for *"tapas",* accompanied by the music that is performed by the attendants themselves and those that join them. This expression originated at the Royal Forced Labour Prison (Real Cárcel de Forzados) in Almadén and the life of the prisoners working in the mine. At twelve noon, the time the Angelus was prayed, they stopped their work at what was known as the *"Hora del Vacar"* (Breaktime), to eat the small amount of food they were allowed.

The majority of the festivals in the town of Almadén have a strong religious meaning and therefore it should be remembered that many are specifically linked to issues of popular religiosity, with a folkloric content. As well as the brotherhoods and guilds that participate in the Holy Week processions and which venerate their various religious images, there are also the feast-days of the patron saints, which are observed with respect and commemoration by the people. The following should be highlighted for their uniqueness:

- St. Anton's Day, 16th January
- St. Brigid's Day, 31st January
- Crosses of May, 3rd May
- Fairs and Festivals in honour of the patron saint San Pantaleón, 27th July.
- Our Lady of the Star, patron of Almadén, 15th August.
- Celebrations in honour of Our Lady of the Mine, 8th September.
- Celebrations in honour of Our Father Jesus the Nazarene, 14th September.

- All Saints' Day, 1st November.
- Celebration in honour of Saint Cecilia, patron saint of music, 22nd November.
- Saint Barbara, patron saint of mining, 4th December.

Another folkloric theme that is in danger of extinction because of the growing industrialisation and the consequent abandonment of the oral tradition – the essential vehicle for transferring these cultural manifestations – is the superstitions and beliefs. The events that take place during the life cycle are subject to peculiar (traditional) treatment by the people of Almadén. From the early stages of life, with birth and baptism, the customs are present and they accompany the people until the moment of death. In all of these manifestations, the superstitious aspect should be given particular importance, as it is the motivation that leads to the development of many customs. At baptisms, the *quintos* (no longer in existence), at the weddings and funerals, various traditions from time immemorial are eagerly maintained by the people, combining all kinds of traditional manifestations (songs, beliefs, culinary customs, mourning, leisure activities).

There are festivals, fairs and other activities also described in the management plan, which are closely linked to the culture of the mines and take place in the town.

Special mention should be made of the following religious festivities and ceremonies, which are for the most part linked to the mining tradition.

Virgin of the Mine (September 8th)

On September 8th, the local communities celebrate the feast day of the Virgin of the Mine, the patroness of miners. There are currently three images of this virgin in existence. One is taken out in procession late in the evening of the Virgin's Day. During this procession the platform bearing the Virgin of the Mine is escorted by miners wearing their working clothes and with lamps fitted to their helmets. Following this procession, which concludes in the Cerco de San Teodoro, there are various performances by local choirs and dance groups before finishing with a session of fireworks.

Christ of the Cross (September 14th)

Local festivity in honour of the Holy Cross. The night before, red carnations are offered at the door of the Church of Jesus the Nazarene. On the morning of the feast day, an auction is held for items donated by the townspeople and a religious service is held in honour of Jesus the Nazarene in the evening, during which a figure is carried in procession through the streets of the town, accompanied by the Municipal Band and the Drums and Trumpets of "Nuestro Padre Jesús Nazareno".

Almadén Local Holiday and Fair (July 23rd-27th)

These are organized around the feast day of the town's patron saint, Saint Pantaleon (July 27th). A fairground is set up in Julián Lozano Park with all kinds of attractions, stalls, tombolas, etc. A large number of bars are installed throughout the area for locals and visitors alike to enjoy traditional food and drink. In the central arena of the park, there is a Popular Dance organized with renowned orchestras and performances by famous soloists or groups from Spain and abroad. Sports competitions are also held during this time at the Sports Centre, while other venues provide drama and variety shows, circus performances, bullfights, etc.

Feast of the Immigrant (August 15th)

Organized in honour of all those individuals obliged for one reason or another to emigrate.

Easter

During Easter Week in Almadén, a large number of religious events and processions take place with the participation of the confraternities of the "Fiel Congregación de Nuestro Padre Jesús Nazareno", "Nuestra Señora de

los Dolores y Santo Sepulcro" and "Santísimo Cristo de los Mineros", with their members wearing their classical garb of tunics, hoods and capes. All of the processions are accompanied by the Municipal Band and some, such as the one held in the early hours of Good Friday, inspire greater religious fervour.

The Crosses of May

The neighbours in the different parts of town make their own crosses out of floral arrangements and the Town Hall Square is bedecked with a cross made with the participation of all the associations.

Tourism statistics

There is a great wealth of cultural and natural heritage on tap in the surroundings, all of outstanding quality and uniqueness.

At the beginning of the present century the main problem seen was the lack of any extraction of value from a large number of the heritage elements available. In fact, tourism management, both in Almadén and its surroundings, was conducted in a spontaneous or little organized manner, with many tourism-related activities or practices being undertaken without realizing that they can be classified as such, for example hunting and fishing, with a notable lack of good planning, training, and, above all, teams to promote tourism in the area. The amount of possibilities of Almadén as a tourist attraction was however beyond doubt. This uniqueness based on the interest of mercury mining, followed by the high environmental and landscape quality of the District and its good accessibility by road and particularly through the high-speed AVE rail link, provides overall an enviable suite of comparative advantages for this district versus many others in the hinterland. Fortunately this tendency has turned out in the last years and there is an increasing spirit of working in a common goal as reflected in the attitude and activities of both the concerned Public Administrations and the initiatives carried out by private persons, as well as in terms of cooperation between the two parts.

Of the tourists who come to Castilla-La Mancha, according to figures obtained from the Castilla-La Mancha Regional Government, 82% come from other parts of Spain, whereas the remaining 18% are foreigners. Specifically, Castilla-La Mancha received in 2000 a total of 1,852,133 tourists, of which 1,521,261 were Spanish and 330,872 foreigners.

In domestic tourism, taking the regional network of tourist information offices as the source of the data, the first region of Spain sending tourists and visitors to Castilla-La Mancha is the Region of Madrid (33.5% of the total of Spanish visitors), followed by other areas of Castilla-La Mancha (21.4%), a figure reflecting the importance of internal tourism by residents in Castilla-La Mancha. Lagging further behind are Valencia (9.61%), Andalusia (6.7%) and Catalonia (6.6%).

As for the date chosen for their visits to Castilla-La Mancha, the month with the largest influx of tourists is August, followed by October, September, April (Easter) and July.

Tourism in the Montesur district:

A tourism-related activity currently organized is that carried out under the auspices of the "Recorre tu Provincia" (Know your Province) programme run by Ciudad Real Provincial Council.

These were all day trips, in which the tourists basically visit the cultural heritage of Almadén and tour the outside of the Cerco. It should be noted that the demand for Almadén as a destination on this programme is the highest in the province of Ciudad Real, greater even than requests to visit Almagro.



001 089A PLAZA DE TOROS

Existing facilities for visitors in Almadén

Restaurants	
Name	Address
Plaza de Toros de Almadén	Plaza Waldo Ferrer, s/n
Los Rosales	Avenida del Sol, 9
El Lago	C/Sacerdote Ángel Muñoz, 18
El Cordobés	C/Antonio Blázquez, 100
Mesón Restaurante Almadén	Plaza de Waldo Ferrer, 9
Mesón Restaurante La Taberna	Calle Estanislao Cavanillas, 7
Restaurante Hotel Betancourt	Calle Mayor de San Juan, 25
Restaurante Gran Hotel Almadén	Carretera Almadén-Almadenejos Km. 1,300.

Although the above are the best-known, in Almadén, as in all of Spain, there are a great number of restaurants and other gastronomic services.



001 090A PLAZA DE TOROS

Accommodation	
Name	Address
Hotel Plaza de Toros de Almadén *** (23 rooms)	Plaza Waldo Ferrer, s/n
Hotel Gema ** (14 rooms)	C/ Antonio Blézquez, 104
Hostal Rural Los Rosales ** (14 rooms)	Avenida del Sol, 9
Hostal Rural La Encina ** (10 rooms)	C/ Pablo Ruiz Picasso, 27
Casa Rural El Patio (5 rooms)	C/ Mayor, 10
Hostal El Cordobés (5 rooms)	Avenida de la Libertad, 24
Casa Rural Los Fucares ***) (Casa del Inquisidor) (5 rooms)	C/Mayor de San Juan.
Hotel Betancourt (10 rooms)	Calle Mayor de San Juan, 25
Gran Hotel Almadén (34 rooms) ***[13]	Carretera C-424 Km. 1,300

[13] The Almadén Grand Hotel was inaugurated in 2010. It is privately managed.

Report on consultations related to tourism activities in Almadén (1st January 2008 -1st January 2011):

Almadén					
01-01-2008 al 01-01-2009		**01-01-2009 al 01-01-2010**		**01-01-2010 al 01-01-2011**	
Procedencia	Consultas	Procedencia	Consultas	Procedencia	Consultas
Madrid	395 (26,28%)	Madrid	289 (29,64%)	Madrid	337 (27,47%)
Ciudad Real	381 (25,35%)	Ciudad Real	233 (23,90%)	Ciudad Real	300 (24,45%)
Córdoba	123 (8,18%)	Córdoba	92 (9,44%)	Barcelona	100 (8,15%)
Barcelona	122 (8,12%)	Barcelona	81 (8,31%)	Córdoba	96 (7,82%)
Toledo	85 (5,66%)	Toledo	49 (5,03%)	Toledo	58 (4,73%)
Badajoz	61 (4,06%)	Valencia	30 (3,08%)	Badajoz	38 (3,10%)
Valencia	50 (3,33%)	Badajoz	29 (2,97%)	Valencia	36 (2,93%)
Albacete	35 (2,33%)	Albacete	24 (2,46%)	Alicante	25 (2,04%)
Cádiz	29 (1,93%)	Alicante	14 (1,44%)	Málaga	18 (1,47%)
Sevilla	18 (1,20%)	Granada	13 (1,33%)	Albacete	17 (1,39%)
Alicante	16 (1,06%)	Murcia	10 (1,03%)	Jaén	15 (1,22%)
Cuenca	11 (0,73%)	Jaén	10 (1,03%)	Sevilla	15 (1,22%)
Málaga	11 (0,73%)	Sevilla	9 (0,92%)	Granada	13 (1,06%)
Murcia	11 (0,73%)	Cádiz	8 (0,82%)	Vizcaya	12 (0,98%)
Huelva	10 (0,67%)	Ávila	6 (0,62%)	Cuenca	11 (0,90%)
Cáceres	10 (0,67%)	Vizcaya	6 (0,62%)	Guadalajara	10 (0,81%)
Jaén	9 (0,60%)	Cuenca	6 (0,62%)	Castellón	10 (0,81%)
Castellón	9 (0,60%)	Guadalajara	5 (0,51%)	Murcia	10 (0,81%)
Asturias	8 (0,53%)	Islas Baleares	5 (0,51%)	Cádiz	10 (0,81%)
Guadalajara	8 (0,53%)	Málaga	5 (0,51%)	Almería	8 (0,65%)
Guipúzcoa	8 (0,53%)	Tarragona	4 (0,41%)	Huelva	7 (0,57%)
Tarragona	7 (0,47%)	Huelva	4 (0,41%)	Cáceres	6 (0,49%)
Teruel	7 (0,47%)	Cáceres	4 (0,41%)	Asturias	6 (0,49%)
Vizcaya	7 (0,47%)	Álava	4 (0,41%)	Zaragoza	5 (0,41%)
Almería	6 (0,40%)	Salamanca	3 (0,31%)	Gerona	5 (0,41%)

Las Palmas	6 (0,40%)	Valladolid	3 (0,31%)	Islas Baleares	5 (0,41%)
Granada	5 (0,33%)	Cantabria	3 (0,31%)	Pontevedra	5 (0,41%)
Salamanca	5 (0,33%)	Lugo	3 (0,31%)	Orense	4 (0,33%)
S.C. Tenerife	4 (0,27%)	Almería	3 (0,31%)	Valladolid	4 (0,33%)
La Rioja	4 (0,27%)	Gerona	3 (0,31%)	León	4 (0,33%)
La Coruña	4 (0,27%)	Asturias	3 (0,31%)	Guipúzcoa	4 (0,33%)
Álava	4 (0,27%)	Las Palmas	2 (0,21%)	S.C. Tenerife	3 (0,24%)
Orense	3 (0,20%)	Burgos	2 (0,21%)	Tarragona	3 (0,24%)
Cantabria	3 (0,20%)	La Coruña	2 (0,21%)	Teruel	3 (0,24%)
Zaragoza	3 (0,20%)	Castellón	2 (0,21%)	Lérida	3 (0,24%)
Pontevedra	3 (0,20%)	Lérida	1 (0,10%)	Navarra	3 (0,24%)
Navarra	3 (0,20%)	Guipúzcoa	1 (0,10%)	Ávila	3 (0,24%)
Soria	2 (0,13%)	Zaragoza	1 (0,10%)	Las Palmas	2 (0,16%)
Zamora	2 (0,13%)	S.C. Tenerife	1 (0,10%)	La Coruña	2 (0,16%)
Islas Baleares	2 (0,13%)	Palencia	1 (0,10%)	Soria	2 (0,16%)
Gerona	2 (0,13%)	Pontevedra	1 (0,10%)	Salamanca	2 (0,16%)
Palencia	2 (0,13%)	Melilla	0 (0,00%)	Cantabria	2 (0,16%)
Segovia	2 (0,13%)	Ceuta	0 (0,00%)	Burgos	1 (0,08%)
Lérida	1 (0,07%)	Zamora	0 (0,00%)	Zamora	1 (0,08%)
Lugo	1 (0,07%)	La Rioja	0 (0,00%)	Palencia	1 (0,08%)
Valladolid	1 (0,07%)	León	0 (0,00%)	Lugo	1 (0,08%)
Huesca	1 (0,07%)	Huesca	0 (0,00%)	Huesca	1 (0,08%)
Ávila	1 (0,07%)	Navarra	0 (0,00%)	Ceuta	0 (0,00%)
Burgos	1 (0,07%)	Orense	0 (0,00%)	Melilla	0 (0,00%)
León	1 (0,07%)	Soria	0 (0,00%)	La Rioja	0 (0,00%)
Melilla	0 (0,00%)	Segovia	0 (0,00%)	Álava	0 (0,00%)
Ceuta	0 (0,00%)	Teruel	0 (0,00%)	Segovia	0 (0,00%)
Total	**1503 (100,00%)**	**Total**	**975 (100,00%)**	**Total**	**1227 (100,00%)**

The EL Pinar Horse riding Centre offers "Equestrian Routes", through lanes and cattle-tracks and also the possibility of learning how to ride. It offers its customers the following services: pets, hiking, taming, riding school, horse grooming and open-air leisure activities.

The Almadén Tourist Office is in a privileged location, at the Bullring Hotel (Hotel Plaza de Toros).

Mining Park visitors in 2010:	
Year	**2010**
Almadén Mining Park	15.000
San Rafael Hospital for Miners	4.500
Francisco Pablo Holgado Museum and Interpretation Center of the Forced Labour Gaol	8.355

Expectations as regards the Mining Park:

Estimation of visits in 2008

High frequency months:

Total: 35,349

- 14,140 individual visits on 58 days). This is equivalent to 244 people per day.
- 21,209 group visits on 62 days. This is equivalent to 342 people per day (7 groups)

Medium frequency months

Total: 28,020

- 7,005 individuals on 40 days. This is equivalent to 175 people per day
- 21,015 group visits on 110 days. This is equivalent to 191 people per day (about 4 groups)

Low frequency months

Total: 8,550

- 855 individuals on 24 days. This is equivalent to 36 people per day
- 7,695 group visits on 66 days. This is equivalent to 117 people per day (more than 2 groups)

Estimation of visits in 2009

High frequency months

Total: 42,222

- 16,889 visits by individuals on 58 days. This is equivalent to 291 people per day
- 25,333 group visits on 62 days. This is equivalent to 409 people per day (8 groups).

Medium frequency months

Total: 33,469

- 8,367 individuals on 40 days. This is equivalent to 209 people per day
- 25,102 group visits on 110 days. This is equivalent to 228 people per day (5 groups)

Low frequency months

Total: 10,212

- 1,021 individuals on 24 days. This is equivalent to 43 people per day
- 9,191 group visits on 66 days. This is equivalent to 139 people per day (3 groups)

Estimation of visits in 2011: 16,000

High frequency months:

- March, April, May, August, October 9,500 visits on 154 days. This is equivalent to 62 people per day.

Medium frequency months:

- June, September, November 3,700 visits on 90 days. This is equivalent to 41 people per day

Low frequency months:

- January, February, July, December 2,800 visits on 121 days. This is equivalent to 23 people per day

Estimation of visits in 2012: 25,000

High frequency months:

- March, April, May, August, October 15,000 visits on 154 days. This is equivalent to 97 people per day.

Medium frequency months:

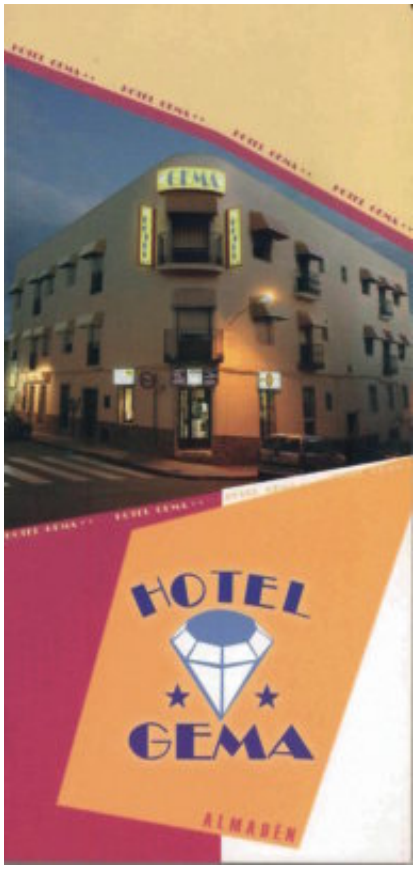
- June, September, November 6,000 visits on 90 days. This is equivalent to 67 people per day

Low frequency months:

- January, February, July, December 4,000 visits on 121 days. This is equivalent to 33 people per day

Maximum capacity of the mine

- 60 people per hour
- 480 people per day
- 148,800 a year (opening 310 days/year)
- 172,800 a year



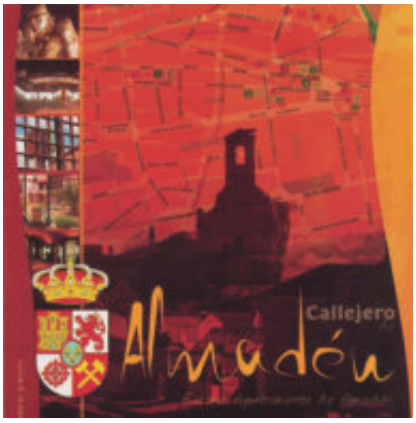
Museum and Interpretation Centre of the Forced Labour Royal Gaol (School of Mining and Industrial Engineering of Almadén. Visitors.

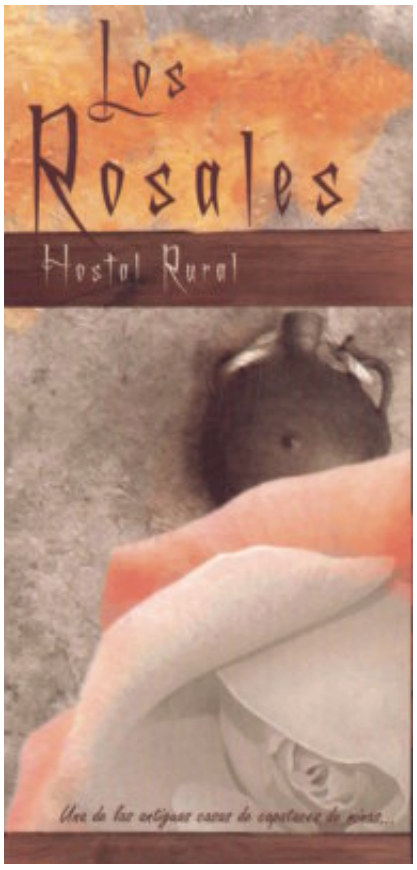
2008	8500
2009	8750
2010	8355

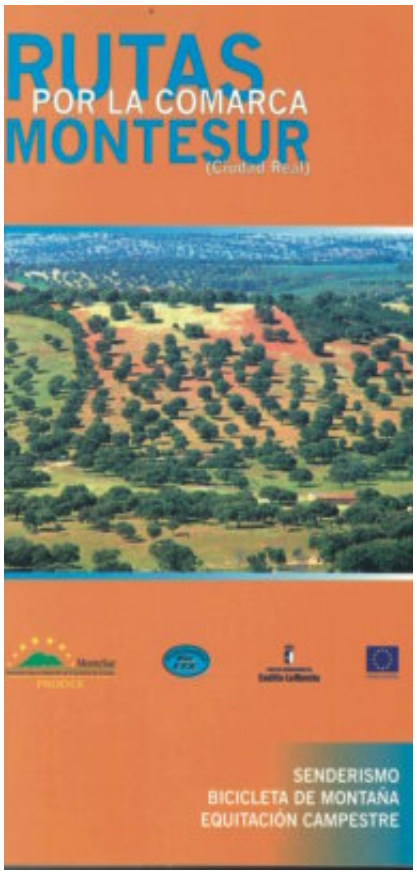
As may be seen, the cultural facilities (Mining Park, museums, interpretation centres and exhibitions) is high. There are also other possibilities for excursions and other types of activities outside the town. On the other hand, the capacity derived from accommodation is low, which influences visitors' short stays. In other words, the facilities and venues that are directly related to the values of the proposed site are capable of serving a high number of visitors, but only if they stay a short time, generally just one day, due to the accommodation shortage, rather than the diversity of options available.

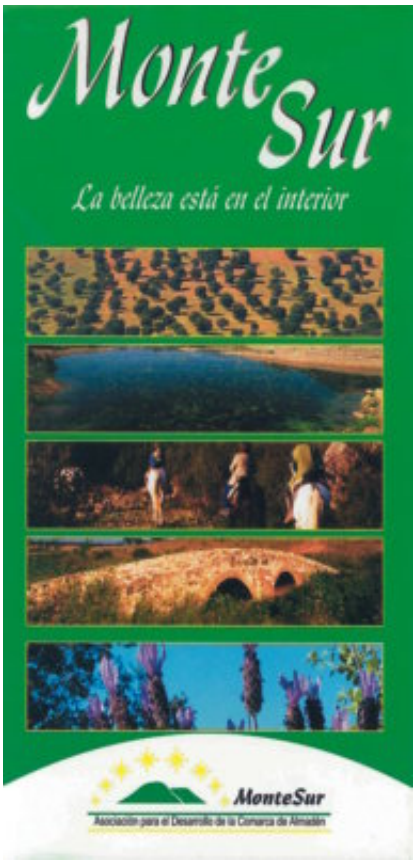
This imbalance does not affect conservation or the possibilities for enjoying the sites, but it calls for an increase in the accommodation capacity, an issue that has already been taken into account in the Management Plan.

Visitors information

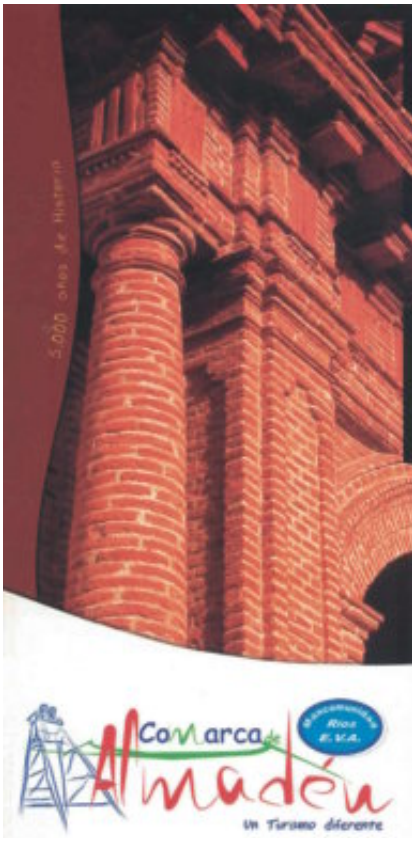














V II 001 47 A .VISITORS INFORMATION, ACCOMODATION AND GASTRONOMY







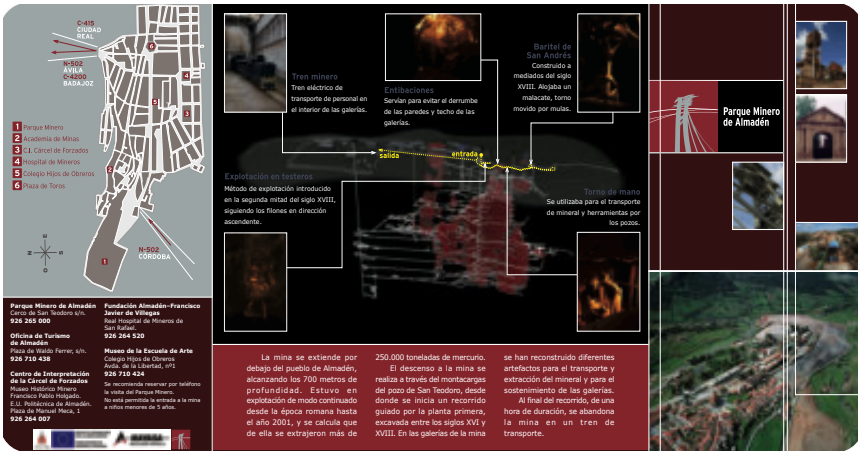

turismo aventura diversión historia geología
Promoción familiar
AHORRA HASTA 66 €
2 € DE DESCUENTO POR PERSONA PARA TI Y TU FAMILIA
Un Viaje por la historia a través de las entrañas de la tierra
DESCUENTO ESPECIAL NIÑOS GRATIS
* Hasta un máximo de 3 adultos y 2 niños por adulto presentando este vale promocional
* Promoción válida de Martes a Viernes, excepto festivos y hasta el 31/12/09
* Promoción no acumulable a otras promociones u ofertas
Parque Minero de Almadén

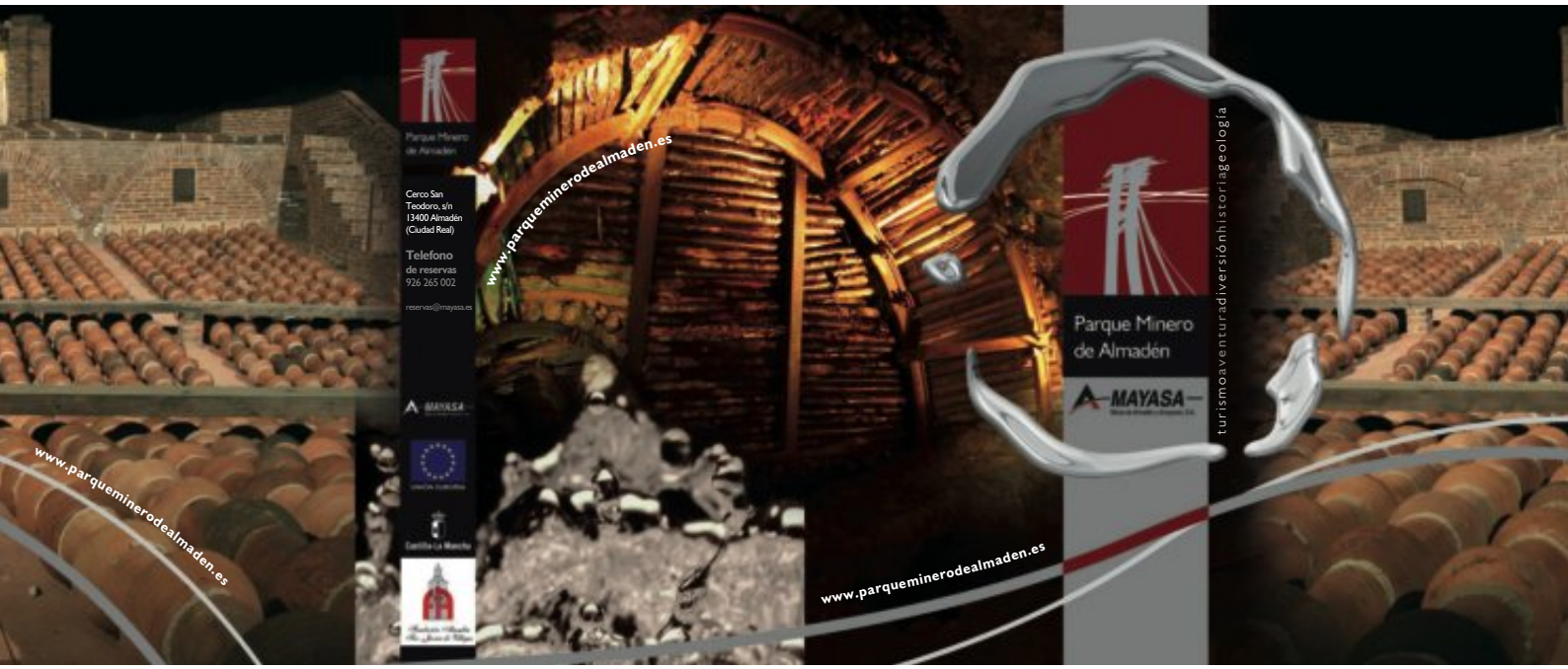

aventura diversión historia geología
COMO LLEGAR
Por carretera:
CM - 415 autovía A-41 (salida 180), carretera CM-4110 (Corral de Calatrava, Cabezarrubias, Abenójar, Saceruela), carretera 415 (Saceruela, Almadén).
CM - 4200 (Badajoz - Chillón - Almadén).
N - 502 (Córdoba - Almadén).
En tren:
Estación más cercana Almadenejos-Almadén.
Información horarios Tfno. RENFE 902 240 202 www.renfe.es
En autobús:
Estación de autobuses de Almadén. Teléfono: 926 712 084
Desde C. Real, Madrid, Barcelona, Monasterio (Badajoz), Puertollano: AISA 926 211 342 www.aisa-grupo.com
Desde Córdoba y Sevilla: LINESUR 957 421 585 www.linesur.com
Parada de Taxis de Almadén. Teléfono: 926 710 203
Las Minas de Almadén constituyen un punto de interés con peculiaridades geológicas, paleontológicas y mineras que las ha hecho únicas en el mundo, de ellas salió la tercera parte del mercurio consumido por la humanidad.
Una vez abandonada su explotación se ha planteado la transformación de sus instalaciones Minero Metalúrgicas en el Parque Minero de Almadén, un espacio de transmisión cultural, educativo y turístico de calidad, en el que el visitante podrá disfrutar del magnífico patrimonio científico, industrial y tecnológico de una de las minas más antiguas del mundo adaptada a los tiempos modernos.
Las Minas de Almadén están declaradas Bien de Interés Cultural y se encuentran en fase de evaluación para ser declaradas Patrimonio de la Humanidad.
La visita al interior de la mina es el mayor atractivo para nuestros visitantes. Pocas personas han tenido ocasión de bajar a una mina y mucho menos de poder recorrer unas explotaciones históricas de los siglos XVI a XVIII.
Las visitas son guiadas, en grupos limitados y con todas las garantías de seguridad.
La zona visitable corresponde a la planta 1ª donde podemos observar la mina del Pozo (Siglos XVI - XVIII) y la del Castillo (Siglo XVIII) unidas entre sí a través de la llamada "caña gitana".
La bajada a la mina se realiza por un ascensor situado en el pozo de San Teodoro, bajando a 50 metros de profundidad.
Interiormente encontramos entre otros, el socavón de la mina del Pozo, el embarque del pozo de San Aquilino, un cuarto de herramientas, una explotación en tresteros, el socavón de la mina del Castillo, el bertel y el pozo de San Andrés, el horno de Castro y la galería de Pocadeo.
El Centro de Recepción de Visitantes, el Centro de Interpretación de la Minería y el Museo del Mercurio completan los principales atractivos de la visita.
Parque Minero de Almadén


Parque Minero de Almadén




Portada: Javier Infante
Fotografías aéreas: Paisajes Españoles ©
Parque Minero de Almadén
MAYASA


C-415 CIUDAD REAL
N-502 AVILA C-420 BADAJOZ
N-502 CÓRDOBA
1 Parque Minero
2 Academia de Minas
3 C.I. Cárcel de Forzados
4 Hospital de Mineros
5 Colegio Hijos de Obreros
6 Plaza de Toros
Parque Minero de Almadén
Cerco de San Teodoro s/n.
926 265 000
Oficina de Turismo de Almadén
Plaza de Waldo Ferrer, s/n.
926 710 438
Centro de Interpretación de la Cárcel de Forzados
Museo Histórico Minero Francisco Pablo Holgado.
E.U. Politécnica de Almadén.
Plaza de Manuel Meca, 1
926 264 007
Fundación Almadén-Francisco Javier de Villegas
Real Hospital de Mineros de San Rafael
926 264 520
Museo de la Escuela de Arte
Colegio Hijos de Obreros
Avda. de la Libertad, nº1
926 710 424
Se recomienda reservar por teléfono la visita del Parque Minero.
No está permitida la entrada a la mina a niños menores de 5 años.
Tren minero
Tren eléctrico de transporte de personal en el interior de las galerías.
Entibaciones
Servían para evitar el derrumbe de las paredes y techo de las galerías.
Barítel de San Andrés
Construido a mediados del siglo XVIII. Alojaba un malacate, torno movido por mulas.
salida
entrada
Explotación en testeros
Método de explotación introducido en la segunda mitad del siglo XVIII, siguiendo los filones en dirección ascendente.
Torno de mano
Se utilizaba para el transporte de mineral y herramientas por los pozos.
Parque Minero de Almadén
La mina se extiende por debajo del pueblo de Almadén, alcanzando los 700 metros de profundidad. Estuvo en explotación de modo continuado desde la época romana hasta el año 2001, y se calcula que de ella se extrajeron más de 250.000 toneladas de mercurio.
El descenso a la mina se realiza a través del montacargas del pozo de San Teodoro, desde donde se inicia un recorrido guiado por la planta primera, excavada entre los siglos XVI y XVIII. En las galerías de la mina se han reconstruido diferentes artefactos para el transporte y extracción del mineral y para el sostenimiento de las galerías.
Al final del recorrido, de una hora de duración, se abandona la mina en un tren de transporte.


Parque Minero de Almadén
Cerco San Teodoro, s/n
13400 Almadén
(Ciudad Real)
Telefono de reservas
926 265 002
reservas@mayasa.es
www.parqueminerodealmaden.es
www.parqueminerodealmaden.es
www.parqueminerodealmaden.es
Parque Minero de Almadén
MAYASA
turismoaventuradiversiónhistoriageología

(002) Idrija

Infrastructure for programmes involving visiting experts

Idrija is recognised both at home and abroad as a place of exceptional specialist heritage and knowledge. In recent years there has been an increase in the number of visits by individual experts or groups of experts, who apart from viewing the natural and cultural sites and technical heritage wish to obtain expertise related to geology, ecology, technology, etc.

In order to meet this rising demand for expert programmes, activities are being undertaken related to plans for the creation of an Information and Research Centre for Mercury, which will as part of the management model work with specialised institutions in Idrija as well as in Slovenia and abroad.

Tourism infrastructure and services related to Idrija's landmarks

Tourist information

The Tourist Information Centre in Idrija is housed in the Inzaghi engine room - a cultural monument - in the centre of Idrija, on Vodnikova ulica 3, near the bus station. The centre operates as part of the Tourism Section of the Idrija and Cerkno Development Agency.

The Inzaghi engine room was refurbished in 2005. It was assigned its new function because of its location, standing 30 metres away from the main road leading to the old town and right next to the bus station. The basic tasks performed by the tourist information centre involve dispensing information to visitors and promoting integration of tourism workers. Visitors can obtain other information at the Idrija Municipal Museum and Anthony's Main Road – Tourist Mine Idrija, which have stalls that provide visitor information relating to the sites in and around Idrija, especially those related to the presentation and interpretation of mining in Idrija.

A local guide service has been established by the Idrija municipality. The municipality has set up a register of licensed local tourist guides for the area. Tours of the buildings managed by the Idrija Municipal Museum and Anthony's Main Road are led by the curators of the museum and mine guides at Anthony's Main Road.

Important contacts related to tourism services in Idrija:

- Tourism Information Centre in Idrija (TIC Idrija)
- Idrija Municipal Museum
- Anthony's Main Road – Tourist Mine Idrija

Turistic places in Idrija:

HOTELS	Kendov dvorec*****Schlosshotels, Relais & Chateaux, Na griču 2, 5281 Spodnja Idrija Hotel Jožef****, Vojkova 15, 5280 Idrija
INNS	Gostišče Barbara***, Kosovelova 3, 5280 Idrija Gostišče Metka**, Črni Vrh 78, 5274 Črni Vrh nad Idrijo Kmečki hram Fortuna***, Idršek 1a, Razpotje, 5281 Spodnja Idrija Gostilna Pri Škafarju**, Ulica sv. Barbare 9, 5280 Idrija Okrepčevalnica s prenočišči Grošel**, Vojsko 25, 5280 Idrija Gostilna s prenočišči Pri Medvedovih**, Vojsko 24, 5280 Idrija Kulinarika Šinkovec (Okrepčevalnica s prenočišči Pr' ribcah), Srednja Kanomlja 34, 5281 Spodnja Idrija
MOUNTAIN HUTS	Planinska koča na Hleviški planini
RESTAURANTS	Gostilna Kos, Tomšičeva 4, 5280 Idrija Okrepčevalnica Mostičer, Mokraška vas 1, 5281 Spodnja IdrijaGostilna Mlinar, Žirovska cesta 4, 5281 Spodnja Idrija Pizzerija Pod skalco, Slovenska cesta 17, 5281 Spodnja Idrija Pica Špica, Kosovelova ulica 31, 5280 Idrija KUT d. o. o., Mestni trg 6, 5280 Idrija
B&B, APARTMENTS, YOUTH HOSTELS	Apartma Andrea, Vojsko 2, 5280 Idrija Apartma čar, Vojskarska ulica 8, 5280 Idrija Apartma Treven Bončina Gabrijela, Prešernova ulica 14, 5280 Idrija, Apartma Pod gradom, Prelovčeva ulica 4, 5280 Idrija, Na kluk', Cecilija Kavčič s. p., Govejk 14c, 5281 Spodnja Idrija, CIU Nikolaj Pirnat, Ulica IX. Korpusa 17, 5280 Idrija
TOURISM FARMS	Turistična kmetija Pr' Jureč, Ledine 19, 5281 Spodnja IdrijaTuristična kmetija Podobnik, Srednja Kanomlja 61, 5281 Spodnja Idrija Turistična kmetija Pr' Mark, črni Vrh 32, 5274 črni Vrh nad Idrijo Turistična kmetija Pr' Petriču, Srednja Kanomlja 11, 5281 Spodnja Idrija

Places offering bobbin-lace

BOBBIN LACE	Idrijan Lace-Making School – permanent exhibition of Bobbin-lace Čipka Art 2000, Mestni trg 14, 5280 Idrija Studio Irma Vončina, Mestni trg 17, 5280 Idrija Studio Koder, Mestni trg 16, 5280 Idrija Trgovina Danica, Mestni trg 17, 5280 Idrija Trgovina Vanda, Mestni trg 13, 5280 Idrija Modni atelje "Lydia", Gewerkenegg Castle, Prelovčeva 9, 5280 Idrija Munh d. o. o., Vezenine Munh, Kosovelova 17, 5280 Idrija

Important cultural and natural heritage sites and events

TOP NATURE SITES	Zgornja Idrijca Landscape Park Rake – nature study path, Idrija Divje jezero (»Wild Lake«) – a museum in nature, Idrija Kačja smreka ("Snake Spruce") - Godovič Smrekova draga – dell, Trnovski gozd forest, Paradana
TOP HISTORICAL AND CULTURAL SITES	Anthony's Main Road – Tourist Mine Idrija, Kosovelova 3, 5280 Idrija, telephone/fax: +386 (0)5 377 11 42; mobile: +386 (0)31 810 194 ; e-mail: rudnikzs@siol.net, http://www.rzs-idrija.si Gewerkenegg Castle – Idrija Municipal Museum, Prelovčeva 9, 5280 Idrija, telephone: +386 (0)5 372 66 00, fax: +386 (0)5 377 35 80, e-mail: tajnistvo@muzej-idrija-cerkno.si, http://www.muzej-idrija-cerkno.si Francis' Shaft – Technical Museum, Idrija, information available at the Idrija Municipal Museum, telephone: +386 (0)5 372 66 00 Miner's house - typical example of housing architecture, information available at the Idrija Municipal Museum, telephone: +386 (0)5 372 66 00 Kamšt water pump - the biggest wooden water wheel in Europe, Idrija, information available at the Idrija Municipal Museum, telephone: +386 (0)5 372 66 00 Klavže water barriers on the Idrijca, Belca and Kanomljica creeks, some 15 km outside of Idrija Partisan Printing Press of Vojsko, information on Idrija Municipal Museum, telephone: +386 (0)5 372 66 00 Church of the Holy Trinity – oldest church in Idrija, dating back to 1500 Town Hall – a representative administration building, today the seat of the Idrija Municipality Secondary School of Natural Sciences - the building housing the first Slovenian secondary school of natural sciences, today the Jurij Vega Secondary School Mine's Theatre – the oldest theatre made of brick in Slovenia Idrija War Museum, Kosovelova 23, 5280 Idrija, telephone: +386 (0)5 377 16 88, mobile: +386 (0)41 407 651 e-mail: vmi@email.si
TOP EVENTS	Idrija Lace Festival – lace festival, a traditional event – held in the second half of June Evenings at the castle—cultural shows on the castle courtyard, held in the summertime

Tourist and expert programmes for visitors of Idrija and its surroundings

Idrija, with its rich tradition lasting more than 500 years, is a town of science and technical knowledge and offers its visitors many possibilities for an interesting and educational tour of the town and its surroundings. The Tourist Information Centre offers visitors a number of possibilities for one-day visits of the town and its surroundings, which are tailored to the visitor's wishes. It also offers thematic tours and proposals for programmes that can be prepared in the form of tailor-made itineraries. The centre offers various programmes related to the technical, natural and cultural heritage of the town and its surroundings, which are packed into one-day excursions that are spiced up with the educational programmes by the Idrija Municipal Museum, the Jurij Vega Secondary School, the Idrija Lace-Making School and the Anthony's Main Road - Tourist Mine Idrija.

The following programmes are offered by the Tourist Information Centre in association with the educational programmes offered by the Idrija Municipal Museum, the Mercury Mine Idrija and Idrija Lace-Making School:

Idrija – general programme

A morning tour of the town and museum exhibitions at the Gewerkenegg Castle or Anthony's Main Road. A traditional Idrijan lunch is followed by visits to the Kamšt water pump, the Rake water channel path, the J. A. Scopoli Botanical Garden and finally to the Idrija Lace-Making School, where the visitors learn about lace-making.

The Green Day – nature programme

The visit begins with a tour of the Divje jezero lake, followed by tours of the Anthony's Main Road and the old town. The afternoon session involves a visit to the Vojskarska planota plateu, the Smrekova draga dell and the Paradana ice pit.

Technical heritage and mine

Learn about the history of the second-biggest mercury mine in the world by visiting Anthony's Main Road, viewing the Kamšt water pump, the collection of mine locomotives and the Rake water channel. The afternoon session includes viewings of the restored mine equipment in Francis' Shaft and the museum exhibitions at the Gewerkenegg Castle.

Cultural heritage and lace

The visit begins with a tour of the museum exhibitions at the Gewerkenegg Castle and a theme tour of the town, followed by presentation of Idrijan lace and a tour of a rural house. A traditional Idrijan lunch is followed by visits to the Vojskarska planota plateau and the Partisan Printing Workshop Slovenia.

Educational programmes of the Idrija Municipal Museum

The museum offers guided tours for individuals and groups of children and adults for the permanent exhibition »Five Centuries of the Mercury Mine and the Town of Idrija« as well as other exhibitions at the Gewerkenegg Castle, the Idrijan miner's house (demonstration of the life of a miner), Francis' Shaft (old mine machinery and equipment) and the Kamšt water pump (including the giant water-wheel). In preparing educational programmes, the museum often works with the Anthony's Main Road - Tourist Mine Idrija and the Idrija Lace-Making School. All programmes can be tailored to meet the requirements of school excursions or excursions organised for domestic or foreign visitors by tourist agencies.

The museum also prepares courses for children of various ages. These consist of thematic viewings of exhibitions and collections under the

guidance of a curator lasting a school hour and for which participants receive a certificate. The programmes cover the following topics: the history of the mercury mine, the town of Idrija, Idrijan lace, the life of Idrijan miners, mine machinery and equipment, water propulsion, the life and work of France Bevk and museum equipment. The programmes involved the permanent exhibition at the Gewerkenegg castle as well as the museum facilities around Idrija: the Idrijan miner's house, Francis' Shaft and the Kamšt water pump.

The museum's educational activities also include afternoon art and museum workshops for children and adolescents. The museum workshops include a presentation of Slovenian customs and traditions, local tradecrafts and customary traditions accompanying local holidays. The art workshops are intended for all children who wish to learn about the mining tradition through art.

The museum has for 27 years also staged museum evenings. A total of over 123 lecturers covering 164 subjects have so far appeared as part of these events. The lectures have dealt with topics including archaeology, history, national heritage, natural sciences, geology, health, cultural and natural heritage, the problems related to the operations of the Mercury Mine Idrija and the rehabilitation of its effects, and, on occasions, general social topics. The lectures are popular and generate a lot of attention in Idrija and surrounding areas.

With its cultural events, including visiting exhibitions, the museum is the central cultural institution in the region encompassing Idrija and Cerkno. Visiting exhibitions most often involve fine arts and photography, while they also deal with museum sciences. Since 2000, the museum has hosted annual exhibitions of work from important European lace hubs to coincide with the staging of the Idrija Lace Festival.

Expert programmes by the Idrija Mercury Mine

Anthony's Main Road – The Idrija Mercury Mine organises various seminars for teachers of natural sciences, apart from the visits to the main road. The Mercury Mine Idrija in closing is cooperating with schools in organising natural science days for primary and secondary school students as well as hosts lectures on geology, mining, metallurgy and ecology for students of Slovenian and foreign universities. A part of the mine (a tunnel on the 3rd gallery) also serves as a training ground for students of geology and mining (domestic and foreign).

One-day tailored programmes

- Mining history and technology
- General mining
- Nature and geology
- Forestry and nature conservation
- Medicine and botany
- Green Day in Idrija
- Lace-making
- The life of miners and national heritage
- Architecture and lifestyle
- Idrijan cuisine
- Sacral heritage in Idrija
- Famous faces of Idrija

Recent tourist guides, brochures, leaflets, media (VHS/DVD/CD)

Various institutions and tourism services providers from the area often join forces to prepare and publish various informational publications, both in print and electronic form, presenting the heritage sites and Idrija's top landmarks.

The following is a list of the most recent publications:

- Guide: Guide to the Exhibition Rooms at Gewerkenegg Castle (Idrija Municipal Museum, Idrija, 2009); published in Slovenian, English and Italian languages;
- Prospectus: Idrija Municipal Museum (Idrija Municipal Museum,

Idrija, 2005); published in Slovenian, English and Italian languages;
- Prospectus: Klavže - Water Barriers in the Idrija Region (Idrija Municipal Museum, Idrija, 2005); published in Slovenian and English languages;
- Prospectus: "Slovenija" Partisan Printery (Idrija Municipal Museum, Idrija, 2004); published in Slovenian, English and Italian languages;
- Prospectus: Zgornja Idrijca Landscape Park (Nova Gorica Institute for the Protection of Natural and Cultural Heritage and Idrija Municipal Museum, Idrija, 2003); published in Slovenian, English, German and Italian languages;
- Prospectus: Idrija - Enchanting like a fairytale (ICRA d. o. o., Idrija); published in Slovenian and English languages;
- Prospectus: Tourist Mine Idrija – The Mercury Underground (Rudnik živega srebra Idrija v zapiranju d. o. o., Idrija, 2002); published in Slovenian, English, German and Italian languages.
- Prospectus: Idrija Kamšt, Mine railway engines (Idrija Municipal Museum, Idrija, 2009); published in Slovenian, Italian and English languages.
- Prospectus: Idrija Miner's House (Idrija Municipal Museum, Idrija, 2009); published in Slovenian, Italian and English languages.
- Prospectus: Francis' Shaft (Idrija Municipal Museum, Idrija, 2009); published in Slovenian, Italian and English languages.
- Guide: Idrija Lace, A History written in Thread (Idrija Municipal Museum, Idrija, 2010); published in Slovenian, Italian and English languages.
- Guide: Divje jezero pri Idriji (Divje jezero near Idrija - edited by Jerneja Batič, Ljubljana, 1996);
- Guide: Idrijske Klavže (The Idrija Water Barriers - by Tadej Brate, Ljubljana, 1995);
- Guide: Carmina Historica – Guide to Collections (Idrija Municipal Museum, Idrija, 1999); published in Slovenian and English languages;
- Guide: Ob rakah – po poti idrijskih naravoslovcev (By the Rake – Taking the Path of Idrijan Scientists - Rudnik živega srebra Idrija v zapiranju d. o. o., Idrija, 1999);
- Guide: «Idrijski svet vabi na obisk " (The Idrijan World Invites You for a Visit - by Janez Kavčič, Idrija, 2002);
- Guide: Ugriznma u kalina – pešpoti okrog Idrije in Sp. Idrije (Let's Bite the Bullfinch – Trekking Paths Around Idrija and Spodnja Idrija – Idrija Museum Society, Idrija, 2004).
- Map: Tourist Map of Idrija and Cerkno regions (IS SO Idrija and Idrija Municipal Museum, Idrija, 1995).
- Video: Opening ceremony of 1996 Festival of Bobbin Lace
- Idrija Bobbin Lace Festival 1998 (EŠF studio, Idrija, 1998);
  - Idrija Bobbin Lace Festival 1999;
  - Idrija Bobbin Lace Festival 2001;
  - Idrija Bobbin Lace Festival 2003;
  - Idrija Bobbin Lace Festival 2004;
  - International Idrija Lace Festival 2005.
- Other informational material:
  - Anthony's Main Road
  - Idrija – Mercury in Our Environment
  - From the darkness of the mine to the light of life
  - Idrija lace
  - Idrija
  - Guide to Idrija and Cerkno regions
  - Festival of Idrija Lace
  - Guide to Idrija region
  - Map of the town of Idrija
  - By the Rake, along the path of Idrijan scientists
  - 22nd Festival Idrija 2003
  - Entente Florale Spodnja Idrija 2001
  - Idrija and its mercury mine through the centuries
  - Idrija, a town of scientific and technical heritage
  - City in the heart of the Karawanken

- Idrija Bobbin Lace Festival 1999
- Homo turisticus – the Kenda Manor
- 22nd Festival Idrija 2004
- XXIIth Idrija Festival, 2003,
- Entente Florale, Spodnja Idrija, 2001,
- A tested mining method in the Idrija mine (Studio EŠF, 1983),
- Idrija The Town of Natural Sciences and Technical Culture (Idrija Mine, 2000),
- Idrija and its Mercury Mine through the Centuries (Idrija mine, 2004),
- Hg - the glory and misery (Studio EŠF, Idrija Mine, 2004),
- 20th Festival del Merletti
- 21st Idrija Bobbin Lace Festival
- 24th International Idrija Lace Festival 2005
- Idrija Bobbin Lace Festival 1998
- Idrija Bobbin Lace Festival 2001
- 20th Kloeppel Spitzenfestival
- Light in the shade
- Opening ceremony of 1996 Festival of Bobbin Lace
- 22nd Festival Idrija 2004
- Hg – rags and riches

Accommodation facilities (beds) in Idrija in 2010:

Hotels	Lodgings and restaurants	Accommodation and rooms	Apartments	Camps	Tourist farms	Mountain cottages	TOTAL
58	82		06	0	43	22	170

Daily visitors between 1996 and 2008

The table below shows that a total of 36,000 visitors came to Anthony's main road and visited Idrija's municipal museum in 1998, taking into account the fact that approximately a third of the guests visited both places. The Idrija Municipal Museum's numbers include the following: Gewerkenegg Castle, Kamšt water pump, Miners' house and Francis's Shaft.

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Idrija Mercury Mine	26,118	26,118	26,874	25,278	26,086	23,093	16,863	21,304	20,724	13.774	16.916	17.726	16.003
Domestic	23,965	23,965	24,817	23,534	23,583	20.038	14,294	17,194	15,836	10.324	12.663	13.042	11.732
Foreign	2,153	2,153	2,057	1,744	2,503	3,055	2,569	4,110	4,888	3.450	4.283	4.684	4.271
Idrija Municipal Museum	20,561	27,698	28,587	29,056	28,557	25,569	25.343	24,122	20,820	20.603	17.903	16.984	16.536
Domestic	18,325	25,023	25,375	26,208	25,329	20,572	20,442	18,988	15,628	15.446	13.633	12.427	12.905
Foreign	2,236	2,675	3,212	2,848	3,228	4,997	4,901	5,134	5,192	5.157	4.270	4.557	3.631

Projected scenario of sustainable tourism

Sustainable tourism means growth within the limiting factors that can be ascertained in the analysis by the indicators of the environment's carrying capacity. The weakest part of the chain is the most important in this respect. The limits to sustainable tourism growth, as set by the capacity, are not cemented forever and can be revised upwards by suitable measures. The biggest limiting factor is the capacity of the infrastructure, with spatial, environmental or socio-economic factors also important, but to a lesser extent. A wider social consensus needs not to be sought regarding the capacity of the infrastructure, but is necessary in cases when the environment is in danger of being degraded or the sensitive balance between locals and visitors, set in the past, is in danger of being changed.

The projected scenario for sustainable tourism development anticipates the total visits (overnight stays and transit tourists) to rise. The number of the daily visitors can rise from the current 27,000 (73 per day) to 50,000 (137 per day), a 100% increase.

Upgrades to tourism infrastructure

The following upgrades to the tourist infrastructure need to be considered when creating new tourist products, including the places listed above:

- Additional buildings are being prepared to host exhibitions and interpretations of the mercury heritage
- Expansion and upgrades to overnight facilities (hotels, camps, rooms, apartments),
- Expansions and upgrades to catering facilities,
- Establishing tourist farms,
- Building cycling paths and allowing bicycle rentals,
- Creating other sports infrastructure,
- Creating a picnic area,
- Improving the public spaces and infrastructure (parking lots, parks, streets, roads, litter baskets, benches, toilets, markings, general tidiness),
- Transform the abandon
- ed farms into apartments and market quiet holidays among Idrija's hills with the possibility of trips on the trail of cultural heritage, attendance at events, tourist farms,
- Ask owners of weekend cottages to rent their houses to tourists (getting additional apartments and beds),
- Increase the number of sleeping facilities suited to more demanding guests,
- Create programmes that allow adrenalin sports and recreational activities (hiking, bicycling, sailing, events).

Capacity analysis
Capacity analysis

The analysis of what we perceive as the key indicators of Idrija's capacity for carrying out the sustainable tourism scenario will ascertain whether the individual indicator was exceeding the capacity; was not exceeding the capacity; or whether the capacity was not sustainable.

The current capacity of individual indicators needs to be defined first. Then options for increasing the capacity in the future through suitable measures are checked by pitting the current capacity of an indicator

against the threshold of the maximum capacity, set in the scenario of tourism development by 2010. The process also includes the already planned improvements to various development programmes and strategies as well as possible improvements while taking into account the opinion of the inhabitants.

The so acquired assessments of capacity of individual indicators serve to discover the joint capacity of the municipality, expressed as the maximum number of tourists who can be accommodated in the municipality at one time, as allowed by the indicator.

The conclusion will list the measures and tools for taking into account, monitoring and possible increase to the calculated capacity of Idrija for tourism. The measures and tools will also allow the implementation of the selected scenario of tourism development by 2015.

The relevant indicators for the capacity for tourism will be set first. They are divided into the following three groups:

Spatial-environmental:
- Drinking water quality,
- Collection and handling of waste,
- Air quality,
- Parks and green areas (surface area, tidiness),
- Areas for recreation and tourism in planning acts.

Infrastructural:
- Accommodation facilities,
- Use of drinking water,
- Discharge and treatment of waste water,
- Traffic,
- Parking spaces,
- Public transport.

Socio-economical:
- Cultural heritage awareness
- Ration of number of beds to number of citizens,
- Occupancy rate,
- Attitude of inhabitants to tourism,
- General level of satisfaction of visitors,

In order to speed up the process of drafting the analysis, indicators reflecting Idrija's tourism capacity will be selected from the list above.

We propose that a comprehensive analysis of Idrija's tourism capacity is drafted later on in order to allow the monitoring and checking on the implementation of sustainable tourism growth in the municipality.

Current capacity

The current capacity of an individual indicator has been marked by: exceeded and not exceeded. If the capacity of an indicator has already been exceeded, we marked it by "exceeded". An example of such an indicator is the system of discharging and treating waste waters. Not all of the settlements in the municipality have been connected to the system and the existing water treatment plants do not go through all of the necessary treatment phases.

If we discovered that the capacity of an indicator has not been exceeded, we marked it by "not exceeded". We also stated whether the capacity could be increased and listed measures for increasing it in the adjacent column.

The final columns of the table list the long-term capacity (by 2015) for individual indicators. This capacity is determined by the number of visitors for individual indicator and takes into account the fact that measures will be carried out to increase the indicator's capacity. The programme that includes/will include the implementation of individual measures and the years of its implementation are listed in the final column.

Carrying capacity of Idrija

Indicator	Current capacity	Possibility to increase		Maximal number of tourists after planned improvements	Proposed improvements (programme, year of implementation)
		Yes/No	Measures		
Transport infrastructure	Not exceeded	Yes	Widening, paving	500	Improvements
Areas for recreation and tourism in planning acts	Not exceeded	Yes	Change to the land use	1,000	Enlarging, equipment
The system of discharging and treating waste waters	Exceeded	Yes	Needs of tourism to be taken into account in planning and implementation	30	Improvements
Attitude of inhabitants to tourism	Not exceeded	Yes	Successful tourism projects, creation of new jobs	1,000	Information, dissemination
Cultural heritage buildings (mine, museum, others)	Not exceeded	Yes	Regular maintenance of existing infrastructure, restoration and inclusion of new buildings to tourism offer	400	The mine route is to be extended to the IIIrd gallery (visits for specific groups) and the smelting plant is to be opened for visitors

Planned new beds by 2015

	Hotels	**Lodgings and catering facilities**	**Accommodation and rooms**	**Apartments**	**Camps**	**Tourist farms**	**Mountain cottages**	**TOTAL**
BEDS IN 2004	23	82	0	0	0	43	22	170
BEDS IN 2010	123	100	50	50	80	100	22	525

Daily visitors between in 2004 and 2015

	2004	**2015**
Domestic	15,836	25,000
Foreign	4,888	15,000
Idrija	20,724	40,000

We propose the following as regards the inclusion of abandoned farms in the visitor offerings of the town and the municipality by renting rooms:

Rounding off and building new houses in weekend settlements close to the settlements as well as improving the communal infrastructure in order to cut the costs and facilitate the inclusion into the landscape.

Other areas, populated by weekend homes, need to be included in the landscape (planting trees around solitary houses, clearing bush areas and removal of buildings in protected areas).

5.i. Policies and programmes related to the presentation and promotion of the serial property

The idea of including Almadén and Idrija in this nomination of a serial property is relatively recent, but the concept of the link between them as the expression of the heritage of mercury has been explained in a significant number of scientific publications and meetings, not only in recent years, but also in the bibliography on the history of mining, and other important works.

This signification of the nominated serial property has been explained in detail in item 2.b of this dossier, which also quotes many of the authors that have addressed the issue from various points of view and explains the links to other elements that may be nominated for inclusion in the series in the years to come. Chapter 7 also contains a long list of bibliography.

However, the sites that make up the series proposed in this nomination have developed their own strategy of programmes and promotion that have always been based on their historic and scientific link, while also taking into account national and local particularities.

(001) Almadén

As explained in item 5.e., widespread dissemination of the significance of Almadén from the perspective of its cultural values has been relatively recent, following gradual understanding of the value of industrial and mining heritage. Nonetheless, scientific and historic acknowledgement has been very intense, spanning more than a century and including not only the territory of Spain, but all over the world wherever mining is developed or studied. This is demonstrated by the very wide bibliography existing on the Almadén mines and the important collection of maps safeguarded in various archives.

In other words, the extraordinary scientific and technical dissemination of knowledge about the Almadén mines is very extensive and on a continuous basis, but non-specialised dissemination and promotion are relatively recent.

However, the centres for mass dissemination of the importance of Almadén as heritage have worked extremely hard since the decade of the

1990s, with a great number of presentations at scientific meetings, publications, fairs, exhibitions, etc. The following institutions have played a leading role:

- Spanish Society for the Defence of Mining Geological Heritage (S.E.D.P.Y.M.)
- School of Mining and Industrial Engineering of Almadén
- Historic Archive of Almadén
- ICOMOS Spain and the UNESCO – ICOMOS Spain Chair on the Conservation of Mining and Industrial Heritage
- Municipality of Almadén
- Regional Government of the Communities of Castilla-La Mancha
- Ministry of Culture.

With respect to MAYASA, the entity to which under its objectives the policy and programmes related to the presentation and promotion of the Almadén ensemble correspond is the Francisco Javier de Villegas Foundation.

The actions performed in the sphere of communication and dissemination have targeted the Foundation's aim of making the heritage of the Mines at Almadén better known, so that it can be visited and enjoyed by as many people as possible, while at the same time strengthening the social economy of Almadén and its Surroundings by encouraging cultural tourism.

This section includes the Foundation's presence in conferences and courses, at fairs and exhibitions, in the mass media, the publications by the Foundation itself, and the visitors to the museums in the Real Hospital, and other dissemination activities fostered by the Foundation or in collaboration with other institutions.

It also includes similar activities carried out by other agents, among them the Almadén School of Mining and Industrial Engineering of the Polytechnic University of Castile-La Mancha through the Francisco Pablo Olgado Museum and the Royal Forced Labour Interpretation Centre, as well as the Almadén Town Council.

Congresses and conferences:

- National Industrial Heritage Plan. Third session of the Spanish Historical Heritage Council's Delegated Committee for Industrial Heritage. Almadén, March 14th and 15th, 2002.
- Third International Congress on Geological and Mining Heritage. Seventh Scientific Session (Cartagena, October 24th to 26th, 2002). Organized by the Spanish Society for the Defence of Geological and Mining Heritage (SEDPGYM in its Spanish acronym).
- Conference on Mining Heritage, organized by the Spanish Society for the Defence of Geological and Mining Heritage (SEDPGYM), Utrillas, (Teruel). September, 2003.
- Second International Congress on the Management of Cultural Heritage. Madrid, Círculo de Bellas Artes, November, 2003.
- Second Symposium on Mining and Metallurgy in South-West Europe. Organized by the SEDPGYM (Spanish Society for the Defence of Geological and Mining Heritage) and the SEHA (Spanish Society for the History of Archaeology). Madrid, June 25th, 2004.
- Fourth Conference on Industrial Heritage, organized by the TICCIH (The International Committee for the Conservation of Industrial Heritage). Tarrasa, October 20th-22nd, 2004.
- Seminar on Heritage organized by the Professional Association of Architects in Ciudad Real. November 24th, 2004.
- Conference on the Regional Heritage of Castilla – La Mancha, organized by the UNED (Spain's Distance-Learning University). Valdepeñas and Almagro, December 16th to 18th, 2004.
- First International Conference

on Palaeosiderurgy and recovery of industrial heritage (San Sebastián, May 11th-13th, 2005). Presentation of a paper on "Rehabilitation of the mining and metallurgical heritage of the Mines at Almadén".

- Third Regional Congress on Interior Tourism: "Challenges and opportunities of tourism in the 21st century" (Ciudad Real, June 9th, 2005). Presentation of the paper on "The Master Plan for the Mining Park at Almadén as a social and cultural stimulus for the development of tourism in the Surroundings".
- Third Meeting of the Mining Communities (Aljustrel, July 7th-10th, 2005). Presentation of the paper on "From the Mines at Almadén to the Almadén Mining Park".
- Eighth Congress on Economic History (Santiago de Compostela, September 13th-16th, 2005). Session on Company Archives. Presentation of the paper on "The Historic Archive of the Mines at Almadén: a documental heritage recovery project".
- Participation in the Mining and Industry Week organized by the Polytechnic University in Almadén. Lecture on the Almadén Mining Park (March, 2006).
- Organization of the "Seminar on Mining Parks and Museums: plans and experience", held at the Real Hospital de Mineros de San Rafael from April 25th to 27th, 2006.
- 2nd International Congress on Company Archives (Lisbon, October 27th to 29th, 2006). Presentation of a paper on "The Historic Archive of the Mines at Almadén: new sources for history".

Of particular significance was the holding in Almadén of the *International Congress: Mining and Industrial Heritage: its impact on major Cultural Routes of universal value. The mine of Almadén and other mining sites linked to the Intercontinental Camino Real through the mercury route, organised by* ICOMOS - Spain and held in Madrid and Almadén in the month of November 2006. It was at this congress, in which authorities and professionals from several countries, as well as relevant members of ICOMOS took part, that it was decided to make the nomination of a serial property based on the work carried out over the course of several years.

Participation of representatives of the aforementioned Foundation, and/or the School of Mining and Industrial Engineering of Almadén and the Municipality of Almadén City Council in other congresses and conferences:

- 9th International Conference on Geological and Mining Heritage of the Spanish Society for the defence of said Heritage in Spain (SEDPGYM). Andorra (Teruel) September, 2008.
- 7th Regional Conference of the Sustainable cities and towns network of Castile-La Mancha on Sustainable Tourism: a challenge and an opportunity" held in Almagro (Ciudad Real). May, 2008
- European Days of Cultural Heritage. Industrial Landscape. Department of Culture, Tourism and Handcrafts of Castile-La Mancha. October, 2008.
- 2nd European Conference of Industrial Tourism in Toledo Trade and Industry Chamber of Toledo. November 2008.
- 5th meeting for the Conservation of Industrial and Public Works Heritage in Spain. TICCIH-Spain. Ferrol (La Coruña). February 2009
- 3rd International Conference of environmental and social-economical impact of the HG extraction and its use. Idrija (Slovenia) Mayo 2009
- 3rd Meeting on Geological and Mining Heritage of Bustarviejo (Madrid). June 2009.
- 10th International Conference on Geological and Mining Heritage of the Spanish Society for the de-

fence of said Heritage in Spain (SEDPGYM). Coria (Cáceres). September 2009.
- Intelitur Forum. Centre of Knowledge, Intelligence and Tourism Innovation, organized by the Trade Chambers in Toledo. April, 2010.
- 1st working days devoted to recuperation of the factories of Riopart (Albacete). I June, 2010.
- 6th International Meeting of ICOM-Spain on Current news and situation on museography. Bilbao, June 2010.
- Meeting days on Sea and Land, organized by the *Puerto del Muradal* Association in the Marquis of Santa Cruz palace (Viso del Marqués, Ciudad Real). July, 2010.
- 11th International Conference on Geological and Mining Heritage of the Spanish Society for the defence of said Heritage in Spain (SEDPGYM). Huelva. September 2010.
- 2nd Meeting of the Silver Mines of Hiendelaencina (Guadalajara). October, 2010

Organization of conferences, symposia and exhibits related to Mining Heritage, History and Geology by the above agents:

- Commemorative meeting of the 20th anniversary of the Francisco Pablo Holgado Mining Museum of the School of Mining and Industrial Engineers of Almadén. October 2008.
- Photographic Exhibit entitled "The Earth's legacies, Royal Academy of Mines". December, 2008.
- Conference on Agustín de Betancourt in Almadén. September 2009.
- 14th National Meeting of the Federation of Associations of Old Fellows and Friends of the Spanish Universities, held in Almadén in June 2010.
- 35th International Meeting of INHIGEO (UNESCO International Committee for the History of Geological Sciences) July 2010.
- Conference on "Forced Labour prisoners and slaves in Spain: A historic vision. September 2010..
- Photographic Exhibit entitled "The Earth's legacies. Conservation of Historic Buildings". December, 2010
- 11th International Symposium of the Ordovicic System. May 2011.
- 15th National Conference of the History of Medicine Society. June, 2011.

Courses and teaching activities:

- "Mercury: from ore to environmental pollutant" (Puertollano, September 16th to 18th, 2002). Summer Course organized by the University of Castilla – La Mancha. Paper on the "History of the Mines at Almadén" given by the Foundation's Manager, Ángel Hernández Sobrino.
- Fifteenth Industrial and Mining Week organized by the EUPA (today Mining and Industrial Engineering of Almadén (Almadén, November 11th to 15th, 2002). Lecture by the Foundation's Manager, Ángel Hernández Sobrino, on "Historic Heritage in the Mines at Almadén".
- Summer Course organized in El Escorial by the Complutense University of Madrid: "Industrial Heritage and the Memory of Work". August, 2003.
- Summer Course organized in Puertollano by the University of Castilla – La Mancha: "The Chemistry of Geology and the Toxicity of Quicksilver". July, 2003.
- Summer Course at the University of León: "Documental and bibliographical sources for studying contemporary Spanish mining (19th and 20th centuries)". July, 2003.
- Master's Course in the Management of Cultural Heritage. Complutense University in Madrid. January 23rd, 2004.
- Summer Course at the University of Castilla – La Mancha. Higher

Studies Centre in Puertollano. July 7th, 2004.
- Summer Course at the University of Jaén. University Centre in La Carolina. July 22nd, 2004.
- International Week on Mining, Energy and the Environment. Higher Studies Centre in Puertollano, September 27th to 30th, 2004.
- International Summer courses of the University of Castile-La Mancha devoted to different subjects, among which those related cultural heritage, mining, history, etc. Held in Ciudad Real, Puertollano and Alcázar de San Juan. Years 2007, 2008, 2009 and 2010.
- Participation in the "Event on Puertollano; The energy landscapes". Held in the University Study Centre of Puertollano, October 28th 2010.
- Summer course on "The process of opening, development and closing of a mining exploitation. Third part: the closing process" at the headquarters of the Cantabrian University in Torrelavega. Participation of the EIMIA Director with lessons on "The Almadén mines, from mining closure to cultural heritage".
- 3rd International Event on Mining and Cultural Heritage in Peñarroya city, held 22 and 23 May 2009 with the participation as lecturer of the Aladén EIMIA Director.

Exhibitions and Trade Fairs:

- Participation in FITUR (INTERNATIONAL TOURISM FAIR) in collaboration with PRODER – MONTESUR. January, 2003.
- Participation in FERCATUR (FAIR ON HUNTING AND TOURISM IN THE PROVINCE OF CIUDAD REAL), in collaboration with PRODER – MONTESUR. September, 2003.
- Participation in INTUR (INTERIOR TOURISM FAIR), in collaboration with PRODER – MONTESUR, Valladolid. November, 2003.
- FITUR (International Tourism Fair) 2004 in Madrid. Presentation of the Almadén Mining Park. January 30th, 2004.
- SNATUR (National Tourism Show) in Ciudad Real. Presentation of the Saint Raphael Royal Mining Hospital and the Almadén Mining Park. June 4th, 2004.
- FITUR (International Tourism Fair) 2005 in Madrid, joint participation with other institutions from the Surroundings of Almadén at the stand of PRODER – MONTESUR.
- Tourism Workshop. Ciudad Real, April 21st, 2005.
- FITUR (International Tourism Fair) 2006 in Madrid; attendance at the presentation of the First National Congress on Industrial Tourism, January 2006.
- FERCOAL (Trade, Industry and Craft Fair of Almadén and its Surroundings), March 2006.
- Participation in FERCOAL (Industry and Handcrafts Fair of Almadén and its surrounding area, held in the installations of the Almadén Mining Park. August, 2008.
- 2nd II International meeting on Mining and Heritage, Peñarroya-Pueblonuevo city (Cordoba) May 2009.
- Open Days 8th Edition, Brussels. Forum of exchange of experiences and good practices among all the European regions, organized by the Directorate- General of Regional Policy of the European Commission. October, 2010.
- - Participation of the Almadén City Council in FITUR (INTERNATIONAL TOURISM FAIR) held in 2007, 2008, 2009 and 2010.

Mass media:

- Report on the Real Hospital de Mineros de San Rafael by the CASTILLA–LA MANCHA REGIONAL CENTRE OF SPANISH TELEVISION (TVE) on October 21st, 2003.
- Report on the Mining Park and the Real Hospital de Mineros de San Rafael produced by CASTIL-

LA-LA MANCHA TELEVISION (CM) on October 29th, 2003.

- Article on "El Parque Minero de Almadén" published in the *Butlletí d'arqueologia industrial i de museus de ciència i tècnica*, nº 55, 3rd quarter of 2003.
- Article in the "De Viajes" magazine entitled "Almadén, bájate a la mina", January 4th, 2004.
- Double page article in Ciudad Real's "La Tribuna" newspaper, entitled "Un nuevo filón minero", January 25th, 2004.
- Television programme by the BBC entitled "Journeys from the centre of the Earth", episode 3, on April 16th, 2004.
- Filming of the Real Hospital de Mineros and the installations of the Mines at Almadén for TELE-5, on July 6th, 2004. Partially broadcast in the late-night news bulletin.
- Article in "El Viajero", the travel supplement of El País newspaper, "Paisaje de azogue y bermellón: la antigua mina de mercurio de Almadén se abre al turismo". Published on January 8th, 2005
- Article entitled "Patrimonio arquitectónico industrial de Almadén", published in the *Formas de Arquitectura y Arte* magazine, 2005, nº 10, 1st quarter.
- Collaboration with the special issue number 7 devoted to mercury by the "Géochronique: Magazine des Géosciences" magazine, March 2005, nº 93.
- Report by Castilla – La Mancha Television. Date broadcast February 24th, in the "Diario de la noche" evening news programme.
- Filming of the report by Castilla – La Mancha Television entitled "Antes y después de las minas", February 2005.
- Report by Canal Sur Television on the Real Hospital de Mineros, March 2005.
- Report by Castilla – La Mancha Television on the Real Hospital de Mineros de San Rafael. Date broadcast May 1st, 2005, in the "Vivir en Comunidad" programme.
- Report by Spanish Television on the museums in the Real Hospital. Date broadcast August 27th, 2005, in the "Informe Semanal" weekly news programme.
- Report by "Malvarrosa Media" for the new programme on Castilla – La Mancha television entitled "Castilla – La Mancha, un lugar para la aventura". Filming took place on November 29th, 2005.
- Article: "Parque Minero de Almadén" in *Tierra y tecnología* magazine, nº 29, first half of 2006.
- Article: "Del Almacén de azogue al Museo del mercurio" in the "Equipamientos Culturales" magazine, nº 25, October 2006.
- Report on the Mining Park in the "UVE" supplement of El Mundo newspaper on August 12th, 2006.
- Report on the Mining Park in the La Voz de la Sagra newspaper on August 25th, 2006.
- Report on the Almadén Mining Park in SEMANA magazine. October, 2009.
- Article on the Almadén Mining Park in the "Rural Tourism" magazine devoted to "other ways of travelling". November, 2009.
- Report in the programme "Chronicles" of Spanish TV (TVE2) June 2009.
- Report on the Almadén Mines in *El País* journal on Friday, 27th August 2010, entitled *"Mad Max de la Mancha"*
- Report on the Almadén Mining Park in the "A FONDO" programme of *Antena 3* TV. September 2010.
- Report on "Almadén, Mercury and Silver" by "24 Hours" Television Channel. 5th January, 2011.

Publications by the Almadén Foundation Francisco Javier de Villegas:

- "Glosario de oficios mineros, metalúrgicos y administrativos y auxiliares en Almadén, s. XIII –

XIX" / Ángel Hernández Sobrino. Published in December, 2003.
- "Real Hospital de Mineros de San Rafael. Almadén". Ángel Hernández Sobrino / Cristina Villar Diez. Ciudad Real, 2004
- Teaching notes on the Real Hospital de Mineros de San Rafael for students and teachers of secondary education. May, 2004. Ciudad Real: Printed by the Provincial Council. Edition of 3,000 copies.
- "La bomba de fuego. Instalación de la máquina de vapor para desagüe de la mina de Almadén (1785-1805)". Ángel Hernández Sobrino / Javier Fernández Aparicio. Ciudad Real, 2005.
- Re-issue of the book entitled "Historia de las Minas de Almadén. Volumen I: (Desde la época romana hasta el año 1645)" by Antonio Matilla Tascón. The re-edition of this work received financial aid from the Culture Department of the Castilla – La Mancha Regional Government.
- "La pena de minas: los forzados de Almadén, 1646 – 1699" by Julián Prior Cabanillas.
- Catalogue of the exhibition on "The Earth's Legacies. The memory of work: miners in Almadén", published in collaboration with Almadén Town Council and the Culture Department of Castilla – La Mancha Regional Government.

Other publications by different entities:

TITLE	PUBLICATION Year	AUTHOR	No. PAGES & SIZE	BRIEF DESCRIPTION
Historias de las Minas de Almadén	1958	D. Antonio Matilla Tascón	509 19 x 27 cm	Historical study/research on the Almadén mines from Roman times up to 1645. Volume I, focusing on the ancient and medieval eras.
Historias de las Minas de Almadén	1987	D. Antonio Matilla Tascón	492 19 x 27 cm	Historical study/research on the Almadén mines from 1646 to 1799. Volume II, focusing on the existence and working of the mines and how they served the financial policy of the Crown and the State.
Oficios Mineros de Almadén s.XIII-XIX	2003	D. Ángel M. Hernández Sobrino	61 15 x 21 cm	Description of the tasks undertaken by operators at the Almadén mines, using the language that the miners themselves used for their roles from the Middle Ages until the 19th century.
Real Hospital Minero de San Rafael	Edición: Fundación Almadén Fcº Javier de Villegas 2004	D. Ángel M. Hernández Sobrino Dª Cristina Villar Díez	59 21 x 29 cm	Background to the Miners' Hospital, the rehabilitation and restoration of the building in 1999 as part of the recovery of the historic and mining heritage of the mines of Almadén. Declared to be an asset of cultural interest in 1992.
La Bomba de Fuego	Fundación Almadén Fcº Javier de Villegas 2005	D. Ángel M. Hernández Sobrino D. Javier Fernández Aparicio	79 21 x 28 cm	Mining techniques, like the use of steam power for draining the mines, or installation of electrical power in Almadén, known by miners as "the fire pump".
La Pena de Minas: Los forzados de Almadén	Fundación Almadén Fcº Javier de Villegas 2006	D. Julián Antonio Prior Cabanillas	117 15 x 22 cm	Journey through Almadén mine in the 2nd half of the 17th century, analyzing the convicts sentenced to hard labour in the mine.

Los Legados de la Tierra	2006	D. Ángel M. Hernández Sobrino	193 21 x 21 cm	Exhibition on jobs at Almadén mine. The catalogue for the photography exhibition on natural resources and the human figure of the miner at the Almadén mines since the 16th century.
Parque Minero de Almadén	2007	D. Ángel M. Hernández Sobrino	40 21 x 30 cm	Didactic guide to the Almadén Mining Park, location, topography and visit itinerary, interior and exterior, with illustrations and photos.
Los Mineros del Azogue	2007	D. Ángel M. Hernández Sobrino	515 23 x 30 cm	Narration of the historical vicissitudes of Almadén miners who have worked these deposits for over 2000 years, and produced a third of the total consumed by humanity.
Azogados	2008	D. Casimiro Sánchez Calderón	318 14 x 20 cm	Narration of a miner's memories and of a future constructed around a project represented by the convicts' gallery, homes, children's games, traditions etc representing the name of Almadén, mining town.
Plan Director del Parque Minero de Almadén	2003	Quality System España S.A	46 33,5 x 34,5 cm	Plan for transformation of mining facilities about to be closed down into a socio-cultural space for public visits: Almadén Mining Park.
Los Legados de la tierra Real Academia de Minas de Almadén	2008	Coordinador de la Edición D. Luis Ángel Úbeda	169 22 x 21,50 cm	Description of the Almadén Mining Park and the reasons for its creation. Explanation of biographies of famous former Academy students and a compilation of 20 plans completed by students having undertaken work placement at the Almadén mines.
El ocaso de los Fugger en España	2009	D. Pedro Voltes Bou	272 . 22 x 16 cm	The Fuggers' operations in 17th C. Spain.
Memorias de las Reales Minas de Almadén, 1783	2009	D. Agustín de Betancourt y Molina	100 . 31 x 22 cm	Facsimile of the Memoirs that Agustín de Betancourt made of the Almadén mines in 1873
Las Minas de Almadén: History reciente	2009	D. F. Javier Carrasco Milara	180 . 31 x 22 cm	Tells the story of the last few years of work at the Almadén mines and their wholesale transformation to become the Mining Park
Un mundo sin sol: la salud de los trabajadores de Minas de Almadén, 1750-1990	1996	D. Alfredo Menéndez Navarro	318 . 21 x 14 cm	Essay on workers' health at the Almadén mines from 1750 to 1900
Las Minas de Almadén	1995	D. Ángel M. Hernández Sobrino	118 . 25 x 25 cm	Explanation of the Almadén mercury mines in geological, historical, mining and environmental terms.
Los esclavos del Rey	2010	D. Ángel M. Hernández Sobrino	406 . 30,5 x 21,5	His Majesty's hard-labour convicts ("forzados") at the Almadén mines, in the period 1550-1800
Colegio Hijos de Obreros de Almadén. La Huella de un siglo	2008	Dª Ana Isabel Gallego Preciados Algora	142 20,5 x 20	Centenary of the Alamdén Nursery and Primary School for Workers' Children.
Memoria de Dirección Curso 2008/2009	2009	Scool of Mining and Industrial Engineers of Almadén	127 20,5 x 21	Report on the 2008/2009 academic year at the Almadén Polytechnic University School.
Memoria de Dirección Curso 2009/2010	2010	Scool of Mining and Industrial Engineers of Almadén	128 20,5 x 21	Report on the 2009/2010 academic year at the en la Almadén Polytechnic University School

List of leaflets:

Almadén District tri-fold leaflet. A different kind of tourism. Nature with contrasts
Almadén District tri-fold leaflet. A different kind of tourism. Fiestas and Traditions
Almadén District tri-fold leaflet. A different kind of tourism. Activities
Almadén District tri-fold leaflet. A different kind of tourism. 5000 years of History
Almadén District tri-fold leaflet. A different kind of tourism. The History of Mining in the District.
Almadén District tri-fold leaflet. A different kind of tourism. Our Gastronomy.
The Chillón tri-fold. You're going to like it!
Street map 1. Almadén Town Council
Street map 2. Almadén Town Council
Almadén guide. Historic Mining Site.
Guide for the Montetesur District
Plan for the Montesur District
Routes in Almadén district. Montesur
Street map. Chillón Council
Four-fold: Almadén Mining Park overall plan.
Double-fold leaflet: Real Hospital de Mineros de San Rafael
Almadén Mining Park visitors' leaflet
Four-fold leaflet: Almadén Mining Park 1
Four-fold leaflet: Almadén Mining Park 2
Four-fold leaflet: Almadén Mining Park 2. English
Four-fold leaflet: Almadén Mining Park 2. French
Leaflet: 'El Cordobés' restaurant
Leaflet: 'Gran Hotel Almadén'
Leaflet: Hotel-Restaurant 'Plaza de Toros de Almadén'.
Leaflet: Hotel Gema
Leaflet: Hotel Casa Betancourt
Leaflet: Hostal Rural Los Rosales
Students' guide for visit to the San Rafael Royal Miners' Hospital

Research projects:

- Project: THE MINING LANDSCAPE IN THE NORTHEN SLOPES OF SIERRA MORENA RANGE (CIUDAD REAL), financed with 40.000 Euros by the Ministry of Education and Science for the 2009-2011 period.
- Project: Art, Industrial Archaeology and Development, financed by the Antonio Gargallo University Foundation with 18,000 € for year 2009.
- Project: Inventory and Analysis of Historic Mining in the Castile -La Mancha region and study on its possible use (2nd phase), financed by the Autonomous Government of Castile-La Mancha with 70.000 € for the 2008-2009 period.
- Project: Archaeological Research in the Sus-Tekna region (Morocco) with 30.000 € from the Ministry of Culture for the 2010-2011 period.

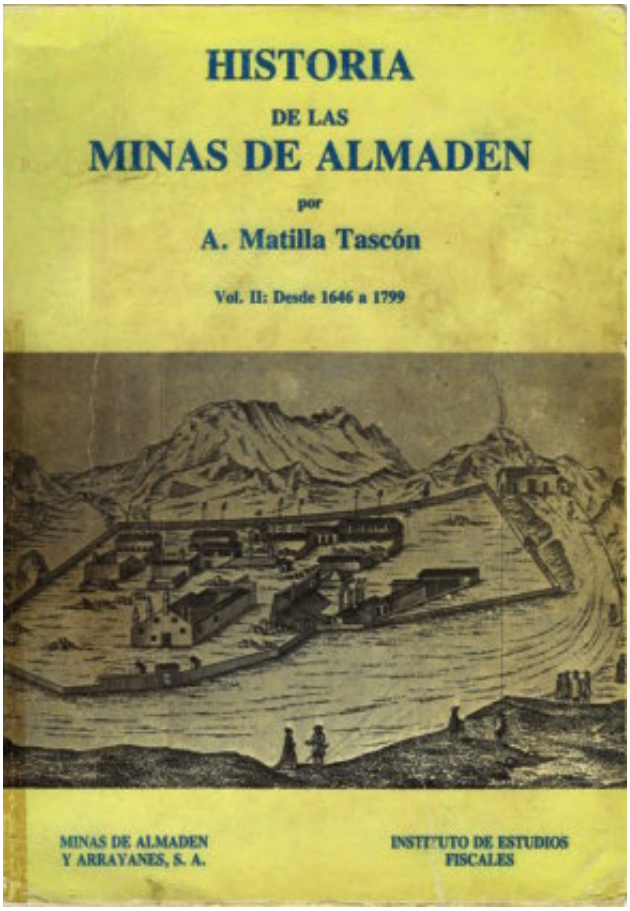
Other dissemination activities:

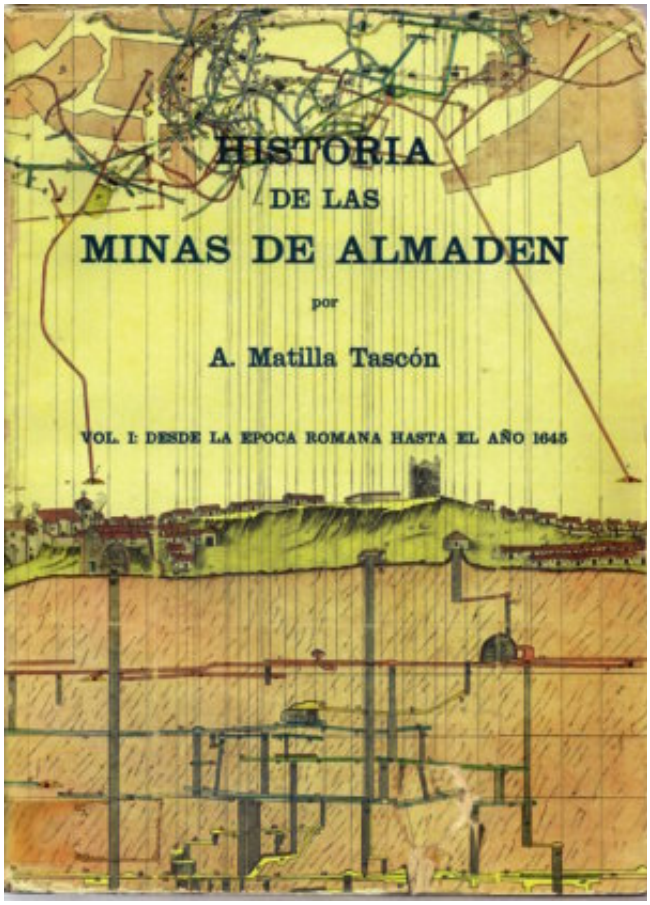
- Collaboration with *Cosmocaixa* for the season of lectures on "Hurricane, 1724", held in Madrid in October, 2000.
- Collaboration in the events for the "COMMEMORATION OF THE 225th ANNIVERSARY OF THE MINING SCHOOL AT ALMADÉN". (Almadén, December, 2002).
- "1st Photography Competition - Almadén and its people", organized by the Foundation in January, 2004.
- Open Days at the "Real Hospital de Mineros de San Rafael", March 1st and 2nd, 2004.
- Collaboration with the Conference on Legal Protection of Archaeological Heritage organized by the Directorate-General for Fine Art and Cultural Assets. Visit to Almadén by the delegates on September 22nd, 2004.
- Collaboration with the School of Mining and Industrial Engineering of Almaden in the parallel activities for the scientific meetings on "Mining and business development in Spain": visit to the Real Hospital de Mineros in March, 2005.
- Collaboration with the 3rd Regional Congress on Interior Tourism in its parallel activities: visit to the Real Hospital de Mineros in June, 2005.
- Proposal of a new five-day educational route entitled "Industrial Archaeology" for the Education Department of Castilla – La Mancha Regional Government.
- Organization of the seminar on "Mercury and traditional mining of precious metals in Latin America", December 1st, 2005.
- Exhibition on Huancavelica, organized at the Real Hospital de Mineros de San Rafael in September, 2006.
- Photographic exhibition entitled "The Earth's Legacies. The memory of work: miners in Almadén", organized in collaboration with Almadén Town Council and the Culture Department of Castilla – La Mancha Regional Government in December, 2006.
- Photographic Exhibit entitled "The Earth's legacies, Royal Academy of Mines". December, 2008
- - Photographic exhibition entitled "The Earth's Legacies. Conservation of historic buildings", organized by Almadén – Francisco Javier de Villegas Foundation in collaboration with Almadén Town Council and the Culture Department of Castilla – La Mancha Regional Government in December, 2010

Awards:

- Award of the 1st Castilla – La Mancha Regional Tourism Prize to the most innovative initiative in the Tourism Sector to the Almadén Mining Park in September, 2006.
- 2009 FITUR award to the Almadén Mining Park as the best product of Active Tourism on the modality of Culture.
- 2009 Castile-La Mancha Regional Award on Sustainable Development to the restoration project of the Cerco deSan Teodoro mineral waste deposit.
- In 2009, Almadén Carnival was declared as a celebration of Regional Tourism Interest. This distinction was agreed by the Directorate General of Tourism and Crafts of Castile-La Mancha to this Carnival which is known from 1730.
- Awards received by the *Condes Fúcares* rural hostel of Almadén:
  - Honorary Mention for Touristic Quality and Excellence in the year 2008, granted by the Department of Culture, Industry and Crafts of Castile-La Mancha.
  - Award to the best initiative on Touristic Quality and Excellence granted by the Directorate General of Tourism of Castile-La Mancha in 2010.
- Finalist of RegioStar 2010 awards to the best and most innovative European projects financed with FEDER funds; Finalist in the category CityStar; Innovative use of brown sites in an urban context of the RegioStars 2010; Awards for the project entitled Almadén Mining Environmental and Heritage in Castile La Mancha.
- 2010 Plate distinction of Castile-La Mancha on tourism merit has been given to the Association for the development of the Almadén "Montesur" area (Proder Montesur) since its work for promoting tourism and sustainable development has been considered as a clear example of joint and strong participation.

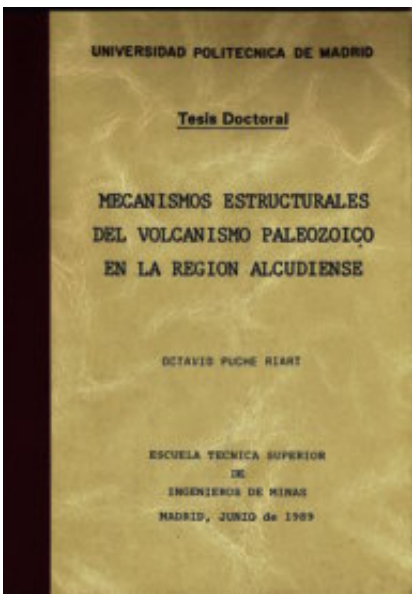
It is important to note that many other scientific activities have been carried out, as well as promotion and dissemination work.



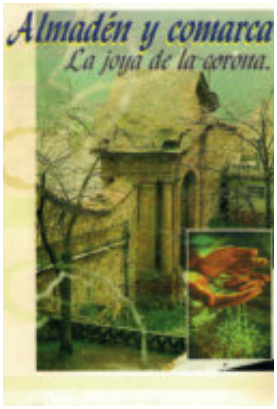


V II 001 49 A .DOCTORAL THESIS AND BOOKS

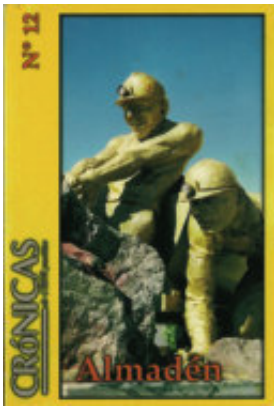







Almadén y comarca
La joya de la corona.

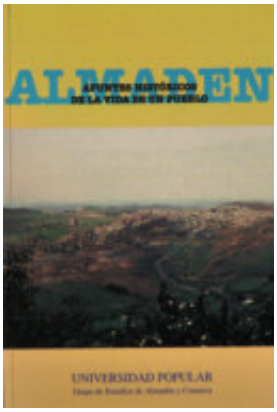

CATÁSTROFE MORBOSO DE LAS MINAS MERCURIALES DE LA VILLA DE ALMADÉN DEL AZOGUE (1778) DE JOSÉ PARÉS Y FRANQUÉS


Nº 12
CRÓNICAS
Almadén

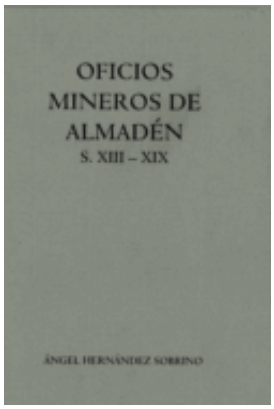

ARQUITECTURA INDUSTRIAL EN ALMADÉN:


LA PENA DE MINAS:
LOS FORZADOS DE ALMADÉN,
1646-1699
JULIÁN ANTONIO PRIOR CABANILLAS

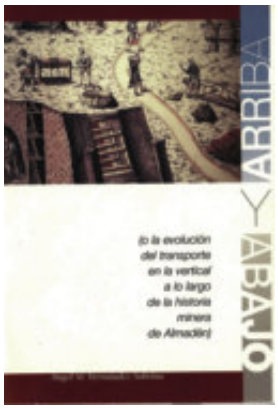

ALMADEN EN VERDE
Guia de Campo

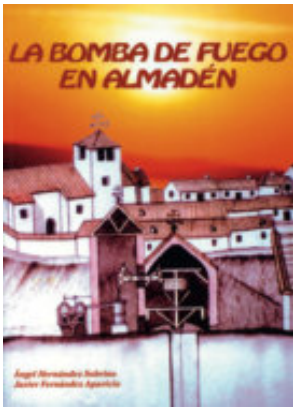

ALMADEN
UNIVERSIDAD POPULAR


LA PENA DE MINAS
LOS FORZADOS DE ALMADÉN,
1646 - 1699

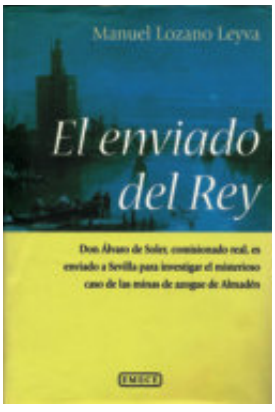

OFICIOS
MINEROS DE
ALMADÉN
S. XIII – XIX
ÁNGEL HERNÁNDEZ SORRINO

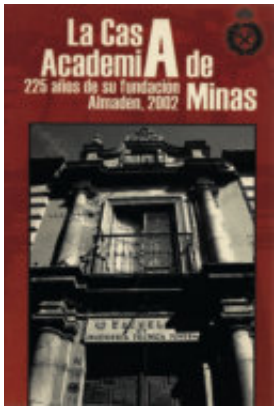

ASCLEPIO
LA BOTICA DEL REAL HOSPITAL DE MINEROS EN LA ESTRATEGIA ASISTENCIAL DEL ESTABLECIMIENTO DE ALMADEN, SIGLOS XVIII Y XIX
Alfredo Menéndez Navarro


ABAJO Y ARRIBA


LA BOMBA DE FUEGO EN ALMADÉN

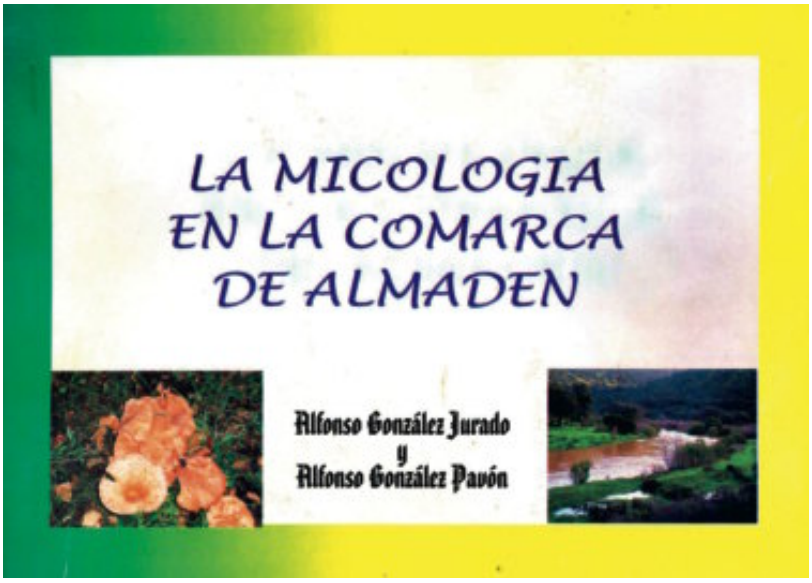

ESTRUCTURA Y GENESIS
DE LOS YACIMIENTOS DE MERCURIO
DE LA ZONA DE ALMADEN


Manuel Lozano Leyva
El enviado del Rey


La Cas
Academi A de
Minas
225 años de su Fundacion
Almaden. 2002


Un mundo sin sol.
La salud de los trabajadores de las minas de Almadén, 1750-1900







V II 001 49 A .DOCTORAL THESIS AND BOOKS

(002) Idrija

Idrija Heritage Centre

In year 2010 the Municipality of Idrija has established new Public Institution – IDRIJA HERITAGE CENTRE. The founding purposes of the centre are:

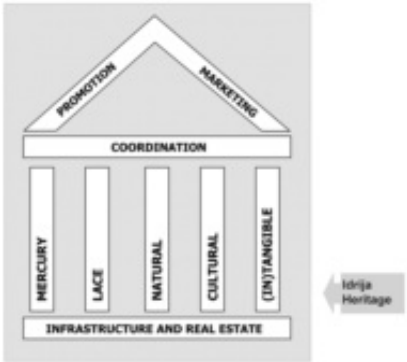
- Coordination of conservation and promotion of Idrija Heritage,
- Sustainable tourism development of destination Idrija,
- Management Plan for UNESCO (preparation and implementation),
- Geopark Idrija (setting up and managing).

Information and Research Centre for Mercury

The primary function of the Information and Reasearch Centre for Mercury (IRC-Hg) is to associate existing know-how and scinetific and research activities on mercury. Building ties with domestic and foreign institutions is an important feature of its activities. The centre deals with various activities, including monitoring, communication, database and archive management and teaching. It is in the mids of drawing up a wide range of sceintific programmes that are based on geology, mining, metallurgy, and ecology – including the presentation of the unique features of the ore deposit, mining and processing of the ore and enviromnetal issues.

The tasks of the IRC-Hg are defined and approved in the Decision of the Government of the Republic of Slovenia no. 62200-1/2010/5 of 28 October 2010 stipulating the starting points of the programme of comprehensive protection of cultural heritage and high natural values related to the Idrija ore deposit:

- monitoring and research activities related to mercury and its influence on the environment and people in Idrija, Slovenia, the EU and other parts of the world – in co-operation with outsourced experts and related research centres;
- technical assistance and developmental co-operation and counselling by order and/or under contracts;
- organisation and management of the World Centre for Inorganic Mercury in the framework of the United Nations Environment Programme and the UN convention on mercury which is currently being drafted;
- organisation and implementation of regional temporary and/or permanent storage of mercury in line with the conditions laid down in the Regulation (EC) no. 1102/2008 of the European Parliament and of the Council of 22 October 2008 on the banning of exports of metallic mercury and certain mercury compounds and mixtures and the safe storage of metallic mercury (OJ L no. 304 of 22 October 2008, p. 75) and the UN Mercury Programme as well as the implementing regulations arising therefrom;
- management, maintenance and marketing of cultural heritage, particularly the technical heritage of the Idrija Mercury Mine:
  - monuments of national importance: Anthony's Main Road, Smelting Plant, Francis's Shaft, Jozeph's Shaft, Klavže - water barriers,
  - geological collection of the Idrija Mercury Mine,
  - immovable heritage of the Idrija Mercury Mine,
  - development of products and services related to the mercury heritage,
  - restoration of the technical heritage;
- management and marketing of the Idrija Mercury Mine brand;
- management of the UNESCO nominated world heritage:
  - monitoring the condition of the heritage,
  - training and research,
  - presentation of heritage,



002 170
IDRIJA HERITAGE CENTRE

- management of the UNESCO brand,
- Mercury / UNESCO info point;

- performance of the tasks contributing to protection of high natural values related to the Idrija ore deposit, maintenance of the mine geological collection and fulfilment of the obligations arising from the entry of this area into the UNESCO's Geopark List;

- education and information science:
  - information, presentation and interpretation centre for mercury,
  - workshops and practical courses for all levels of education,
  - management of the archives of the Idrija Mercury Mine which will serve as a basis for further research, studies and trainings;

- Investment activity:
- investment work management and tendering for additional financial resources etc.;
- all activities of technical maintenance of the open section of the pit after the liquidation of the Idrija Mercury Mine company as well as monitoring activities which will be permanently subsidised by the government after the closure of the mine and liquidation of the Idrija Mercury Mine company.

Idrija Mercury Heritage Information and Interpretation Centre

It is envisaged that the Idrija Mercury Heritage Information and Interpretation Centre will be linked to the programme of the Idrija Heritage Centre and the Idrija Municipal Museum. It will be integrated into the network of sites that correspond to this serial nomination.

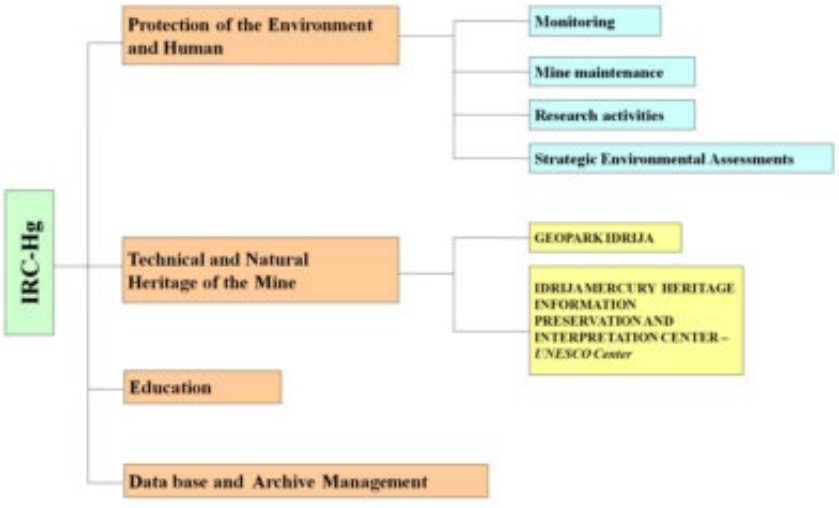
The Idrija Mercury Heritage Information and Interpretation Centre will be responsible for management, co-ordination and concerted action of the two countries as well as for informing the public. The working group in the Idrija Mercury Mine has been actively involved in the preparation of a new dossier for the nomination of the mercury technical heritage for the UNESCO World Heritage List.

Inclusion in the Management Plan

The regulations and programmes related to the presentation and promotion of the area are an important part of the management plan. The chapter devoted to Identification of Key Management Measures contains a proposal for a management model and the foreseen tasks of the individual partners involved. This chapter also deals with the envisaged programmes for the comprehensive presentation and promotion of the area, which will be the responsiblility of the site mamager and will be carried out in association with the existing managers of the individual heritage units, tourism institutions and local communities, and will incorporate existing programmes and events (e.g. the International Festival of Idrija Lace).A comprehensive programme for the promotion and interpretation of heritage as well as its inclusion in the single presentation of the Idrijan mining tradition will be prepared at the local level.

At the international level, a programme of common promotion as part of the twopartite agreement with the representatives of the serial property included in this nomination through joint projects is being drawn up with partners from Spain (exchange of exhibitions, know-how and experience).

One of the key factors in ensuring the conditions for the promotion and presentation of mercury heritage as well as programmes of public awareness, education and research, is the establishment of the Idrija Heritage Centre in the building of the former Smelting plant. The centre will be the hub for local and international cooperation in this field. The proposal for the establishment of the Information and Research Centre for Mercury will be included in the management plan.



Programmes for visitors of Idrija and its surroundings

The content relates to section 5.h.

002 171 INFORMATION AND RESEARCH CENTRE FOR MERCURY

5.j. Staffing levels (professional, technical, maintenance)

(001) Almadén

The population of Almadén has been prepared historically to tend in the best possible way to the conservation and management of the Almadén site. This is because the mine has been the direct source of employment for an immense majority of the active population down through history, which means that it is practically impossible that any family should be lacking in mining tradition. This fact guarantees that any possible worker will identify with the values present at Almadén, which leads to an extraordinary level of commitment. For example, the guides and part of the rest of the personnel at the Mining Park were previously workers at the mine.

On the other hand, as it has been stated in item 5. g of this volume, there is the guarantee of the training of the mining engineers at the School of Mining and Industrial Engineering of Almadén but also, the focus of all of their academic training is based on identification with history and heritage.

As regards the conservation of the civil works and architecture, there are the graduates in the speciality of Technical Architecture from the University of Castilla-La Mancha, but it is important to point out that the work of conservation and maintenance is for the most part performed by mining engineers, due to the particular characteristics of the Almaden ensemble.

The conservation and adequate maintenance of the cultural assets in the mining ensemble at Almadén (including the actual mine, its archaeological elements and historical facilities on the ground, the elements located in the vicinity that are linked to the history of the mine, the monuments that have been individually declared to be of cultural interest and the corresponding "surroundings") are subject to the competencies of the Directorate-General of Historic Heritage in the regional government of Castile-La Mancha, which has technical staff that are skilled and specialised in various fields. The initiative is also supported by the Ministry of Culture and its Institute of Cultural Heritage (IPCE) with a significant number of specialists. Therefore, for any kind of specialised work, there are highly skilled trained professionals in different parts of the country.

Mining Park Personnel			
Management			
Director	1	Secretary	1
Administration			
Administrative clerks			1
Documentation			
Documentation experts			1
Specialised Guides			
Locomotive			1
Guides			
Mine group guides			6
Maintenance			
Eletricians Mechanics			1 1
Reception			
Tickets, Information and workshops			3
Surveillance			
Museums			1
Total			17

As may be seen in the above table, practically all of the people that are employed at the Mining Park may have and should have links with the mining tradition. In the case of the School of Mining and Industrial Engineering of Almadén, it is the professors and students themselves that look after visitors to the museum and the interpretation centre.

The Francisco Javier de Villegas Foundation, with its work at the museum housed in the former San Rafael Hospital for Miners, carries out projects for the recovery and maintenance of documentary archives and other types of movable assets of technical and scientific value linked to the history of mining in Almadén.

(002) Idrija

Institute for the Protection of Cultural Heritage of Slovenia

As the national state institution it performs conservation and monitoring activities on immovable heritage, especially buildings with the status of cultural heritage monuments, except for those that fall under the institutions listed below.

In order to perform its duties the Institute employs highly-skilled staff:

- Central office: professionals of high (B.A.), specialist (M.D.) and expert (Ph.D) rank,
- Regional Office Nova Gorica: professionals of intermediate, higher and high rank,
- Restoration Centre: professionals of higher, high (B.A.), specialist (M.D.) and expert (Ph.D.) rank.

Idrija Municipal Museum

The museum performs the tasks of collecting, preserving, conserving and presenting movable units of cultural heritage as well as intangible cultural heritage sites in Idrija and Cerkno. It boasts an extensive collection of objects, photographs and other images, old postcards, books and reading material.

It stores part of its collections in warehouses, while other part is included in the permanent and temporary exhibitions. The museum has exhibition space in sites that have also been declared coltural monuments, including the Gewerkenegg Castle (several permanent exhibitions, including about the 500-year history of mercury mining in Idrija), Francis' Shaft (technical cestion including a collection of mine machinery and equipment), miner's house (reconstruction of the life of miners and their families).

The Idrija Municipal Museum manages the following cultural heritage sites that are related to Idrija's mining tradition: the Gewerkenegg Castle, miner's house at Bazoviška 4 and the Kamšt water pump as well as other heritage sites (Partisan Printing Workshop Slovenia, Partisan Hospital Franja, Memorial House of writer France Bevk).

Idrija Mercury Mine

The mine is in charge of manitaining and preserving the area of the mine and its movable and immovable heritage, which are or were in its custody:

- The mine and ore deposit (shafts, galleries, geological formations, etc.),
- Anthony's Main Road, which is now used as a tourist mine,
- Building containing the entrance to Anthony's Main Road (1754),
- Francis's shaft (movable heritage and buildings associated with the mine),
- The Smelting plant and all accompanying facilities,
- Geological collection,
- Documentation and management of databases.

The mine also performs presentations of old methods of mercura mining as well as the working environment of miners over the centuries.

Civilian initiatives and individual experts

Aside from the Idrija Municipal Museum (responsible for protecting movable and immovable heritage) and the Idrija Mercury Mine Ltd. - in liquidation, important roles in the conservation, preservation and development of heritage sites are also played by various civilian initiatives and individual experts.

Know-how and staff in Idrija

The Idrija Municipal Museum and Idrija Mercury Mine employ a number of highly-skilled experts in areas that are part of the public duties and tasks associated with managing movable and immovable cultural heritage as well as interprettaion tasks and other programmes. Experts from the following fields work at these two institutions (both full-time employees and freelance staff):

- History,
- National heritage,
- Technical heritage,
- Mining (geotechnology ang geomechanics),
- Metallurgy (both as a process and as a chemistry subject),
- Geology (minerals, stratification, tectonics, palaeontology),
- Hydrogeology,
- Safety at work,
- Ecology (handling of mercury, etc.),
- Health (external experts),
- Information technology.

The staff, comprising a total of around 60 full-time employees, fills the following positions:

- Advisers: university degree from relevant programme,
- Management: masters' degree, university degree,
- Technical stuff: high or vocational school degree.

There is a lack of staff in some fields, which is something that will have to be addressed as a part of management activities. The main shortfall is in skills associated with restoration and conservation of cultural heritage. The institutions work closely with outside specialist institutions.

Chapter 6

Monitoring





Monitoring

The series being proposed has the particularity that just as it presents a general system of concepts for management and agreements between the States, the monitoring is also carried out with a streamlined approach, based on the current conservation status of the components of the serial property and the criteria that support outstanding universal value. The general concepts, which are common to components in the series, are as follows:

Impact assessment studies

The local community and the state have committed themselves to checking the impact of all planned activities by means of impact assessment studies. Potential impacts on protected cultural heritage, be it positive or negative, is examined with all earnest and solutions are sought to provide for the continued protection and use of heritage sites both for the benefit of the local community and visitors to the area. The existing procedures in this field, which put at the forefront cultural and natural heritage, are a guarantee for success.

Physical space

In line with established practice, positioning will continue to be carried out in the two components of the serial property and their surroundings for all new buildings or changes to existing buildings and infrastructure. Photographing of the site of invasive activities prior to the work and after the work has been carried out is an existing standard for protecting and conserving the heritage sites that testify to the history of the town and life in it over the centuries.

Reactive monitoring

It is but a certainty that the institutions in charge of overseeing heritage sites will in the future implement the technique of reactive monitoring, which is used by a number of organisations, especially the Committee for World Heritage and its associated offices. An important role among non-governmental organisations in this area is played by the International Council on Monuments and Sites (ICOMOS). Besides the internal role played by National Committees whose experts contribute with their advise, the members of ICOMOS are asked to fill out a form stating their observations and feelings during visits to UNESCO World Heritage Sites. Such practices allow the state of cultural heritage sites to be systematically monitored and documented.



The results of periodic surveys and questionnaires will serve to draw up corrective measures. These will be implemented after being subjected to expert analysis of their acceptability.

Mercury mines

Control over the possible presence of mercury in both mines is ongoing. Management and risk preparedness plans place special emphasis on measuring the presence of mercury on a continuous basis.

In the case of Almadén, the School of Mining and Industrial Engineers of Almadén (EIMIA) and MAYASA have for several years had various work teams dedicated to studying the environmental issues of mercury, a metal of which the Mining District of Almadén was the leading world producer in historic times: its mines have provided a third of the metal used by mankind for its varied applications. As a consequence of this mining activity and of the related metallurgical works, there has been ample geographic dispersion of the metal, both in the form of vapours that have been emitted and redeposited in various forms in the environment, or in the form of solid particles, which have been carried by the wind from the slag heaps, or during blasting, loading and transport processes. The work of these groups has focussed on analysing the dispersion and concentration of mercury in its different forms in the immediate surroundings of the main mining areas in the towns of Almadén (Almadén mine) and Almadenejos (La Vieja Concepción and La Nueva Concepción mines and El Entredicho / Valdeazogues minette). The results of these works have been disseminated in a large number of publications at national and international level and they currently form the largest research group on mercury in the world, which is corroborated by the numerous research projects currently underway.

The School of Mining and Industrial Engineers of Almadén (EIMIA) has created an Environmental Heavy Metal Biogeochemical Laboratory, the main objective of which, in collaboration with MAYASA, is the analysis and control of all aspects concerning the environmental setting of the mercury in the county of Almadén, taking into account the Directives issued by the European Union on the restriction, use and marketing of mercury. As regards the Public Administration, both the Department of the Industrial Environment and the Directorate-General of Environmental Evaluation of Castile-La Mancha exercise their respective competences in this field.

MAYASA has also began to establish the Technological National Centre of Mercury Decontamination which purpose is concentrated on the research, dissemination of knowledge and decontamination of mercury not only at a local and national scale but as an institution put at the service of international research work for the adoption of preventive steps and effective measures addressed to control the negative effects of this liquid metal worldwide. This innovative Centre is being prepared at the installations of the Almadén Mining Park.

The mining complex, its elements and archaeological sites are protected by a Decision taken by the Castile-La Mancha Autonomous Government of 25th November 2008 (Official Gazette of Castile-La Mancha, 1st December 2008) by which Almaden Mines were legally declared as an element of Cultural Interest (B.I.C.) in the category of Historic Ensemble. This enables the Mining ensemble to receive the maximum level of protection granted by law in Spain. It is to be added that it is therefore entitled to benefit from the highest degree of protection since by the Directorate-General of Cultural Heritage in Castile-La Mancha (DOCM 241 /27813-25) initiated appropiate legal proceedings for this asset to be declared an element of Cultural Interest in 2007. Present-day

activity focuses on adequate conservation and maintenance, for the purposes of disseminating knowledge and research.

In the particular case of the Idrija mine, plans have been drawn up to protect the part of the mine that will remain unfilled as a site of natural heritage of national importance. The area of the Mercury Mine Idrija already includes two national natural monuments (OJ RS no. 111/04): the ore deposit (identification no. 4644) and Anthony's Main Road (identification no. 4455). Both of them are also declared a cultural monument of national importance. (HRN: 185, HRN: 4826). The ore deposit in Idrija is by all measures unique in the world. The deposits of native mercury and cinnabar are not found anywhere else in the world. This natural phenomenon should be preserved in kind so as to at least give experts a chance to study it. Only maintenance work is permitted in the protected area. Any extensive activities require a mining plan to be drawn up and the required permits to be obtained.

Engineering and architecture

In all cases, there is a detailed inventory of the architecture, the engineering works and, in the two mines, of the specific works, galleries,tunnels, shafts and other components. Almadén has been inventoried by means of the register of cultural assets in the Community of Castile-La Mancha[1]. Meanwhile, in the case of Idrija, a process is underway of documenting the existing buildings from the time when detailed architectural documentation did not exist. Priority is given to the buildings that are planned to undergo refurbishment, alteration, renovation or restoration work. The buildings are documented in digital format, as well as by means of sketches and interpretations. The three-dimensional data capture, which is the standard used in documenting these buildings, involves the classical terrestrial surveying methods and terrestrial and aerial photogrammetry, while many of the old buildings also require hand measurement using digital capture. Three-dimensional laser scanning is also in use.

Photographing of the site of invasive activities prior to the work, during the work and after the work is an existing standard for protecting and conserving the heritage sites. The general public has been encouraged to take pictures of the buildings using the 3-by-3 rule. The method allows for sufficiently precise processing and construction of three-dimensional models with the help of standardised methods of processing general photographs.

Dendrochronology is increasingly used to determine the age of wooden structures, as the national database of comparable data (The Institute of Woodwork, Biotechnical Faculty at the University of Ljubljana) now contains an extensive range of information. The biggest database of samples of construction materials, colours and other materials is kept at the Restoration Centre of the Institute for the Protection of Cultural Heritage of Slovenia.

Machines and equipment

In Almadén, there is abundant documentation on the machinery, which includes, in many cases, original documentation that is kept at the Historic Archive of Almadén and in the historic archives of the Almadén Mines and the School of Mining and Industrial Engineers of Almadén (EIMIA), or that has been reproduced from the originals existing at other Spanish archives. There is also documentation on the conservation and restoration work carried out to restore the other elements and facilities that make up the Mining Park and adapt them to new cutural uses, as well as those that are situated outside the grounds

[1] ESTEBAN BORRAJO, Germán: *Memoria de la Carta Arqueológica, Paleontológica, Etnográfica e Industrial del término municipal de Almadén (Introducción y Etapa Moderna)*. (Report on the Archaeoligical, Palaentological, Ethnographic and Industrial Map for the municipality of Almadén (Introduction and Modern Stage). Castilla-La Mancha Regional Government, 2006.

but which are related to mining activity (see 5.b.1 and 7.d).

In Idrija, documentation of machines and equipment for which no original documents have been found is based on hand measurement and digital analysis. Three—dimensional laser scanning is used for precision measurement of large quantities of data. Photographing of the machines and equipment prior to restoration work, during the work and after the work is an existing standard for protecting and conserving units of technical heritage.

Atmosphere

Atmospheric control of the presence of mercury in Almadén and its zone of influence, including urban areas, is monitoring by MAYASA on an ongoing basis, via its Technological National Centre of Mercury Decontamination and by the Environmental Heavy Metal Biogeochemical Laboratory of the School of Mining and Industrial Engineers of Almadén, and reflected in the annual readings of the Industry department of the regional government of Castilla-La-Mancha ('Junta de Comunidades de Castilla la Mancha'). MAYASA has also undertaken rehabilitation of the waste dumps so as to avoid mercury emmissions into the atmosphere from them.

The concentration of the mercury vapours in the Idrija town above the ore deposit and in the surroundings is being permanently measured by the Mercury Mine Idrija in Closing Ltd.

The city is included in the international dark-sky movement aimed at reducing light pollution.

Other specific aspects shall be shown at a later stage in this chapter.

6. a. Key indicators for measuring state of conservation[2]

The sites that have been proposed as part of the serial nomination should be subject to systematic monitoring on a regular basis in order to enhance their values and ensure optimum functioning from the technical perspective as regards conservation, protection, disaster prevention and risk control, in accordance with the following indicators[3]:

[2] These key indicators are elaborated according to the effective standardization in the different levels of government and ownership.

[3] Acronyms: (Information and Research Centre = IRCHg; Idrija Municipal Museum = MMI; Institute of Republic Slovenia for the Protection of Cultural Heritage = ZVKDS; Institute of Republic Slovenia for Nature Conservation = ZRSVN); Ministry of Public Works (MF); Ministry of Culture (MCU); Institute of Cultural Heritage of Spain (IPCE); Autonomous Government of Castile-La Mancha (JCCM); Municipality of Almadén (MA); Francisco Javier de Villegas Foundation (FJVF); Minas de Almadén y Arrayanes (MAYASA); School of Mining and Industrial Engineers of Almadén (EIMIA).

Key Indicator no. 1

Evaluates the state of conservation of the elements of proof that bear testimony to the exchange of influences and historic complementarity of mercury mining and related technology between Almadén and Idrija.. This is the guarantee of compliance with criterion ii of the list of criteria to be met in order that the serial property may be considered to possess outstanding universal value, as well as the authenticity, as stated in "3. Justification for Inscription".

Indicator	Regularity	Location of documentation
State of conservation of the elements of proof that bear testimony to the exchange of influences based on the mercury - silver binomial of the Intercontinental Camino Real. Evaluates criterion ii:		
Furnaces and other technological components. Degree of deterioration. Protection. Maintenance system. Need or otherwise to replace parts or elements.	Almadén: 4 years	MAYASA, FJVF, EIMIA, JCCM
	Idrija: 5 years	IRCHg, MMI, ZVKDS
Architectonic or engineering types: doorways, tunnels, bridges, etc. Need or otherwise to replace parts or elements.	Almadén: 4 years	MAYASA, FJVF, EIMIA, JCCM
	Idrija: 5 years	IRCHg, MMI, ZVKDS
State of conservation of the physical traces of the road, such as its materials, layout, bridges or other structures. Transformations on the road, such as rectification of layout, paving, changes in surrounding landscape, road signs, etc.	Almadén 2 years	MAYASA, FJVF, EIMIA, JCCM
	Idrija: 2 years	IRCHg, MMI, ZVKDS
The maintained presence of influences in the intangible heritage, or recognition of such heritage.	Almadén 5 years	MA, MAYASA, FJVF, EIMIA, JCCM
	Idrija 5 years	MMI
State of conservation of the technological facilities and engineering works at the mines. State of preservation of mine machinery and equipment. State of conservation of architectural and civil engineering monuments or important buildings. State of preservation of urban patterns. Guarantee of compliance with criterion iv of the list of criteria to be met in order that the serial property may be considered to possess outstanding universal value.		
Permanence of technological components: metallurgy, minerallurgy, transportation, etc.	Almadén 5 years	MAYASA, FJVF, EIMIA, JCCM
	Idrija: 5 years	IRCHg, ZVKDS, ZRSVN
Permanence of traditional constructive and reinforcement typologies.	Almadén: 5 years	MAYASA, FJVF, EIMIA, JCCM
	Idrija: 5 years	IRCHg, ZVKDS, ZRSVN
Permanence of constructive and reinforcement typologies representing the evolution of the mining ensemble.	Almadén: 5 years	MAYASA, FJVF, EIMIA, JCCM
	Idrija: 5 years	IRCHg, ZVKDS, ZRSVN

State of conservation of the elements of evidence of the evolution of the mine ensemble, of its link with the environment and historical development. State of conservation of the elements of evidence of tangible and intangible cultural ties with historic mining processes. Expression of the same in the urban settlement. State of conservation of architectural and civil engineering monuments or important buildings. State of preservation of urban patterns. Guarantee of compliance with *criterion v* of the list of criteria to be met in order that the serial property may be considered to possess outstanding universal value.		
As regards the mining ensembles:		
Reading of mine stratification.	Almadén: Permanent	MAYASA, FJVF, EIMIA, JCCM
	Idrija: 5 years	IRCHg
Evidence of slag heaps, pits, dumpsites, shafts, galleries.	Almadén: Permanent	FJVF, MAYASA, EIMIA, JCCM
	Idrija: 5 years	IRCHg
Level of appreciation of the mine - settlement link: the presence of continuity in the timeline, the absence of interruptions.	Almadén: 4 years	MA, EIMIA, JCCM
	Idrija: 5 years	IRCHg
Regarding the pitheads and other elements of the mine within the settlement.	Almadén: 4 years	MA, FJVF, MAYASA, EIMIA, JCCM
	Idrija: 5 years	IRCHg
As regards the settlement:		
Permanence of traditional architectonic typologies	Almadén: 1 year	MA,JCCM, JCCM
	Idrija: 10 years	ZVKDS, Municipality of Idrija
Degree of transformation of the urban layout	Almadén: 1 year	MA, JCCM, JCCM
	Idrija: 10 years	ZVKDS, Municipality of Idrija
Percentage of buildings that require major repairs. Measurement of damages on buildings.	Almadén: 1 year	MA, JCCM, JCCM
	Idrija: 5 years	ZVKDS, Municipality of Idrija
As regards intangible aspects:		
Permanence of cultural traditions.	Almadén: 5 years	MA, JCCM
	Idrija: 5 years	MMI, Municipality of Idrija
Permanence of the population's identification with "mining culture".	Almadén: 4 years	MA, FJVF, EIMIA
	Idrija: 10 years	MMI, Municipality of Idrija
Degree of respect for cultural testimony	Almadén: 4 years	MA, FJVF, EIMIA, JCCM
	Idrija: 10 years	MMI, ZVKDS, IRCHg, Municipality of Idrija

Key Indicator no. 2

Evaluates the effectiveness of the management system, according to "5. Protection and management".

Indicator	Regularity	Location of documentation
Ownership Law:		
Variations in the ownership regime and land value	Almadén: 1 year	MA, JCCM (Cadastral Information, Institute of Statistics), JCCM, , STATE CADASTRE.
	Idrija: 5 years	Municipality of Idrija
Exemptions from taxes and other stimuli for conservation.	Almadén: From 1 year on. There are different cases.	MA, JCCM.
	Idrija: 5 years	Municipality of Idrija
Legal situation:		
Effectiveness of legal instruments	Almadén: It is marked in the corresponding plan.[4]	MA, JCCM
	Idrija: 5 years	Municipality of Idrija
Level of functioning of the bodies in charge of applying technical and administrative standards and instruments	Almadén: 4 years	MA, JCCM.
	Idrija: 5 years	Municipality of Idrija
Means for applying protection measures . Effectiveness in the application of the protection standardization	Almadén: 4 years	MA, JCCM.
	Idrija: 5 years	Municipality of Idrija
Level of development of the municipal offices linked to the conservation	Almadén: 5 years	MA, JCCM.
	Idrija: 5 years	Municipality of Idrija
Participation and organization of the population to help in actions of preservation of the heritage	Almadén: 1 year	MA, FJVF, EIMIA, JCCM.
	Idrija: 3 years	Municipality of Idrija, ZVKDS
Existing plans:		
Update of the Partial Plan on Conservation of the urban ensemble or Strategic Plan for Development.	Almadén: It is marked in the corresponding plan[5]	MA, JCCM
	Idrija: 10 years	Municipality of Idrija, ZVKDS
Degree of implementation of the urban planning plan.	Almadén: 4 years	MA, JCCM
	Idrija: 5 years	Municipality of Idrija
Correct balance of functions, appropriate use of buildings and sites.	Almadén: 1 year	MA, JCCM
	Idrija: 5 years	Municipality of Idrija, ZVKDS
Degree of compliance with plans for restoring and rehabilitating property in the historic centre.	Almadén: annual	MA, JCCM
	Idrija: annual	Municipality of Idrija, ZVKDS
Property management plan:		
Compliance with and effectiveness of the management plan and the steering plan for the mining ensemble.	Almadén: annual	FJVF, MAYASA, JCCM
	Idrija: annual	Municipality of Idrija, ZVKDS

[4] Article 40. 3 of the Legislative Decree 1/2010, de 18/05/2010, which approves the reworded text of Land Regulations and Urban Activities of Castile- La Mancha stays that "Plans will be revised as it is established in their own text". Other related information is developed in the following items of the said article and in article 41. Once the PON and PECHA of Almadén receive definitive approval concrete data on this aspect will be ready to be forwarded.

[5] Idem id.

Accessibility: Level of coverage of communication and transport systems	Almadén: annual	MA, FJVF, MAYASA, JCCM, MF
	Idrija: Annual	Municipality of Idrija, ZVKDS
Functioning of facilities for visitors and statistics.	Almadén: annual	MA, FJVF, EIMIA, MAYASA, JCCM
	Idrija: annual	Municipality of Idrija
Evidence of the benefits from tourism and other sources of funding for sustainable conservation and development.	Almadén: 4 years	MA, FJVF, EIMIA, MAYASA, JCCM.
	Idrija: 5 years	Municipality of Idrija
Number of visitors and their degree of satisfaction.	Almadén: annual	MA, FJVF, EIMIA, MAYASA, Local Tourism Office, JCCM (Institute of Statistics)
	Idrija: annual	Municipality of Idrija
Sources and levels of funding:		
Feasibility of the economic-financial plan integrating public and/or private funds	Almadén: annual	FJVF, MAYASA, EIMIA, MA, JCCM.
	Idrija: annual	Municipality of Idrija
Sources for specialisation and training in conservation and management techniques:		
Specialised training, links to University, postgraduate system.	Almadén: 2 years	EIMIA, University of Castile-La Mancha, Department of Castile-La Mancha for Education and Science, MA, MAYASA
	Idrija: 5 years	IRCHg, MMI, ZVKDS, ZRSVN
Qualification of personnel and opportunities for systematic training and recycling.	Almadén: 2 years	EIMIA, MA, FJVF, MAYASA
	Idrija: 2 years	IRCHg, MMI, ZVKDS, ZRSVN
Policies and programmes related to the presentation and promotion of the property:		
Level of functioning of the museums, Archive and information and interpretation centres.	Almadén: annual	EIMIA, FJVF, MA, JCCM.
	Idrija: annual	IMM, IMIRC, Municipality of Idrija
Degree to which the population identifies with the mining ensemble and mining culture.	Almadén: 1 year	Municipality of Almadén, FJV F, MAYASA, EIMIA
	Idrija: 10 years	Municipality of Idrija
Degree of commitment. Strengthening of identity	Almadén: 1 year	Municipality of Almadén, FJVF, MAYASA,EIMIA
	Idrija: 10 years	Municipality of Idrija
Measures taken for dissemination, promotion and heritage education	Almadén: annual	EIMIA, Municipality of Almadén, FJV F, MAYASA, EIMIA, JCCM.
	Idrija: annual	RCHg, MMI, ZVKDS, ZRSVN, Municipality of Idrija
Participation of creators and artists with cultural projects	Almadén: annual	FJV F, MAYASA Municipality of Almadén, EIMIA, JCCM
	Idrija: annual	Municipality of Idrija
Staff of the mining complex, municipality, EIMIA, Mercury Museum and Mining Interpretation Centre (Almadén); Mercury Heritage Information and Interpretation Centre (Idrija)		
Stability and specialisation of entities. Maintenance of institutional memory.	Almadén: 2 years	Municipality of Almadén, MAYASA, FJV F, EIMIA
	Idrija: 2 years	IRCHg, MMI, ZVKDS, ZRSVN, Municipality of Idrija

Key Indicator no. 3

Evaluates the factors affecting the heritage in accordance with "4. State of conservation and factors affecting the heritage".

Indicator	Regularity	Location of documentation
Pressure due to "development", as regards the settlement and its surroundings:		
Pertinence and compatibility of land uses. Control of changes in use.	Almadén: 1 year	Municipality of Almadén, JCCM, CADASTRAL OFFICES at regional and state levels.
	Idrija: 5 years	Municipality of Idrija
Control of visual and acoustic pollution.	Almadén: permanent	Municipality of Almadén, JCCM.
	Idrija: permanent	Municipality of Idrija
Control of new insertions of contemporary architecture.	Almadén: permanent	Municipality of Almadén, JCCM
	Idrija: permanent	Municipality of Idrija
Control of authenticity for historic heritage.	Almadén: permanent	Municipality of Almadén, JCCM.
	Idrija: permanent	Municipality of Idrija
Pressure for demolition, reconstruction or new construction.	Almadén: permanent	Municipality of Almadén, JCCM.
	Idrija: permanent	Municipality of Idrija
Type and number of modifications to the plan as regards interventions in urban layout.	Almadén: 1 year	Municipality of Almadén, JCCM.
	Idrija: 5 years	Municipality of Idrija
Consequences of poorly managed tourism. Effects.	Almadén: 1 year	Municipality of Almadén, JCCM
	Idrija: 5 years	Municipality of Idrija
Effectiveness of the buffer zone.	Almadén: permanent	Municipality of Almadén, JCCM, JCCM.
	Idrija: permanent	Municipality of Idrija
Pressure due to "development", as regards the mining ensemble:		
Quality of tourism management	Almadén: annual	MA, JCCM, FJVF, MAYASA, EIMIA
	Idrija: annual	Municipality of Idrija
Control of negative impacts.	Almadén: annual	MA, MAYASA, JCCM, JCCM
	Idrija: annual	Municipality of Idrija
Harmonious relationship between tourism and population.	Almadén: annual	Municipality of Almadén, FJVF, MAYASA, EIMIA, JCCM
	Idrija: annual	Municipality of Idrija
Disasters and risk preparedness, as regards the mining ensemble:		
Physical stability of the mine and its structures.	Almadén: permanent	MAYASA, JCCM
	Idrija: permanent	IRCHg

Maintenance of environmental conditions of the mine	Almadén: permanent	MAYASA, JCCM
	Idrija: permanent	IRCHg
Maintenance of environmental conditions surrounding the mine.	Almadén: permanent	MA, MAYASA, JCCM
	Idrija: permanent	IRCHg
Ensuring the quality of surface and underground waters by draining from dumpsites. Stability of dumpsites.	Almadén: permanent	MA, MAYASA, JCCM, Hydrographical Confederation of the Guadiana River Region
	Idrija: permanent	IRCHg
Specific aspects of safety inside the mine: extinguishers, low voltage electricity lines, stairs, paving, railings, signs.	Almadén: permanent	MAYASA, JCCM
	Idrija: permanent	IRCHg
Mercury control	Almadén: permanent	MAYASA, JCCM
	Idrija: permanent	IRCHg
Safety measures as regards the stability of the ground, the state of electricity lines and cables, ventilation flow, air quality.	Almadén: permanent	MAYASA, JCCM
	Idrija: permanent	IRCHg
Elimination of risks associated to the use of machinery.	Almadén: permanent	MAYASA, JCCM
	Idrija: permanent	IRCHg
Elimination of risks of explosion, ignition of gas or dust.	Almadén: permanent	MAYASA, JCCM.
	Idrija: permanent	IRCHg
Absence of material liable for self-combustion.	Almadén: permanent	MAYASA, JCCM
	Idrija:permanent	IRCHg
Stability, falling of wedges, blocks, collapses	Almadén: permanent	MAYASA, JCCM
	Idrija: permanent	IRCHg
Possible slides and falls	Almadén: permanent	MAYASA, JCCM
	Idrija: permanent	IRCHg
Lift operation and security	Almadén: permanent	MAYASA, JCCM
	Idrija: permanent	IRCHg
Disasters and risk preparedness, as regards the settlement and its surroundings:		
Effectiveness in application of protective legislation	Almadén: permanent	IRCHg
	Idrija: annual	MAYASA, JCCM
Environmental quality. Pollution.	Almadén: permanent	IRCHg
	Idrija: permanent	MAYASA, JCCM
Prevention of natural risks	Almadén: permanent	IRCHg
	Idrija: permanent	MAYASA, JCCM
Pressure due to the affluence of visitors or tourists.	Almadén: permanent	IRCHg
	Idrija: permanent	MAYASA, JCCM

Key Indicator 4

Evaluates the degree of sustainable development of the serial property and the buffer zone within the corresponding region, based on "4. State of conservation and factors affecting the property" and "5. Protection and management of the property".

Indicator	Regularity	Location of documentation
Permanence of the relation between the natural landscape, the settlement and the nominated property.	Almadén: 2 years	Municipality of Almadén, JCCM.
	Idrija: 2 years	Municipality of Idrija
Stability and conservation of resources: water, soil, vegetation, fauna.	Almadén: permanent	Municipality of Almadén, JCCM, Hydrographical Confederation of the Guadiana River Region
	Idrija: permanent	Municipality of Idrija
Degree of satisfaction of expectations for development	Almadén: 5 year	Municipality of Almadén, JCCM, Department of Work and Employment of Castile-La Mancha
	Idrija:5 years	Municipality of Idrija
Impacts of economic activities on the property and its surroundings: employment, tourism, training, marketing, production, etc.	Almadén: 5 years	Municipality of Almadén. It also involves most of the Departments of the Government of Castile-La Mancha, like those devoted to Work and Employment; Tourism and Artisan Work; Education and Science; Industry and Information Development; Social Welfare; Environment and Rural Development, Culture, Economy and Finances, Land Planning, etc.
	Idrija:5 years	Municipality of Idrija
Standard of living and quality of life of population.	Almadén: 5 year	Municipality of Almadén, Departments of Castile-La Mancha for Social Welfare, Environment and Rural Development, Work and Employment, Economy and Finances, etc.
	Idrija:5 years	Municipality of Idrija
Permanence of a balanced number of inhabitants.	Almadén: 1 year	Municipality of Almadén, Institute of Statistics of Castile-La Mancha
	Idrija: 5 years	Municipality of Idrija
Accessibility: level of coverage of communication systems, transport and parking areas	Almadén: 1 year	Municipality of Almadén, JCCM.
	Idrija: 5 years	Municipality of Idrija
Suitability of networks and services: water, sewage, energy, road system and others	Almadén: annual	Municipality of Almadén, JCCM, Hydrographical Confederation of the Guadiana River Region, MF, etc.
	Idrija: annual	Municipality of Idrija
Quality of life: education, health, work, diet, housing and others	Almadén: 5 year	Municipality of Almadén, JCCM
	Idrija: 5 years	Municipality of Idrija
Plans and initiatives for social promotion	Almadén: 2 years	Municipality of Almadén, Departments of Castile-La Mancha for Social Welfare, Work and Employment, Education and Science; Culture; Tourism and Artisan Work, Rural Development, etc.
	Idrija: 2 years	Municipality of Idrija
Growth rates, fixed and floating population. Permanence of population.	Almadén: 1 year	Municipality of Almadén, JCCM
	Idrija: 5 years	Municipality of Idrija
Promotion of cultural facilities and affirmation of the historical reference, promotion and dissemination	Almadén: permanent	Municipality of Almadén, Department of Castile-La Mancha for Culture, JCCM
	Idrija: permanent	Municipality of Idrija

6.b Administrative arrangements for monitoring property.

The monitoring of the components in this nomination of serial property is already underway, as may be seen in the table containing the key indicators for monitoring. As explained in 6.a., this important activity is carried out in the two countries according to different levels: national, regional and local level, depending on the case and the specific ownership characteristics of each country.

In the two countries, the national ICOMOS committees and other scientific, academic and professional organisations should participate in monitoring.

(001) Almadén

The agents within the Spanish legal framework

The Spanish network in charge of cultural heritage and therefore responsible for monitoring Almaden historic ensemble is as follows:

The Ministry of Culture through the Directorate General of Fine Arts and Cultural Properties. Among other administrative services, the Institute of the Spanish Cultural Heritage (IPCE), which includes a great number of different experts on heritage conservation, provides its qualified assistance at a national, regional and local level.

The Autonomous Communities. In this specific case we should refer to the regional government of Castile-La Mancha through its General Directorate of Cultural Heritage, which also has a number of qualified specialists in the field of conservation .

At the local level, municipal entities such as the Town Council of Almaden.

Independently of matters directly referring to protection by means of the specific competences attributed to regional authorities in the field of Cultural Heritage, there is a great number of other public institutions in the government of Castile-La Mancha that contribute through their specific services, facilities, data filing and monitoring activities to the appropriate conservation, enhancement and management of the Almaden Historic Ensemble (see 6. a. Key indicators for measuring state of conservation)

As regards private entities and owners, the legal framework also contemplates their participation on the protection, conservation and monitoring of Cultural Heritage, which has an important significance in the case of Almaden as will be described in this summary.

Advisory services at the national, regional, provincial and local level are carried out by relevant institutions like the Royal Academy of Fine Arts and other academies of similar nature, as well as by eminent bodies of regional and provincial scope devoted to the study of historic cultural heritage. The provinces, such as Ciudad Real where Almaden is located, have a Committee formed by relevant experts who supervise the projects submitted for approval to the competent authorities and decide whether they meet or not the necessary requirements.

The national system. Distribution of competences, co-operation and administrative arrangements for monitoring cultural heritage among the public agents.

As explained in 5.b.3, the national system for the protection, management and control of cultural heritage in Spain is characterized by a distribution of competencies among the State, the Autonomous Communities and the Local Entities. Notwithstanding, there is a high degree of co-operation among the different levels,

which ensures a complete monitoring as described in the following text.

According to the political system established by the present Constitution, the Autonomous Communities have assumed all the competencies in their respective territory (both in administrative and legal matters since they all have their own Parliament).

The Government of the State, through the Ministry of Culture, has the exclusive competence in those cultural properties belonging to the State, although their management can also be transferred to the Autonomous Communities. It also has competence against the illicit exportation of cultural goods and a residual action in case of "spoliation", which is destined to allow the State to act, in subsidiary terms and under extreme circumstances, when the Autonomous governments fail to preserve cultural properties.[6]

According to the Constitution, the State Government has also competencies in matters dealing with foreign relations like it should be the case of the agreements concerning the mechanisms created at a governmental level among the countries involved for ensuring the co-ordinated management of the separate components included on this nomination, as documented in this dossier.

There is a national Historic Heritage Council where the representatives of the aforementioned Ministry and those of the different Autonomous Communities discuss matters of cooperation and common interest.

Following the spirit of decentralisation marked by the Constitution, local entities have also assumed an outstanding role in the protection and management of cultural heritage. Once a town or a given area inside the municipal territory has been declared of historic interest according to the legal provisions ("Conjunto Histórico en la categoría de Bien de Interés Cultural, B.I.C"., i.e. Cultural Historic Ensemble in the category of Property of Cultural Interest), it is expected to develop a Special Plan for Protection under the Land Regulation and Urban Planning Acts. When this plan is approved both by the city councils and the Autonomous government, its management is put under control of local authorities that shall authorise or deny the interventions in the protected area and supervise their execution. In case of conflict, the Autonomous government shall act as a second instance. Notwithstanding, the Autonomous government has a direct competence on monuments and properties declared individually as Cultural Heritage Assets (B.IC).

Withing this framework, administrative arrangements for monitoring the site are ensured through the following provisions:

The contents of Act 16/1985 on Spanish Historic Heritage, article 6 of which specifies the sharing of competences and the administrative bodies responsible for same, are valid throughout Spain and each Autonomous Community, such as Castile-La Mancha, also applies its own relevant legislation on Historic Heritage.

According to article 2.1. of Act 4/1990, of 30th May, on the Historic Heritage of Castile-La Mancha "The Regional Government of the Communities of Castile-La Mancha shall adopt the necessary measures to enable its collaboration with the State Administration, the Local Corporations and public and private institutions, with the aim of guaranteeing the conservation of the Historic Heritage of Castile-La Mancha as part of Spanish Historic Heritage".

Article 4 of this Act also states "The Town Councils and other territorial and institutional public corporations in Castile-La Mancha shall cooperate with the Regional Government of the Communities of Castile-La Mancha for implementing this Act on the con-

[6] Article 4 of the Spanish Historic Heritage Act (LPHE) 16/1985 of June 25th: For the purposes of this Law, spoliation shall be understood as any action or omission placing all or any of the values of the property comprising the Spanish Historic Heritage at risk of loss or destruction or preventing it from carrying out its social function. In such cases, irrespective of the powers of the Autonomous Communities, the State Administration may at any time urge the appropriate department of the Governing Council of the appropriate Autonomous Community to urgently adopt measures to prevent spoliation. If this request is not met, the State Administration shall act as necessary to recover and protect the endangered property both legally and technically.

servation and custody of the Historic Heritage of Castile-La Mancha included in its territorial scope of action, adopting the opportune measures to avoid deterioration, loss or destruction of same. They shall be obliged to notify the Department of Education and Culture regarding any threat, damage or disturbance of the social function to which such heritage may be subject, as well as any difficulties and needs that they may have in caring for the said heritage. They shall also exercise the other functions that have been assigned to them by virtue of this Act".

Moreover, article 9 specifies as follows: "1. In order to protect the legacy that makes up the Historic Heritage of Castile-La Mancha and with a view to enabling citizen access to same, promoting communication among the various services and the necessary information for developing scientific and technical research, regional information plans on the Historic Heritage of Castile-la Mancha shall be reformulated on a regular basis; 2. The regional council dedicated to the Historic Heritage of Castile-La Mancha is responsible for proposing the regional information plans mentioned in the previous paragraph, which are subject to the approval of the Department of Education and Culture; where applicable. 3. The various public services and the owners of the elements that make up the Historic Heritage of Castile-La Mancha shall collaborate in drawing up the regional information plans".

Once a proceeding has been initiated for an asset to be declared as being of cultural interest (BIC) – as it is the case of the Historic Mining Ensemble of Almaden and related elements (see 5.b.1)- , it is granted the same protection as is granted to those for which BIC status has already been legally confirmed, according to the terms of article 11 of Act 16/1985, of 25th June, on Spanish Historic Heritage *"1. Initiation of proceedings for the declaration of cultural interest for a property shall determine provisional application of the same system of protection that is provided for property declared of cultural interest with regard to the property in question". Article 13 adds that "the owners or, where appropriate, the holders of real rights on such property or persons possessing them under any title shall be obliged to permit and facilitate inspection by the appropriate organisations".*

Thus,the Almaden Historic Mines Ensemble has been entitled to receive the above highest protection since legal proceedings for its declaration as BIC were initiated by the Directorate General of Cultural Heritage of the Autonomous Community of Castile-La Mancha and set to force by Resolution of 29th October 2007 (Official State Gazette of 14th December 2007). This resolution gave path to a definitive declaration of this property as BIC by the Government Council of the said region on 25th November 2008 (Regional Official Gazette of 1st December 2008)

In the existing regulation at a national, regional and local level, all interventions in protected cultural assets and areas of cultural interest are clearly regulated in terms of preserving their cultural values. Both previous authorisation and regular supervision by the responsible public institutions are common legal requirements which equally affect official entities and private owners at the different territorial levels. The infringement of these rules may bring the imposition of penalties and other administrative restricting measures to the offenders, and have even criminal consequences. The law also contemplates subsidiary action to be carried out by public authorities when private owners neglect or omit their obligations of maintenance and conservation of monuments and other cultural elements.

With respect to the *General Municipal Planning (POM) and the Special Protecting Plan* which are being

developed in Almaden as explained in 5.b.1, article 20 of the Spanish Historic Heritage Act (LPHE) of 1985 puts the protection of historic towns and urban areas under the control of urban measures based on the laws on Land Regulations and Urban Planning. In article 21, it states that urban planning will include the classification of all buildings, interior and exterior areas, other significant structures and natural components, as well as the definition of the types of intervention possible. Full protection will be provided for those items classified as having outstanding value, while planning instruments will set the level of protection for the rest. Remodelling is allowed on an exceptional basis provided that it represents "an improvement in the relations with the urban environment of the area" and "avoids degrading uses". In any case, the existing land divisions must be maintained. Replacements are allowed exceptionally if they contribute to "conservation of the character" of the complex as a whole.

Under the LPHE, protection of the heritage of historic centres is implemented through what are termed the Special Plan for Protection, the General Plan and the Subsidiary Regulations, which are based on the Land Regulation and Urban Planning Acts.

In turn, article 8 of Act 4/1990 on the Historic Heritage of Castile-La Mancha, which refers to the Initiation of Proceedings and Declaration of Property as being of Cultural Interest indicates: *"1. Urban plans must explicitly include all buildings for which proceedings have been initiated for declaration as property of cultural interest or which have been declared as being of cultural interest and the setting of such buildings should be defined".*

Article 14 of the same Act provides that the Department of Education and Culture (of Castile-La Mancha) *"is expressly authorised to prevent demolition and suspend any type of work or intervention on property that has been declared to be of cultural interest or on the setting of such property, or for which the relevant proceeding for such declaration has been initiated. It is also entitled to agree to works being carried out at the expense of the owners in order to prevent irreparable deterioration due to abandonment or negligence".*

Work on property that has been declared to be of cultural interest or for which such a proceeding has been initiated and the protected setting of such property are subject to the mandatory licenses and control by the competent Administration and infringements shall lead to administrative obligations and sanctions. Thus, article 13 of the aforementioned Act of Castile-La Mancha provides the following: *"1. When the building or land use actions that under the terms of this Act require authorisation from the Department of Education and Culture are carried out without a license or implementation order or without complying with the conditions stated in same, the mayor or the Department of Education and Culture shall order the immediate suspension of such actions. The suspension agreement shall be notified to the Town Council within three days if it has not been adopted by the mayor; 2. Within two months counting from notification of the suspension, the interested party shall have to apply for the relevant license or, where applicable, adjust the works to the license or implementation order; 3. If this timeframe elapses and the aforementioned license has not been obtained or the works have not been adjusted to the indicated conditions, the MA shall agree to demolish the works at the expense of the interested party and shall proceed to prevent on a definitive basis the uses that such works might enable. It shall proceed in the same way if the license is refused because granting of same would go against the provisions affecting the proposed action; 4. If demolition is not carried out within one month of expiry of the*

term referred to in the previous item or from the moment that the license is refused for the expressed reasons, the mayor or the body in the Regional Government of the Communities of Castile-La Mancha that is competent in matters of urban planning shall order such demolition on an immediate basis, also at the expense of the interested party".

The same Act issued by the Government of Castile-La Mancha to which we have been referring includes Chapter (II), dedicated to the *"Regime of Sanctions"*, which specifies that *"As regards infringements and sanctions, the terms of state legislation shall apply"*. The fines shall be imposed by the relevant bodies in the regional government of the Autonomous Community. Article 61 specifies that *"any action against the historic heritage may lead to: a:1. The adoption by the competent bodies of the necessary measures for restoring the legal order that has been infringed and the physical reality that has been altered or transformed, insofar as possible, as a consequence of the illegal action; 2. The initiation of proceedings to order the suspension and annulment of the administrative acts on which the illegal action might presumably be based; 3. The imposition of sanctions on the parties responsible, following the relevant sanctioning procedure, without detriment to any possible criminal responsibilities in which they may have incurred; 4. The obligation to pay for damages and compensate for losses at the expense of those that are deemed to be responsible for such damages and losses".*

This does not prevent the authorities in charge from adopting the necessary restoration measures, as indicated in article 62: "Under no circumstances may the authorities in charge fail to adopt measures aimed at restoring the affected property to its status prior to the occurrence of the illegal situation. The sanctions for any infringements detected regarding the historic Heritage shall be imposed on an independent basis from any such measures".

Infringements against property of cultural interest that constitute crimes are also typified in criminal legislation.

As regards movable and immovable property belonging to Industrial Archaeological Heritage, the aforementioned Act 4/1990 on the Historic Heritage of Castile-La Mancha mentions in article 22.2 that *"The Department of Education and Culture shall propitiate or carry out the study, research and documentation of these materials on a systematic basis throughout the territory of Castile-La Mancha"*. As regards the Ethnological Heritage, article 23.4 also contemplates that *"The Department of Education and Culture shall propitiate or carry out the study, research and documentation of the materials that make up the Ethnological Heritage of Castile-La Mancha"*. Therefore, the knowledge and safeguarding of Industrial and Ethnological Heritage is a basic issue in the urban planning and management of the region.

The provisions of the aforementioned legislation that is specific to Historic Heritage are also complemented in the territorial and urban spheres in the Legislative Decree Legislative Decree 1/2010 of 18th May 2010, which approves the Reworded Text on Land Regulations and Urban Planning Activity in Castile-La Mancha (Official Gazette of Castile-La Mancha of 21st May 2010).

In Title Three of this Act, which addresses "Instruments of Territorial and Urban Planning", the *Municipal Plans* are regulated in Chapter III, Section 1 of which refers to the General Plans. Article 24, regarding the *General Municipal Planning Plans* (POM) provides that, among other issues, *"they should be classified as urban, urbanisable and rus-*

tic and each of these classes should be divided into the respective categories and in any case, in areas of territorial land regulations and urban planning, with delimitation of areas subject to a special protection regime".

Article 27 refers to the Catalogues of Protected Property and Spaces, which "will formalise the public policies for the conservation, rehabilitation or protection of the real estate property or natural spaces of relevant value". The competent Administration shall keep an up-to-date Register with all of the details pertaining to such property and "specific treatment according to the legislation on cultural heritage or the environment shall be afforded to those property or spaces that are also subject to measures dedicated under the terms of the said legislation".

Chapter IV of the same Legislative Decree contemplates the figure of the Special Plans foreseen "to develop, complement or enhance the General Urban Land Regulation Plans (POM)", which include the following purpose: "To adopt measures aimed at ensuring conservation of property, ensembles or gardens of cultural and architectonic interest".

The Municipalities are in charge of drawing up, amending and revising their Urban Land Regulations Plans, POM (article 34 of the same Legislative Decree). "The Special Plans and the Catalogues of Protected Property and Spaces may be drawn up and promoted both by the Municipalities and by the rest of the Public Administrations" (article 35).

Act 9/1999, of 26th May, on Nature Conservation, of Castile-La Mancha, amended by Act 8/2007 of 15th May, which updates various legal provisions, is of special importance in the case of Almadén regarding the Special Bird Protection Zone, which coincides with part of the proposed buffer zone.

Co-operation of private entities and stakeholders with public entities and participation on monitoring

The obligations of owners and users to contribute towards adequate maintenance of heritage property are contemplated by both the Spanish Historic Heritage Act (LPHE) 16/1985 of June 25th and Act 4/1990 of 30th May on the Historic Heritage of Castile-La Mancha.

In the case of Almaden, different private institutions contribute to this task on exemplary basis.

First, it should be mentioned the private Company "Minas de Almadén y Arrayanes (MAYASA)" , which is the owner of the mining complex since it was created by the State and is in charge of its management and maintenance. As explained throughout this dossier (see especially 5.e and 7.b), this company has developed an extraordinary program for recovering, maintaining and protecting the historical elements and cultural values of the mines after the final shutdown of mining activities, while guaranteeing the necessary safety of environment and security for visitors. It also continues playing an extraordinary role in the field of monitoring.

The Company MAYASA has also promoted dissemination of knowledge through the creation of the Mining Park which also includes the Mercury and Mines Museums, the Technological National Centre of Mercury Decontamination and the Mining Interpretation Centre. It has also created the Francisco Javier de Villegas Foundation which, as explained in 5.d, is in charge of the Museum of the Royal San Rafael Mining Hospital and the Historic Archives of the Almadén Mines. All these entities also contribute in a high degree to monitoring the property.

In the same line, the School of Mining and Industrial Engineers of Almaden (EIMIA), has created at its

own initiative the Francisco Pablo Holgado Historic Mining Museum and the Royal Forced Labour Prison Interpretation Centre. Both are managed by the EIMIA which also holds its historic archives and the School's Historic Library. These centres also play an important role on monitoring substantial aspects of the property. EIMIA also hosts the Biochemistry of Heavy Metals Laboratory, and the Research Institute on Applied Geology of Castile-La Mancha, created by the Governing Council of the University of Castile-La Mancha in June 2010.

Finally, it should be observed that both public and private institutions co-operate on monitoring tasks through the work carried out by local authorities, provincial council, regional government and the State administration.

(002) Idrija

An agreement between the various players in Idrija sets down the relationship in conducting regular monitoring and documenting of buildings and sites. The bulk of the responsibility is carried by the owners, who receive free guidelines for the maintenance of their property and instructions for proper technical and technological upkeep.

More demanding documentation, conservation and restoration work can be carried with the help of the following institutions:

- Institute for the Protection of Cultural Heritage of Slovenia, Ljubljana
- Institute for the Protection of Cultural Heritage of Slovenia, Regional Unit Nova Gorica, Nova Gorica;
- Institute for the Protection of Cultural Heritage of Slovenia, Restoration Centre, Ljubljana;
- Mercury Mine Idrija in Closing Ltd., Idrija.
- Idrija Municipal Museum, Idrija;
- Surveying Institute of Slovenia, Ljubljana
- Slovenian Institute for Analysis of Construction Material and Buildings, Ljubljana
- Slovenian National Building and Civil Engineering Institute, Ljubljana;

Idrija Mercury Mine in Liquidation, Ltd.

After the completion of all shutdown works at the Mine, it will be necessary to continue monitoring, observations and measurements until these can be used to prove that five hundred years of mining and mercury extraction no longer represent an »environmental burden« in the immediate and broader area of the town of Idrija. The principal purpose of the rehabilitation and re-cultivation of an environment degraded by mining is by all means to ensure public health and safety, as well as environmentally stable conditions.

On the basis of the provisions of the EU Strategy for Mercury (2005) in connection with areas that are suffering the consequences of mercury mining and the shutdown of such mines, as well as the applicable laws and implementing regulations of the Republic of Slovenia stipulating the final rehabilitation of the environment and elimination of the consequences of mining works, a project of monitoring in the period after the termination of mining activities in the Idrija Mercury Mine was prepared.

Owing to the consequences of several centuries of mining activity in the Idrija Mercury Mine, the impact of these consequences is extensive and complex. The degree of threat to the environment depends on numerous factors, e.g. the sensitivity of local terrain, composition of excavated ores, type of technology used, extent to which environmental protection regulations have been

observed by the mine, exercising observation of applicable legislation, as well as the type and scope of already implemented monitoring. The activities, i.e. rehabilitation works, measurements and observations, performed within the scope of the project of monitoring the broader area of the Idrija Mine are defined from the aspect of threat to humans, fauna, flora, ground, soil quality, types of wastes, etc..

The monitoring of the narrow and broader affected area of the Idrija Mercury Mine comprises: visual monitoring, geodetic monitoring, geomechanical monitoring, monitoring of ground water, and environmental monitoring.

Idrija Heritage Centre

Due to the decision of the Government of the Republic of Slovenia in December 2009 on initiation of regular liquidation proceedings of the Idrija Mercury Mine the Municipality of Idrija established the public institution Idrija Heritage Centre in the first half of 2010. One of the main tasks of this Centre is to connect all institutions in Idrija which are responsible for protection and monitoring of the heritage.

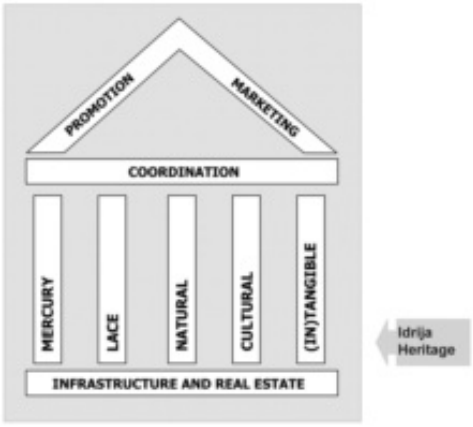
Through its Environmental Protection Program, the Municipality of Idrija wishes to ensure the long-term, best possible solving of current environmental issues that have a significant impact on the quality of life of the local inhabitants. The primary strategic goals of the **Municipal Environmental Protection Program** include the setup of an effective environmental management system **(ISO 14001)**, reduction of environmental pollution, regulation of public utility infrastructure, waste management, sustainable use of energy, protection of natural resources and biotic diversity, as well as raising environmental awareness and informing citizens.

Information and Research Centre for Mercury (IRC-Hg)

This Centre will become in 2011 the legal successor of Idrija Mercury Mine, Ltd. – in Liquidation. The Centre will be established within the Idrija Heritage Centre. The Centre operates within the scope of activities performed and yet to be performed by the Idrija Mine after the completion of shutdown works, in addition to the necessary maintenance of the unfilled part of the mine (museum) and compulsory monitoring. The primary task of IRC-Hg will be to keep the professional and general publics informed and to coordinate the investigation of the mercury mine's impacts, which allows for the monitoring and evaluation of potential harmful effects of its operation on the environment and human health. The principal idea, or vision, of the Centre is to become an interface between existing and tangible knowledge as well as scientific and research activities, and at the same time provide opportunities to experts for work and »in situ« investigations and their recognisability within the EU and world-wide. Of key importance is the establishment of contacts with numerous institutions whose activities also reach into this field, as well as connections between individual levels (local, national, international), and the concern that scientific and expert findings are not an end in themselves, but will be applied in practice.

The proposed setup of IRC-Hg and its activities in the area of the smelting plant complements the objective to protect the heritage of mercury, which is why the Centre's operation will be harmonised with the management plan for the application for inscription on UNESCO World Heritage List. Emphasis is laid on the conservation, development and presentation of heritage of exceptional universal value in a manner that will contribute to a broader awareness of the significance of and respect for such heritage, as well as to the sus-

002 170. IDRIJA HERITAGE CENTRE



tainable development of the region and the local community.

In addition to technical and cultural attractions, we are also aware of the natural features in the environment of Idrija. With its exceptional geological heritage, botanical diversity, unique forests and rich mining heritage, Idrija holds an important place in the European environment. The emerging **Geopark Idrija**, which represents a form of informal protection, interpretation, promotion and marketing of natural heritage in a geographical area, connects natural and cultural heritage in a unique and original way. The tasks of the geopark include the protection and conservation of geological and natural heritage, education and cooperation with local communities.

Idrija Municipal Museum

The Museum is a permanent organisation in the service of society and its development, which is to open, collect and conserve documents, examine, interpret, manage and exhibit the heritage and provides data thereof, with a view to fostering awareness of the heritage; spread knowledge of its values and enable people to benefit therefrom.

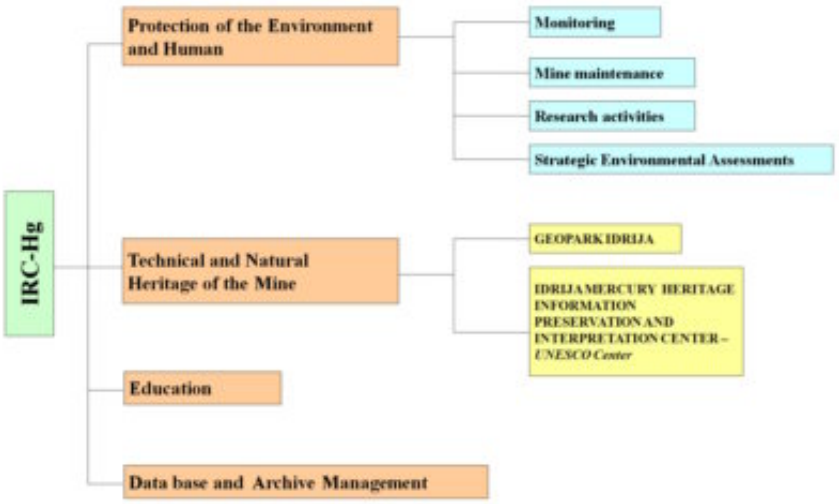
The mission of Idrija Municipal Museum is the permanent and continuous care of the movable heritage in the Idrija region in the spheres of history, modern history, ethnology, art history, and technical heritage. The endeavours of museum are reflected in the special care devoted to the conservation and presentation of the rich technical heritage of the mercury mine in Idrija.

In accordance to national law - Cultural heritage protection act (ZVKD-1), the creation act of the Idrija Municipal Museum (OJ 100/2006), the Strategic plan of the Idrija Municipal Museum (2006-2011) and the yearly program of works, the museum manages with collections of movable heritage (ethnology, history, lace, mining, mining machines ...) and monuments of immobile heritage (Gewerkenegg castle, Miner's house, Kamšt water pump).

Institute for the Protection of Cultural Heritage of Slovenia, Ljubljana

The Institute's mission is to perform a public service that covers a variety of administrative and professional duties relating to the protection of immobile cultural heritage and of the movable and living cultural heritage associated with it. The heritage that makes up an important part of the cultural diversity of Slovenia is at the same time an inseparable part of European and world heritage.

The Institute's mission is not based merely on the numerous procedures



linked to the direct conservation of heritage and the prevention of damage. It also carries out a large number of measures aimed at incorporating heritage into modern life, presenting heritage to the general public and developing awareness of its value.

Heritage conservation in the widest sense means those measures and acts that lead to the securing, conservation and general enjoyment of heritage. The state and municipalities provide legal protection, enable the implementation of individual parts of protection activities (such as the allocation of budget funds and the appropriate inclusion of protection in developmental, spatial, planning and implementation plans), and promote access to heritage. In terms of content, conservation is divided into:

- the development of protection policies and strategies
- the provision of high-quality protection and supervision of quality
- analyses of the effects of protection and the formulation of protection standards
- the determination of protection requirements
- the preparation and management of implementation projects
- the implementation of heritage work
- the permanent management of heritage units.

Integrated heritage conservation is the logically determined division of heritage conservation tasks between different national authorities and local communities, and cooperation between them. Owners of heritage and other interested parties (societies, associations, non-governmental organisations) are important and equal participants at all levels of decision-making.

Heritage protection in the narrow sense is the activity of immovable and movable heritage protection services performed by institutes founded by municipalities or the state. Individuals and organisations that have been granted a permit or concession to perform protection tasks, as well as non-governmental organisations and societies that work in the area, are constituent components of heritage protection.

The tasks of heritage protection as performed by professional services include the following in particular:

- the management of conservation projects
- the ensuring of high-quality conservation activities, and supervision of this quality
- the analysis of results and the formulation of standards
- the permanent management of monument buildings and areas.

Two further key tasks are:

- the development of protection policies and strategies
- the determination of protection requirements (primarily in administrative procedures).

Conservators that work in the Institute's regional offices work hard to develop awareness of heritage, its importance and the protection tasks involved among owners and the general public. By working openly, presenting their activities and successes, they strive to include heritage in everyday life and thereby also ensure that its profile remains high.

In line with the rules governing the conservation of cultural heritage, experts from the Institute for the Protection of Cultural Heritage of Slovenia must be included in any work on cultural heritage sites.

6.c. Results of previous reporting exercises

As explained above, the dissemination and presentation of the two components of the serial property that make up the nomination are from a certain time ago and have occurred according to different modalities, although in all cases, the importance of the historical link between them has been insisted on. We shall now go on to describe the particularities of each case:

(001) Almadén

The end of the year 1995 saw the creation of the Spanish Society for the Defence of the Geological Mining Heritage (S.E.D.P.G.Y.M.), whose purpose is to promote, disseminate and coordinate activities focusing on the study, inventory, protection, conservation and restoration of the geological heritage, as well as the mining-metallurgical heritage (Art. 3 of the Society's articles of association).

In order to set up the first initiative of the S.E.D.P.G.Y.M. at national level (1st Scientific Meeting on Mining and Metallurgical Heritage), the county of Almadén was selected because it is one of the areas of Spain with the greatest tradition in mining and because of the uniqueness of its geological-mining heritage, making it one of the richest and most varied in the country. The number of facilities and elements in its heritage is of outstanding value, as they trace the history of Spanish mining, starting with the Roman works and progressing through the Arab furnaces, the mining vocabulary, the Royal Enforced Labour Prison, the Mining Academy and a long list of other components in this history.

The mercury crisis in the decades of the 70s and 80s was aggravated in the last decade and the county of Almadén has gone from an area that lived for and from the mercury to a land whose economy is based on the diversification of its natural, agricultural and livestock resources, which has also identified a dynamo in its historic heritage with a view to the future, meaning that in recent years, there has been a substantial change in the levels of interest in the acquisition of knowledge about and the rehabilitation of the mining heritage.

A key role in this change has been played by the Francisco Pablo Holgado Historic Mining Museum at the School of Mining and Industrial Engineers of



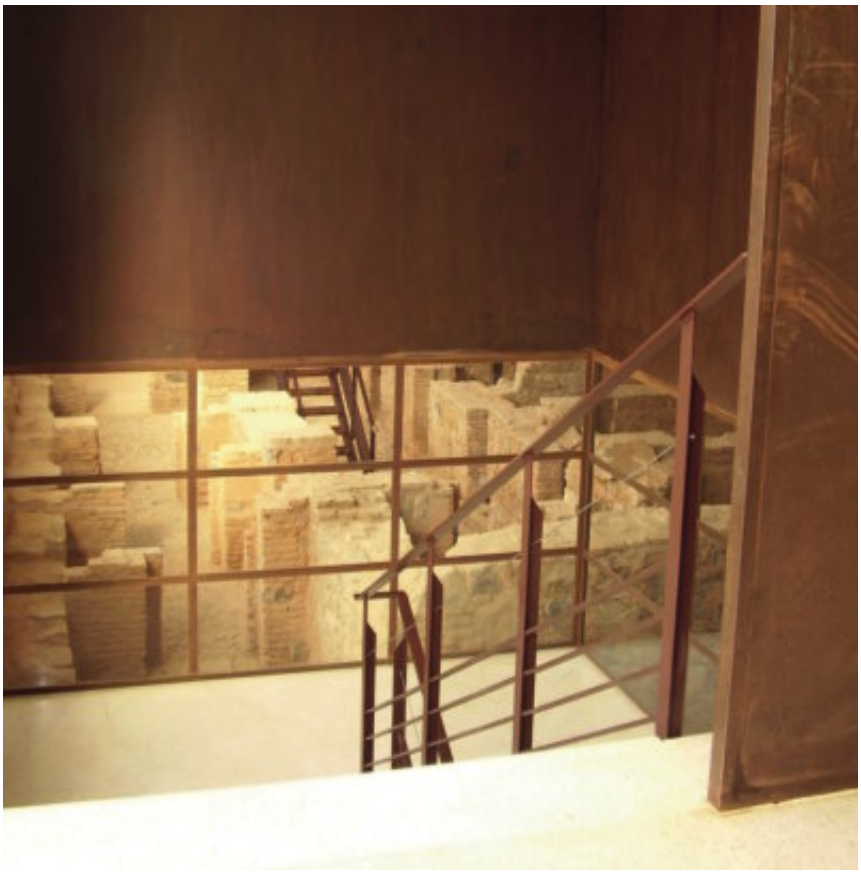
001 091A RETAMAR CASTLE

Almadén, which has served as the embryo and the inspiration since its concept was first outlined in the decade of the 80s, for creating an awareness of the existence of this heritage and secondly, uniting efforts to rehabilitate and valorise this heritage in various forward-looking projects, the results of which are now starting to show.

The decisive year of 1997 saw the Castilla La Mancha Regional Government, through its Department of Education and Culture, entrust the University of Castilla La Mancha with a project (The Ciudad Real Industrial and Mining Route: Districts of Almadén, Almodóvar del Campo and Puertollano) in order to identify precisely all of the potential in the area for it to be declared a World Heritage Site, together with other proposals from the Regional Government (The Route of Don Quixote, The Black Architecture Towns in Guadalajara, the National Park of Cabañeros and the Ritual Celebrations of *Habeas Christi*), and it was on April 18th of that year when the National Heritage Commission accepted the proposal submitted by the Regional Government.

The arrival of 1999 meant a change of air for Almadén, and it can even be said that things began to move in Almadén with respect to its heritage: we can see how rehabilitation works got under way at the Bullring (an 18th century building declared a National Monument in 1973) in order to turn it into one of the most interesting attractions for visitors as it now combines a high-quality hospitality complex (hotel and restaurant) as well as museums (one devoted to bullfighting and the other to local customs), and the possibility of being used once more as a bullring and for other events in the open air. It successfully re-opened in 2003.

Another important milestone in that same year of 1999 was the rehabilitation of the dungeons of the



001 093A ARCHAEOLOGICAL REMAINS OF THE ROYAL FORCED LABOUR GAOL, FROM THE POLYTECHNIC UNIVERSITY SCHOOL OF ALMADÉN.

Royal Forced Labour Prison now in the EIMIA and their subsequent inauguration along with the "Francisco Pablo Holgado" Museum in November, 2001, representing another step forward in the institutionalized conservation of this area's heritage.

The approval of the European PRODER programme for Almadén and its surroundings at the end of the 1990s has also represented an important reference as, although the money devoted to the recover of heritage proper has been scant, there has been a large amount of investment in development aids for tourism-related projects, rural houses, participation in trade fairs, etc., most of which come under the umbrella of the exploitation of the area's mining heritage.

Following this same path, the Mines at Almadén decided, at the end of 2000, to include the recovery of its mining heritage in the company's realignment plan, creating the Francisco Javier de Villegas Foundation in 2001 with a view to rehabilitating the Historic Heritage of Minas de Almadén y Arrayanes, S.A. (MAYASA) by encouraging and promoting historical and scientific awareness of the operations, at the same time as it began to seek the funding required to ensure this heritage is known about, visited and enjoyed by the largest possible number of people, as well as the drafting of a Master Plan in 2002 to implement the whole refurbishment process.

In this sense, it is easy to understand the inclusion of the Mines at Almadén in the National Industrial Heritage Plan by means of a collaboration agreement between MAYASA and the Directorate-General for Fine Arts and Cultural Assets at the Ministry of Education, Culture and Sport (today Ministry of Culture).

Another major landmark was the creation, in 2002, of the Board for Almadén, at which all of the pertinent bodies (local authority, provincial council, regional government and the state administration), concerned by the imminent closure of the mines, could meet to combine their efforts to diversify the economic activity in the area and explore, in the exploitation and recovery of our mining heritage, a new driving force for the economic development of the area.



001 092A THE BULLRING

The creation of the "Francisco Pablo Holgado" Historic Mining Museum at the School of Mining and Industrial Engineers of Almadén (EIMIA in its Spanish acronym) was the first serious spur towards a concern for the heritage of Almadén.

The background to this museum must be sought in the 18th century with the earliest collections of minerals at the Mining Academy, but it was not until October 1988 that the idea of establishing a Museum took root. Its creation has been the fruit of the joint initiative of a group of individuals with a keen interest in mineralogy, some of them lecturers at the School, and the first specimens were donated by members of this group and by such institutions as the Official Association of Technical Mining Engineers in Almadén and the Spanish Mining and Geology Institute. Other major donations from private individuals also include those by Mr. Francisco Holgado Sagra and it is in gratitude to him that this Museum has been given the name of "Francisco Pablo Holgado" in memory of his son.

The museum is located in the EIMIA and since its creation has occupied three distinct areas before attaining the three exhibition areas covering over 800 square metres it has today. The first of these areas is the courtyard of the School itself, given over to the larger elements of industrial archaeology of which the most outstanding is the Tower Winch nº 1 from the Diogenes Mine in the Alcudia Valley. The second corresponds to the refurbished area in what used to be the dungeons of the Royal Forced Labour Prison from the 18th century and the third area, itself divided into two sections, is devoted to the world of palaeontology and mineralogy in one while the other presents the history of mining in the Almadén district. All of these elements culminate in a 100 square metre display hall and the School's Historic Library from the 18th century.

Since its earliest days, the Museum has provided the foundations for the different educational tasks undertaken at the School, as well as acting as a driving force behind the conservation and preservation of the district's mining heritage. From these hallowed halls emerged the first plans



for its recovery and dissemination (Project for the opening of the Forced Labour Tunnel, by Emilio Fuentes Mellado, 1992), which attracted to it the interest of people seeking to find out more about what was beginning to be displayed in its rooms.

Between 1994 and 1995, a group of lecturers and students at the EIMIA drew up an exhaustive inventory of each and every one of the items of ethnographic heritage from the surroundings that could be used to support the plans prepared by Ciudad Real Provincial Council on "Strategic Planning of Eco-tourism in the Alcudia Valley" (part of the Futures Programme) and to map out certain action lines for the future.

Through the Almadén District Tourism Society, private enterprise also took the lead in getting the entire process under way, as this association disseminated information about the area's wealth of mining heritage and created a spirit of curiosity and interest for our own past that was previously unheard of in the district.

The definitive final push was the Manifesto for the Rehabilitation of the Historic Mining Heritage in the District of Almadén drawn up by the Spanish Society for the defence of Geological and Mining Heritage on the occasion of its 1st Scientific Session held in Almadén, during the month of October, 1996, which declared the conservation and rehabilitation of all its mining heritage to be of the greatest interest for current and future generations. This manifesto, which was ratified by over a thousand signatories during the scientific session, was circulated around institutions and official bodies and represented the ultimate recognition for a collective awareness among the citizens of Almadén in defence of something that had previously gone practically unnoticed by the majority of the town's residents.

At the suggestion of ICOMOS Spain, the first inclusion of the Almadén Mines on the World Heritage Indicative List was on 26th June 1998, as a non-explicit part of the Industrial Mining Routes, following criteria ii, iii and iv. The proposal claimed that industrial-mining routes testify to Spain's mining tradition and wealth, something which is visible in the form of mining-industrial architecture as well as a vast ethnographic heritage. Similarly, today there still exist the remains of physical elements and an oral tradition which form part of a specific "mining culture" with a distinct and particular way of life. These are supported not only by physical proof but also by oral testimonies provided by the people who traditionally worked in such activities.

The UNESCO-ICOMOS/SPAIN Chair on Industrial and Mining Heritage (CUIEP) at the School of Mining Engineers of the Polytechnic University of Madrid took the initiative of submitting to consideration of the National Heritage Council the nomination of the Almadén Mines to World Heritage (Pamplona, 2005). The proposal was accepted, and subsequently, the said Chair encouraged dialogue and cooperation among different institutions for the preparation of the nomination's files.

On 27th March 2007, it was included in the series of property "Historical Mining Heritage", under criteria i, ii and iv. This includes mining heritage in different regions and claims that the mining ensembles selected have a sufficient degree of authenticity in terms of their forms, materials and building techniques without significant overlapping or alteration, also considering their testimonial values of uniqueness and typological representativeness remain unaltered.

Their integrity and current state of conservation are assured by the protection afforded them by the cultural administrations of each Autonomous Community based on their relevance as historic-social, technological, artistic-architectural and territorial values calling for the upkeep of their essential qualities leading to a proper understanding of their past function as concerns mining technology, architecture and lifestyles associated with these peculiar manifestations of human genius applied to the extraction and processing of minerals.

On the same date, Almadén was included in "The Mercury Route of the Intercontinental Camino Real (Royal Road"), which was the first title in under which the current nomination of property in series was integrated.

Reports have been drawn up at the various levels in Spain, part of which are the dossiers prepared for registering different elements of historic and cultural values in Almadén as monuments or assets of Cultural Interest (BIC). (See 5.b. Protective designation).

The other reports were drawn up by the municipality of Almadén, MAYASA, the Francisco Javier de Villegas Foundation, the School of Mining and Industrial Engineers of Almadén and other institutions, in order to obtain funding from various entities and PRODER funds. The results of these reports were positive, as funds were obtained for rehabilitating the property, as well as for museology and other important aspects of management. (See 5.f. Sources and levels of finance).

The reports drawn up by the company Minas de Almadén y Arrayanes (MAYASA) for both the Spanish government entities and international bodies on the strategy as regards mercury are of special importance. The result of the latter reports was totally positive.

There are different records on the actions undertaken to ensure the protection and conservation of cultural elements in Almaden. These records show their state of conservation both

before and after interventions were carried out as well as the specific works and methods applied in each case.

Elements declared to be of Cultural Interest (B.I.C.) are recorded in a general Register held by the State Administration and all legal or artistic actions on them shall be entered in the Register, since all interventions in protected cultural assets and areas of cultural interest are clearly regulated in terms of preserving their cultural values. There are similar records and inventories at regional level held by the Autonomous Community of Castile-La Mancha through its Directorate General on Cultural Heritage. Both previous authorisation and regular supervision by the responsible public institutions are common legal requirements which equally affect official entities and private owners at the different territorial levels.

In the case of Almaden, the above provisions have affected interventions carried out in the following elements:

- Bustamante Furnaces
- Bullring
- Retamar Castle
- Saint Raphael Royal Miners' Hospital
- Charles the Fourth Gate
- Historic mining internal area
- Tejeras Furnace(Tile Kiln)
- Wall of the Cerco
- Carros Gate
- San Aquilino shaft, Head Frame, Machinery Building and Extraction machine
- San Teodoro shaft
- Mercury store
- Compressor building
- Workshop buildings
- Old laboratory building

Ministry of Culture
Investments from"1% Cultural"
YEAR 2010. Conservation and restoration of the Royal Mining Academy of Almadén. 1st Phase: Consolidation of structures.
Amount of funding: 600,000 €

As a result of the aforementioned legal status of the Almadén Mines as Property of Cultural Interest (B.I.C.) in the category of Historic Ensemble, any intervention on the elements included on it and their setting shall be subject to legal provisions ensuring protection. This also refers to the unique buildings in the surroundings that are related to the mines, like the Mining Academy buiding, the Archaeological Remains of the Royal Forced Labour Gaol and the House of the Mining Superintendent (for a complete list, see 5.b.1)

Conservation works carried out on the mining complex before the legal protection entered to force are recorded in the files of "Minas de Almadén y Arrayanes (MAYASA)", the company created by the State that ownes the mines and is in charge of their management.

Records on works carried out on Almaden's historic center are kept on the Municipal Archives. The historic area contemplated in the new Special Protection Plan also includes unique specific elements like San Sebastian el Nuevo Church, the House of the Inquisitor and an extensive "buffer zone". Works undertaken on this protected area shall be recorded in the same way.

The School of Mining and Industrial Engineers of Almadén and local museums also kept records of the conservation of movable and immovable elements related to the history of Almaden and its cultural values, as well as inventories. The same in the case of properties, works of art and artistics objects belonging to the Church.

These inventories and records are a basis for research, conservation and protecting plans against any kind of risks at the national, regional and local level.

(002) Idrija

Key periods in Idrija's development that were subject to thorough analysis and subsequent graphic and photographic documentation of the state of buildings included:

1822 the first idea surfaces for the establishment of a museum in Idrija;

1911 the mine already holds a small collection of objects that are to be displayed in a future museum;

1950–1952 the mine draws up a list of existing and preserved mine machinery, tools, equipment, clothing, blueprints, models, maps, photographs and literature; it also sets up a collection of rocks and mineral from the mine;

1952 the first measures for protecting technical heritage (buildings, equipment and individual machines) are implemented with the adoption of a decree on protection;

1952 the Kamšt water pump is transferred to the custody of the Idrija Municipal Museum;

1953 the Idrija Municipal Museum is established with the purpose of conserving, researching and displaying important examples of technical heritage from the Mercury Mine Idrija and protecting the remaining movable heritage in the area;

1953 the Idrija Municipal Museum puts on its first exhibition, called "The Historical Exhibition of the Mercury Mine 1493-1953";

1954 the Kamšt water pump is put on public display;

1957 an old mine archive passes into museum custody; the monitoring of keeping archive material is carried out by the Archives of the Republic of Slovenia;

1958 obsolete mine machinery and equipment is moved to the courtyard of the Gewerkenegg Castle, where is put on public display;

1968 the Institute for the Protection of Monuments from Nova Gorica carries out topography studies and evaluates the cultural heritage in Idrija;

1973 the Idrija branch of the Historical Archives Ljubljana is put in charge of the archive material in Idrija;

1980 a census and evaluation is carried out of the monuments in Idrija as part of provisions of a new conservation law;

1985 the museum acquires the miner's house at Bazoviška 4;

1986, 1988, 1993, 1997 and 2007 cultural and technical monuments in the area, including the old town, are proclaimed as heritage units;

1990 the restoration of Klavže – water barrier on the Idrijca river is completed;

1991 the renovation of Brus's and Putrih's water barriers on Belca river is completed;

1992 restoration of 14 pieces of mine machinery and equipment is completed; a public display is set up in Francis's Shaft;

1994 Idrija is put on the Tentative List of UNESCO World Heritage Sites at the behest of the Government of the Republic of Slovenia;

1994 the Kamšt water pump is restored;

1994 the Anthony's Main Road is opened for tourist visits, showcasing mining methods over the centuries;

1995 the Idrija Municipal Museum opens the permanent exhibition "Five Centuries of the Mercury Mine and the Town of Idrija", for which it wins the prestigious Micheletti Prize for »The Best European Museum of Industrial and Technical Heritage«;

1996 Anthony's Main Road museum is nominated for European Museum of the Year Award;

1998 a thorough analysis is carried out of the technical heritage, including comprehensive photographic and other documentation, review of the state and assessment of endangerment;

1998 restoration of seven pieces of mine machinery and equipment is completed; a public display is set up in Francis' Shaft;

2000 the mine locomotives are restored and set up as a public display in Joseph's Shaft;

2000 expert guidelines for changes and supplements to the long-term and mid-term social plan, with special emphasis given to technical and cultural heritage, are drafted;

2001 the Decree on the proclamation of technical heritage in Idrija and its surroundings as a national cultural monument is published;

2002 the miner's house at Bazoviška 4 is opened for public viewings;

2003 a collection of the mine's geological data is set up with the creation of a geological service at the Mercury Mine Idrija;

2005 the restoration of the Kanomlja klavže water barrier is completed;

2006 the guidelines for the strategy of spatial development and zoning regulations in the Idrija municipality are overhauled;

2007 the municipal ordinance on the protection of the Idrija old town is amended.

2008 establishment of Information and research Centre for Mercury within the Idrija Mercury Mine, Ltd.

2008 Conservation plan for Smelting Plant is drafted

2009 Kley's pump was restored and officially opened to the public

2009 1st phase of restoration and renovation of the machinery in the ore crushing plant

2009 closing-down works in the mine were finished and decision of the Government of the Republic of Slovenia on initiation of regular liquidation proceedings of the Idrija Mercury Mine, Ltd. was adopted

2010 Conservation plan for Idrijca klavže watwr barrier is drafted

2010 Conservation plan for Anthony's Main Road is drafted

2010 2nd phase of restoration and renovation of the machinery in the ore crushing plant

2010 Decree on the establishment of the Idrija Heritage Centre public institution on the Community level

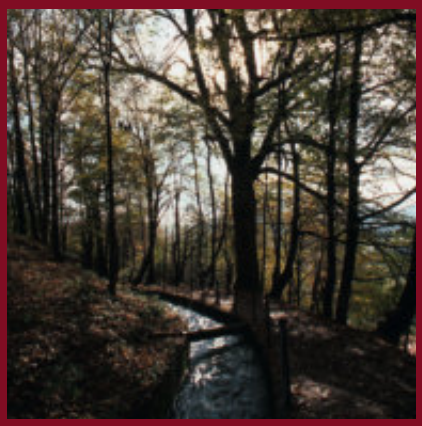
2010 Decision of the Government of the Republic of Slovenia confirming the starting points of the programme of comprehensive protection of cultural heritage and high natural values related to the Idrija ore deposit, in Idrija; Ministry of Culture

These periods signify the creation of new databases, which have been stored in the archives of institutions specialising in the protection of immovable cultural heritage and at the Idrija Municipal Museum. A part of the documentation is kept in the INDOK Centre at the Ministry of Culture for security reasons.

Chapter 7

Documentation





Documentation

7.a Photographs, slides, image inventory and authorization table and other audiovisual materials

(001) Almaden

IMAGE INVENTORY AND PHOTOGRAPH AND AUDIOVISUAL AUTHORIZATION FORM

Id. No (001)	**Format (slide/ print/ video)**	**Caption**	**Date of Photo (mo/ yr)**	**Photographer/ Director of the video**	**Copyright owner (if different than photographer/ director of video)**	**Contact details of copyright owner (Name, address, tel/fax, and email)**	**Non exclusive cession of rights**
001 005	Digital 314 (PPI) Size: 1704x2272	View of Almadén and the mine	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	No
001 007	Digital 314 (PPI) Size: 2048x1536	Bustamante Furnaces. Almadén (2)	07/2007	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 008A	Digital 72 (PPI) Size: 1371x914	Horno de Tejeras (The Kiln)	11/2008	F. Javier Carrasco		F. Javier Carrasco, Cerco San Teodoro s/n Almadén. fcojavier.carrasco@mayasa.es	Yes
001 009	Digital 314 (PPI) Size: 2048x1536	Puerta de Carros	07/2007	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 010A	Digital 300 (PPI) Size: 1500x1102	Puerta de Carlos IV	12/2007	FotoDomingo		Joaquín García Rayo, plaza Waldo Ferrer,10 Almadén. fotodomingoalmaden@ hotmail.com	No
001 011A A	Digital 300 (PPI) Size: 1500x1000	Castillete de San Aquilino	02/2006	FotoDomingo		Joaquín García Rayo, plaza Waldo Ferrer,10 Almadén. fotodomingoalmaden@ hotmail.com	No
001 011	Digital 314 (PPI) Size:1704x2272	Castillete de San Aquilino	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 012A	Digital 72 (PPI) Size: 1371x914	Machinery Building of the San Aquilino Shaft	11/2009	F. Javier Carrasco		F. Javier Carrasco, Cerco San Teodoro s/n Almadén. fcojavier.carrasco@mayasa.es	Yes
001 013	Digital 314 (PPI) Size:1704x2272	Tower above the San Teodoro Shaft	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	No
001 014A	Digital 72 (PPI) Size: 1371x914	Mercury Museum (Old Store)	03/2009	F. Javier Carrasco		F. Javier Carrasco, Cerco San Teodoro s/n Almadén. fcojavier.carrasco@mayasa.es	Yes
001 015A A	Digital 72 (PPI) Size: 1058x1411	Hornacina de la Virgen de los Mineros	12/2010	F. Javier Carrasco		F. Javier Carrasco, Cerco San Teodoro s/n Almadén. fcojavier.carrasco@mayasa.es	Yes

001 017	Digital 314 (PPI) Size:1704x2272	Inscription in *La Crujía*,1664	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 018	Digital 314 (PPI) Size:1704x2272	Entranceway to the Mina del Castillo	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 019	Digital 314 (PPI) Size:1704x2272	Entranceway to the Mina del Castillo. Brick barrel vault	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	No
001 021	Digital 314 (PPI) Size: 2048x1536	Level 1 landing in the San Aquilino Shaft. Shrine	07/2007	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 022A A	Digital 100 (PPI) Size: 600x400	Taller San Aquilino	06/2007	FotoDomingo		Joaquín García Rayo, plaza Waldo Ferrer,10 Almadén. fotodomingoalmaden@hotmail.com	No
001 023	Digital 314 (PPI)2048x1536	The road along the Cerco	03/2007	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 024A B	Digital 72 (PPI) Size: 1371x914	First section of the Road at the Puerta de Carros	07/2007	F. Javier Carrasco		F. Javier Carrasco, Cerco San Teodoro s/n Almadén. fcojavier.carrasco@mayasa.es	Yes
001 025	Digital 314 (PPI) Size: 2048x1536	View of the Buffer Zone from the first section of the road	03/2007	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	No
001 026	Digital 314 (PPI) Size:1704x2272	Almadén's Historic Town Centre	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 027	Digital 314 (PPI) Size:1704x2272	Street showing ancient layout	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 028	Digital 314 (PPI) Size:1704x2272	Traditional house	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 029	Digital 314 (PPI) Size:1704x2272	Castillo de Retamar	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 030	Digital 314 (PPI) Size:1704x2272	Chapel of Saint Michael	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 031	Digital 314 (PPI) Size 2048x1536	House of the Mine Superintendent	03/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	No

001 033A	Digital 314 (PPI) Size:1704x2272	Mining Academy Building	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 035A	Digital 314 (PPI) Size:1704x2272	House of The Inquisitor	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 036A	Digital 314 (PPI) Size:1704x2272	Archaeological remains of the Royal Forced Labour Gaol	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 037A	Digital 314 (PPI) Size:1704x2272	Saint Raphael Royal Miners' Hospital	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 038A	Digital 314 (PPI) Size:1704x2272	The hexagonal Bull Ring	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 040A	Digital 314 (PPI) Size: 2048x1536	View of the Buffer Zone from the Mine	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	No
001 041A	Digital 314 (PPI) Size:2048x1536	View of Almadén from the Buffer Zone	03/2007	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	No
001 046	Digital 314 (PPI)2048x1536	Cart road from Almadén	03/2007	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 047	Digital 314 (PPI)2048x1536	Stone bridge on the cart road	03/2007	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 056 A A	Digital 72 (PPI) Size:1371x914	Charles the IV Gate	03/2009	F. Javier Carrasco		F. Javier Carrasco, Cerco San Teodoro s/n Almadén. fcojavier.carrasco@mayasa.es	Yes
001 057 A A	Digital 72 (PPI) Size:1371x914	Restoration of mining waste deposits	06/2007	F. Javier Carrasco		F. Javier Carrasco, Cerco San Teodoro s/n Almadén. fcojavier.carrasco@mayasa.es	Yes
001 058 A A	Digital 72 (PPI) Size:1371x914	Bustamante Furnaces at night	06/2009	F. Javier Carrasco		F. Javier Carrasco, Cerco San Teodoro s/n Almadén. fcojavier.carrasco@mayasa.es	Yes
001 058A	Digital 314 Size: (PPI)2048x1536	Bustamante Furnaces. Almadén (Detail)	07/2007	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 063A	Digital 314 (PPI) Size:1704x2272	State of conservation of mine machinery. San Aquilino	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes

001 065A	Digital 314 (PPI) Size:1704x2272	The urban fabric of the Historic Centre has not been transformed.	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	No
001 066A	Digital 314 Size: (PPI)2048x1536	Almadén's Historic Centre	03/2007	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 067A	Digital 314 (PPI) Size:1704x2272	Street In Almadén's Historic Centre	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 069A	Digital 314 (PPI) Size:1704x2272	Intercom System in galleries. Example	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 077A	Digital 314 (PPI) Size:1704x2272	Museum of the Royal San Rafael Miners' Hospital. Ground Floor	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 079A	Digital 314 (PPI) Size: 2048x1536	Mercury Museum	07/2007	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 080A	Digital 314 (PPI) Size: 2048x1536	Mercury Museum	07/2007	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 081A	Digital 300 (PPI) 2560x1704	Mining Interpretation Centre (LMP)	09/2007	Luis Mansilla Plaza		Luis Mansilla Plaza,EUPA, Almadén, Ciudad Real luis.mansilla@uclm.es	Yes
001 082A	Digital 300 (PPI) 2560x1704	Mining Interpretation Centre (LMP)	09/2007	Luis Mansilla Plaza		Luis Mansilla Plaza,EUPA, Almadén, Ciudad Real luis.mansilla@uclm.es	Yes
001 083A	Digital 300 (PPI) 2560x1704	Mining Interpretation Centre (LMP)	09/2007	Luis Mansilla Plaza		Luis Mansilla Plaza,EUPA, Almadén, Ciudad Real	Yes
001 087A	Digital 314 (PPI) Size:1704x2272	School of Mining and Industrial Engineers of Almadén	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 100	Digital 314 (PPI) Size:1704x2272	Plaza de Toros	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	No
001 093A	Digital 314 (PPI) Size:1704x2272	Archaeological remains of the Royal Forced Labour Gaol. View from the School of Mining and Industrial Engineers of Almadén.	07/2006	Luis A. Morejón		Luis A. Morejón, Galena 13, Galapagar, Madrid. luismorejon@hotmail.com	Yes
001 094A	Digital 120 (PPI) Size:288x433	Mules at the Saint Andrew's Baritel	06/2007	e-Cultura		Juan Altieri c) Obispo y Arco,5 Mérida (Badajoz) juan@e-cultura.net	No

(002) Idrija

IMAGE INVENTORY AND PHOTOGRAPH AND AUDIOVISUAL AUTHORIZATION FORM

Id. No (002)	**Format (slide/ print/ video)**	**Caption**	**Date of Photo (mo/yr)**	**Photographer/ Director of the video**	**Copyright owner (if different than photographer/ director of video)**	**Contact details of copyright owner (Name, address, tel/fax, and email)**	**Non exclusive cession of rights**
001 ii	Digital 3734X2500 5,57 MB	Idrija is located in a deep basin and surrounded by hills	Nov 2007	Robert Zabukovec	Municipality of Idrija	Municipality of Idrija, Mestni trg 1, SI-5280 Idrija, Tel +386 5 3734500, Fax +386 5 3734531, obcina.idrija@idrija.si	YES
002 ii	Digital 3734X2500 3,53 MB	Syngenetic sedimental cinnabar ore	Nov 2007	Jani Peternelj	Municipality of Idrija	Municipality of Idrija, Mestni trg 1, SI-5280 Idrija, Tel +386 5 3734500, Fax +386 5 3734531, obcina.idrija@idrija.si	YES
003 ii	Digital 3734X2500 3,74 MB	Opekovka (brick ore), a rich cinnabar ore	Nov 2007	Jani Peternelj	Municipality of Idrija	Municipality of Idrija, Mestni trg 1, SI-5280 Idrija, Tel +386 5 3734500, Fax +386 5 3734531, obcina.idrija@idrija.si	YES
004 ii	Digital 2592x2592 2,67 MB	Mercury, the only liquid metal on Earth	Nov 2007	Jani Peternelj	Municipality of Idrija	Municipality of Idrija, Mestni trg 1, SI-5280 Idrija, Tel +386 5 3734500, Fax +386 5 3734531, obcina.idrija@idrija.si	YES
005 ii	Digital 3734X2500 2,85 MB	Main level in underground Mine museum.	Nov 2007	Robert Zabukovec	Municipality of Idrija	Municipality of Idrija, Mestni trg 1, SI-5280 Idrija, Tel +386 5 3734500, Fax +386 5 3734531, obcina.idrija@idrija.si	YES
006 ii	Digital 2500x2633 2,33 MB	The majority of the tunnels in the mine are supported by wooden beams	Jul 1999		Idrija Mercury Mine	Idrija Mercury Mine, Bazoviška 2, SI–5280 Idrija, Tel +386 5 3743920, Fax +386 5 3743934, rudnik.idrija@s5.net	YES
007 ii	Digital 2500x4110 4,07 MB	Tide gallery with stone support	May 2003	Bogdan Kladnik	Idrija Mercury Mine	Idrija Mercury Mine, Bazoviška 2, SI–5280 Idrija, Tel +386 5 3743920, Fax +386 5 3743934, rudnik.idrija@s5.net	YES
008 ii	Digital 3872x2592 5,49 MB	Mine phone and the ore transport mine cart with iron undercarriage	Nov 2007	Jani Peternelj	Municipality of Idrija	Municipality of Idrija, Mestni trg 1, SI-5280 Idrija, Tel +386 5 3734500, Fax +386 5 3734531, obcina.idrija@idrija.si	YES
009 ii	Digital 3333x2500 3,73 MB	Restored steam piston engines in the technical department of the Idrija Municipal Museum	Jul 2005	Anton Zelenc	Idrija Municipal Museum	Idrija Municipal Museum, Prelovčeva 9, SI–5280 Idrija, Tel +386 5 37 26 600, Fax +386 5 37 73 580, tajnistvo@muzej-idrija-cerkno.si	YES

010 ii	Digital 3734x2500 4,31 MB	Area surrounding Francis's Shaft	Nov 2007	Jani Peternelj	Municipality of Idrija	Municipality of Idrija, Mestni trg 1, SI-5280 Idrija, Tel +386 5 3734500, Fax +386 5 3734531, obcina.idrija@idrija.si	YES
011 ii	Digital 2592x3872 3,48 MB	Joseph's Shaft	Nov 2007	Robert Zabukovec	Municipality of Idrija	Municipality of Idrija, Mestni trg 1, SI-5280 Idrija, Tel +386 5 3734500, Fax +386 5 3734531, obcina.idrija@idrija.si	YES
012 ii	Digital 2500x3333 3,54 MB	The wooden water wheel of the Idrija Kamšt water pump is the largest of the kind in Europe	Jul 2006	Anton Zelenc	Idrija Municipal Museum	Idrija Municipal Museum, Prelovčeva 9, SI–5280 Idrija, Tel +386 5 37 26 600, Fax +386 5 37 73 580, tajnistvo@muzej-idrija-cerkno.si	YES
013 ii	Digital 2500x3662 6,36 MB	Rake water channel	May 2003	Jože Hanc	Idrija Mercury Mine	Idrija Mercury Mine, Bazoviška 2, SI–5280 Idrija, Tel +386 5 3743920, Fax +386 5 3743934, rudnik.idrija@s5.net	YES
014 ii	Digital 2592x3872 8,97 MB	Brus's Klaže, water barrier on the Belca creek	Nov 2007	Robert Zabukovec	Municipality of Idrija	Municipality of Idrija, Mestni trg 1, SI-5280 Idrija, Tel +386 5 3734500, Fax +386 5 3734531, obcina.idrija@idrija.si	YES
015 ii	Digital 3872x2592 6,30 MB	The restored Kanomlja klavže water barrier	Nov 2007	Robert Zabukovec	Municipality of Idrija	Municipality of Idrija, Mestni trg 1, SI-5280 Idrija, Tel +386 5 3734500, Fax +386 5 3734531, obcina.idrija@idrija.si	YES
016 ii	Digital 3734x2500 6,45 MB	Smelting plant in vicinity of the modern industry	Oct 2007	Jani Peternelj	Municipality of Idrija	Municipality of Idrija, Mestni trg 1, SI-5280 Idrija, Tel +386 5 3734500, Fax +386 5 3734531, obcina.idrija@idrija.si	YES
017 ii	Digital 4320x3240 5,65 MB	The rotary furnace	Oct 2004	Anton Zelenc	Idrija Municipal Museum	Idrija Municipal Museum, Prelovčeva 9, SI–5280 Idrija, Tel +386 5 37 26 600, Fax +386 5 37 73 580, tajnistvo@muzej-idrija-cerkno.si	YES

018 ii	Digital 4245x3215 6,57 MB	The restored building of Idrija's castle, Gewerkenegg	Jul 2006	Anton Zelenc	Idrija Municipal Museum	Idrija Municipal Museum, Prelovčeva 9, SI–5280 Idrija, Tel +386 5 37 26 600, Fax +386 5 37 73 580, tajnistvo@muzej-idrija-cerkno.si	YES
019 ii	Digital 3644x2720 4,96 MB	Reconstructed wall murals in the courtyard of the Gewerkenegg castle	Aug 2007	Anton Zelenc	Idrija Municipal Museum	Idrija Municipal Museum, Prelovčeva 9, SI–5280 Idrija, Tel +386 5 37 26 600, Fax +386 5 37 73 580, tajnistvo@muzej-idrija-cerkno.si	YES
020 ii	Digital 4320x3240 6,98 MB	Barrel and leather bag for transporting mercury	Aug 2007	Darko Viler	Idrija Municipal Museum	Idrija Municipal Museum, Prelovčeva 9, SI–5280 Idrija, Tel +386 5 37 26 600, Fax +386 5 37 73 580, tajnistvo@muzej-idrija-cerkno.si	YES
021 ii	Digital 2592x3872 4,57 MB	Town hall	Oct 2007	Jani Peternelj	Municipality of Idrija	Municipality of Idrija, Mestni trg 1, SI-5280 Idrija, Tel +386 5 3734500, Fax +386 5 3734531, obcina.idrija@idrija.si	YES
022 ii	Digital 2500x3318 3,72 MB	Tipical Idrija Miners' house	Jul 2005	Anton Zelenc	Idrija Municipal Museum	Idrija Municipal Museum, Prelovčeva 9, SI–5280 Idrija, Tel +386 5 37 26 600, Fax +386 5 37 73 580, tajnistvo@muzej-idrija-cerkno.si	YES
023 ii	Digital 2331x1881 2,43 MB	Rudarska ulica – Mining street	Sep 2007	Dušan Kramberger	Municipality of Idrija	Municipality of Idrija, Mestni trg 1, SI-5280 Idrija, Tel +386 5 3734500, Fax +386 5 3734531, obcina.idrija@idrija.si	YES
024 ii	Digital 2500x3734 4,57 MB	Young visitors in Anthony's Main Road	May 2003	Jože Hanc	Idrija Mercury Mine	Idrija Mercury Mine, Bazoviška 2, SI–5280 Idrija, Tel +386 5 3743920, Fax +386 5 3743934, rudnik.idrija@s5.net	YES
025 ii	Digital 3334x2500 3,50 MB	Idrija Lace	Feb 2007	Darko Viler	Idrija Municipal Museum	Idrija Municipal Museum, Prelovčeva 9, SI–5280 Idrija, Tel +386 5 37 26 600, Fax +386 5 37 73 580, tajnistvo@muzej-idrija-cerkno.si	YES

7. b Texts relating to protective designation, copies of property management plans or documented management systems and extracts of other plans relevant to the components of the serial property

CONTENTS

1	PROTOCOL FOR THE CREATION OF A COORDINATION COMMITTEE ON HERITAGE RELATED TO MERCURY.
	(001) Almadén
2	Law 16/1985 dated 25 June, on the Spanish Historical Heritage (Official State Bulletin of 29 June 1985)
3	Act 4/1990, of 30th May, on the Historic Heritage of Castile-La Mancha.
4	Legislative Decree 1/2010 of 18th May 2010, which approves the Reworded Text on Land Regulations and Urban Planning Activity in Castile-La Mancha (Official Gazette of Castile-La Mancha of 21st May 2010).
5	Agreement of the Castile-La Mancha Autonomous Government of 25th November 2008 (Official Gazette of Castile-La Mancha, 1st December 2008) by which Almaden Mines were legally declared as Property of Cultural Interest (B.I.C.) in the category of Historic Ensemble.
6	Municipal Land Regulations Plan (Summary), and document suscribed by the mayor of Almadén certifying the current state of work. 22nd December 2010.
7	Special Protecting Plan (PECHA) and document suscribed by the mayor of Almadén certifying the current state of work. 22nd December 2010.
8	Agreement of the Ministry of Public Works, the Autonomous Government, and the Almadén Town Council on financing restoration works in the Comprehensive Restoration Zone in Almadén, First Phase: 2010 (Toledo, 26th November 2010).
9	Risk Analysis (M. Cotos, 2006)
10	Almaden Mines Management Plan (Madrid, 2003)
	(002) Idrija
11	Cultural Heritage Protection Act (ZVKD-1) (OJ RS 16/2008, 123/2008)
12	Ordinance amending the Ordinance on the Declaration of Cultural and Historical Monuments and Natural Sites in the Area of the Municipality of Idrija, Idrija Municipal Council, 6 December 2007
13	Decree on the establishment of the Idrija Heritage Centre public institution (OJ RS no. 55/2010)
14	The Heritage of Mercury in Idrija: Management Model, Municipality of Idrija, 17 July 2008
15	Starting points for the programme of comprehensive protection of cultural heritage and natural values in Idrija, decision of the Government of the Republic of Slovenia no. 62200-1/2010/5, 28 October 2010

PROTOCOL OF INTENTION FOR THE CREATION OF A COORDINATION COMMITTEE ON HERITAGE RELATED TO MERCURY

A copy of the original document, signed by the representatives of the three parts concerned is included as an annex.

At Ljubljana , on 25 January 2008

BY AND BETWEEN

As party to the first part (Spain), Dr. José Jiménez, Director-General of Fine Arts and Cultural Property of Spain's Ministry of Culture,

As party to the second part (Slovenia), Dr. Vasko Simoniti, Minister of Culture of Slovenia.

As party to the third part (Mexico), Dr. Francisco Javier López Morales, Director of World Heritage, CONACULTA, National Institute of Anthropology and History (INAH) of Mexico.

All parties, mutually and reciprocally acknowledging the competence and legal capacity necessary to ratify this Protocol of Intention and acting in the capacity as representatives thereof,

STATE AS FOLLOWS

ONE. The mining sites of Almadén (Spain), Idrija (Slovenia) and the historic mining town of San Luis Potosí (Mexico) are fundamental landmarks, genuinely representatives of the historic phenomenon that arose from the interactive dynamic function of mercury and silver, the basis and driving force behind the vast ensemble known as the Intercontinental Camino Real.

The channels established for the distribution of mercury produced in Europe at Almadén and Idrija, the innovative methods used in America for industrial-scale extraction of silver by a process of amalgamation for which mercury was indispensable, the administrative organisation set up for the use and control of the two metals and the subsequent dispatch of the silver to Europe by way of those same channels, constituted a complex, well-structured and perfectly identifiable system whose significance in the economic, social and cultural transformation of the Western World from the XVI to the XIX centuries is undeniable.

TWO. Owing to the transcendence of this historic phenomenon and the importance of its legacy as heritage, in 2006 Spain invited Slovenia, Mexico and Peru to initiate joints efforts for the preparation of a candidacy for a World Heritage serial property. Slovenia with regard to Idrija and Mexico in relation to San Luis Potosí expressed interest in this invitation. Peru expressed its intention of joining this initiative in the future while in the meantime preparing the candidacy of Huancavelica which, together with Almadén and Idrija, was one of the three centres of mercury production forming part of the aforementioned system.

THREE. During 2007 the multi-disciplinary team formed by the three countries involved in the aforementioned project, has worked in close collaboration and held meetings in Spain, Slovenia and Mexico with the participation of a great many experts. A large number of activities have also been carried out with a view to fostering knowledge of, interest in and collective social awareness of this project.

FOUR. As a result of these efforts, in September 2007 the three States submitted a draft proposal to the UNESCO World Heritage Centre calling for the inclusion of the aforesaid candidacy on the World Heritage List as a transnational serial property.

FIVE. Article 114 of the Operational Guidelines for the Implementation of the World Heritage Convention provides that in the case of serial properties, a management system or mechanisms for ensuring the coordinated management of the separate components are essential.

SIX. The three States recognise the virtue and need to establish a permanent mechanism to facilitate the coordinated management of the property and to preserve the spirit of cooperation which has inspired the project from the outset without prejudice to the conservation and management responsibilities corresponding to each one individually.

For all of the foregoing the signatory parties, in mutual respect for their respective competencies, agree to endorse this Protocol of Intention in accordance with the following

CLAUSES

ONE. The aim of this Protocol of Intention is to formally establish a cooperation structure assuring the development of reciprocal collaboration for the conservation, protection, management and dissemination of the property "The mercury+silver binomial on the Intercontinental Camino Real", with respect to Almadén, Idrija and San Luis Potosí .

TWO. The signatory parties agree to create a Coordination Committee (hereafter the "Coordination Committee") as the body responsible for coordination and cooperation in management of the property "The mercury+silver binomial on the Intercontinental Camino Real", as regards Almadén, Idrija and San Luis Potosí .

THREE. The functions of the Coordination Committee shall be the following:

- Monitor in a coordinated fashion the state of conservation of the property "The mercury+silver binomial on the Intercontinental Camino Real", with respect to Almadén, Idrija and San Luis Potosí, especially as concerns the process of compiling the periodic reports and the formulation of recommendations which may arise from the latter.
- Adopt recommendations for the coordinated management of the aforenamed sites as concerns those aspects affecting their status as World Heritage.
- Approve a common signposting system of the three sites as components of the serial property.
- Foster research and cooperation among teaching and research institutions, visitors' centres and museums linked to mining activity and other aspects relating to the mercury+silver binomial within the context of this candidacy.
- Approve joint actions for promotion of the property and awareness-raising among the general public regarding its outstanding universal value, appropriate presentation and interpretation programmes, visitor's facilities and monitoring measures intended to prevent the negative impacts of uncontrolled tourism.
- Encourage institutional contacts and hold necessary meetings for the adding to this serial property of new cultural landmarks historically linked to the interactive phenomenon of mercury and silver of the Intercontinental Camino Real.
- Any other functions deemed necessary for the proper coordination and cooperation in the management of this serial property.

FOUR. The Coordination Committee shall be divided into a Plenum and Technical Office.
All Committee posts shall be honorary, i.e. without the right to receive any sort of remuneration.
Each State shall cover the expenses deriving from the participation of its representatives on the Committee.

FIVE. The Coordination Committee Plenum shall be comprised of three representatives with political decision-making capacity from each of the Signatory States of this Protocol. Each State shall appoint its representatives in accordance with its legal procedures while assuring proper representation of the State's different levels of political organisation.

Plenum chairmanship shall be for a term of two years and will change on a rotating basis between the States represented on the Committee. The Chairman shall appoint the Secretary.

Members of the Plenum shall be allowed to delegate their representation and attend meetings accompanied by advisors they deem necessary in light of the subjects up for discussion.

The Plenum is responsible for approving decisions taken with regard to the functions laid down in Clause three.

SIX. The Technical Office shall be comprised of six members. Each State shall appoint two representatives with specialised technical background in the matters comprising the functions of the Committee.
The chairmanship of the Technical Committee will be held by one of the representatives of the same State holding the chairmanship of the Plenum. The Chairman shall appoint the Secretary.
The Technical Committee shall be responsible for making proposals to the Plenum regarding the functions laid down in Clause three and to conduct the studies and background work required to that end.

SEVEN. This Protocol of Intention shall enter into force on the day of its signing and its duration shall be indefinite.

In the event of the incorporation of landmarks to the serial property of States other than the signatories of this Protocol, their political representatives shall be encouraged to join the latter. In that case, the makeup of the Coordination Committee's Plenum and Technical Office shall be amended so as to incorporate three and two representatives respectively for each new Protocol Signatory State.

EIGHT. The Coordination Committee shall be constituted within a period of one month as from the signing of this Protocol of Intention.

In witness of the content of this Protocol of Intention, it is signed in triplicate by the parties at the place and on the date indicated above, initialling each of its pages.

Dr. José Jiménez
Director-General of Fine Arts and Cultural Property Ministry of Culture of Spain.

Dr. Francisco Javier López Morales
Director of World Heritage
CONACULTA, National Institute of Anthropology and History (INAH) of Mexico.

Dr. Vasko Simoniti
Minister of Culture of Slovenia.

The International Coordination Committee for the Property (CC)

The legal and professional basis for the establishment and activities of the common international managing coordination body for the property is the PROTOCOL OF INTENTION FOR THE CREATION OF A COORDINATION COMMITTEE FOR THE PROPERTY "THE MERCURY+SILVER BINOMIAL ON THE CAMINO REAL INTERCONTINENTAL" WITH REGARD TO ALMADEN, IDRIJA AND SAN LUIS POTOSI signed in Ljubljana, on 25 January 2008

The Coordination Committee acts as a common body responsible for coordination and cooperation in management of the property and a permanent mechanism to preserve the spirit of cooperation, without prejudice to the conservation and management responsibilities corresponding to each party state individually.

By now, the Coordination Committee has worked on nine plenary meetings:

1st *meeting- Idrija, 29-30 september 2008*
Following the Protocol of Intention for the creation of a Coordination Committee, signed by authorized senior representatives of the participating countries on 25th January 2008, this first meeting was focused on the implementation of the said Committee.

2nd *meeting- San Luis Potosí. 19-29 November 2008*
Issues approached were the information regarding the process and scope of cooperation between the involved countries, the submission of web page proposals, questions related to graphic image of mining heritage in the concerned sites, the submission of statute proposals for the Coordination Committee and the initiatives for future cooperation.

3rd *meeting- Madrid. 23-24 March 2009*
The two main matters approached were about publication and Webpage projects (design proposal, structure, contents and graphic material, person responsible for coordination, budget and financing).

4th *meeting- Madrid. 20 July 2009*
The main objectives of the meeting were the analysis of the situation, identifying actions already carried out, facilities and difficulties found for achievement of the proposed goals, pending issues and the design of further steps concerning the strategy and action plan for its implementation.

5th *meeting- Madrid. 15-16 september 2009*
The two main objectives of the meeting were the approval of the guidelines to follow as well as the presentation of the preliminary documents developed by each of the States participants in the project.

6th *meeting- Madrid. 19 November 2009*
The main objective of the meeting was the analysis of the documentation prepared to date by the States Parties, according to the guidelines adopted in the last session of the Coordination Committee.

7th *meeting- Madrid. 1st July 2010*
This meeting was focused on the preparation of the 34th Session of the World Heritage Committee, and the updating of the information provided by the states parties.

8th *meeting. Madrid, 15-16-17 December 2010*
Following the Decision 34 COM 8B.40, the aim of the meeting was the preparation of this dossier to be submitted to the World heritage center before the 1st of February 2011.

(001) Almaden

7.b.1. LEGAL TEXTS: The legal measures on which is based the protective designation of Almaden's cultural heritage are as follows (an executive summary highlighting the key provisions of these legal instruments is included in 5.b.4, also developed in 5.f):

A) The national Legal Framework for the protection, conservation and management of cultural heritage in Spain:

1. The Spanish Constitution of 27 December 1978 (Arts. 9, 44, 46, 48, 50, 148 and 149) and the Organic Acts on the establishment of the Statutes of the Autonomous Communities. (Note: Organic Laws require the agreement of the majority of M.P.s)

2. Spanish Historic Heritage Act (LPHE) 16/1985 of June 25th (Official State Gazette of June 29th, 1985). Royal Decree 111/1986 of January 10th as a partial development of the said LPHE, partly amended by Royal Decree 64/1994 of January 21st (Official State Gazette of March 2nd).

3. Act 7/1985 of 2nd April, regulating the Legal System for Local Entities (articles 2 and 25), which has been partly amended and developed by different Acts and Royal Legislative Decrees. Royal Legislative Decree 2/2004 of 5th March has reworded the previous legal measures on the Tax and Financial System of Local Entities.

4. Act 30/1992 of November 26th on the Legal Framework of Public Administrations and Common Administrative Proceedings, modified by Act 4/1999 of January 13th.

5. Act 30/2007 of October 30th on Public Sector Contracts (Official Gazette of October 31st) and Royal Decree 817/2009 of 8th May as a partial development of the said Act. Modified by Act 34/2010 of 5th August.

6. Act 49/2002 of December 23rd on the Tax System of Non-profit Entities and Tax Incentives for Patronage (Official State Gazette of December 24th). This Act has also introduced some amendments to Act 40/1998 of 9th December on Personal Income Tax and Act 43/1995 of 27th December, on Corporate Income Tax.

7. Organic Act 1/2002 of 22 March 2002 on Associations (Official State Gazette of March 26th).

8. Act 50/2002, of 26th December on Foundations (Official State Gazette of December 27th)

9. Royal Decree 1740/2003 of 19th November on operational proceedings concerning associations of public utility (Official Gazette of January 13th 2004)

10. Royal Legislative Decree 2/2008 of 20th June on Land Regulations (Official Gazette of 26th June 2008) This kind of national legislation also includes basic regulation on Urban Planning, which shall in any case be adapted and developed by each of the Autonomous Communities.

B) As regards regional level, the main legal measures for the protection of cultural properties in Castile-La Mancha, the region where Almadén is located are the following :

1. Act 4/1990, of 30th May, on the Historic Heritage of Castile-La Mancha.

2. Legislative Decree 1/2010 of 18th May 2010, which approves the

Reworded Text on Land Regulations and Urban Planning Activity in Castile-La Mancha (Official Gazette of Castile-La Mancha of 21st May 2010).

3. Act 9/1999, of 26th May, on the Conservation of Nature in Castile-La Mancha. Amended by Act 8/2007 of 15th March wich updates various legal provisions.

C) Within the framework of the above measures, the Historic Mining Ensemble of Almaden and related elements (see 5.b.1) has legally been declared as Spanish Bien de Interés Cultural, i.e. an asset of Cultural Interest (B.I.C.) in the category of Historic Ensemble by Resolution of 25th November 2008 (Official Gazette of Castile-La Mancha of 1st December 2008). It is also to be said that since proceedings were initiated for this ensemble to be declared as being of cultural interest (BIC) by Resolution of 29th October 2007 (Official Gazette of Castile-La Mancha of 20th November) it has been granted the maximum legal protection as is granted to those already declared until its BIC status has been confirmed, according to the terms of article 11 of Act 16/1985, of 25th June, on Spanish Historic Heritage. The conservation of the historic ensembles declared to be of cultural interest also implies maintenance of the urban and architectonic structure as well as the general characteristics of its environment.

D) With respect to the General Municipal Planning (POM) and the Special Protecting Plan which are being developed in Almadén as explained in 5.b.1, both the national and regional legislation on Historic Heritage puts the protection of historic towns and urban areas under the control of urban measures based on the laws on Land Regulations and Urban Planning. It also states that urban planning must include the classification of all buildings, interior and exterior areas, other significant structures and natural components, as well as the definition of the types of intervention possible. The unique elements for which proceedings to be declared as being of cultural interest (B.I.C.) have been undertaken or that have already been declared to be of cultural interest shall be afforded comprehensive protection, with definition and delimitation of their settings and the conditions for action in same. Work on these elements and their setting are subject to the mandatory licenses and control by the competent Administration of the regional government. Planning instruments will set the level of protection for the rest. Besides the elements which will be protected by means of their declaration as B.I.C., the San Sebastián el Nuevo Church, San Juan Church and the Inquisitor's House are planned to be included, in the category of Unique Elements entitled to comprehensive protection, in the specific urban planning for the Town of Almadén.

E) As regards the buffer zone, it is protected by the above official agreement as part of the mine ensemble, another part coincides with the Special Bird Protection Zone (ZEPA) included in the Network of Protected Areas in Castile-La Mancha, regulated by Act 9/1999, of 26th May, on Nature Conservation, amended by Act 8/2007 of 15th March and also protected by application of the European Directives on Birds (79/409/EEC) and Habitats (92/43/EEC). It also partially coincides with rock art sites, declared of Cultural Interest (B.I.C.), by application of Act 16/1985 on Spanish Historic Heritage, Additional Clause Two.

The texts of the above main legal measures of general scope (A2, B1 and B2), as well as those directly relating to protective designation (C, D, E and F), as explained in 5.b.1, are the following:

I.- MAIN LEGAL TEXTS OF GENERAL SCOPE RELATING TO PROTECTIVE DESIGNATION (A2, B1 and B2):

A2) Law 16/1985 dated 25 June, on the Spanish Historical Heritage (Official State Bulletin of 29 June 1985)

Preamble.

The Spanish Historical Heritage has been the main witness to the historical contribution made by Spaniards to universal civilisation and its contemporary creative capacity. The protectionand enrichment of the property forming it are fundamental obligations that are binding for allpublic authorities, in compliance with the mandate addressed to them by article 46 of the Constitutional laws.

During the first third of the century, these requirements represented a similar mandate for the legislator and they were met in exemplary manner by the protagonists of our best intellectual, legal and democratic tradition, as can be seen in the positive legacy passed down with the Law of 13 May 1933. In spite of this recognition, the Spanish people's recovery of freedom meant that, from the very start of this fortunate historical process, the task was begun to draw up a new, and broader, legal response to the requirements, a real code for our Historical Heritage in which projects for the future could be drawn up based on past experience.

Initially, this need was felt as a result of the regulatory dispersion which, over the half century that had passed since the entry into force of the previous Law, had led to many different formulae in our legal regulations aiming to deal with specific situations that had not existed previously or had not been foreseen. The obligation also arises out of the increasing concern on this matter on the part of the international community and its representative organisations, which has led to new criteria for the protection and enrichment of historical and cultural property with agreements and recommendations which Spain has signed and observes but to which its internal legislation has not been adapted. Finally, the legal review was made necessary by a new distribution of powers between the State and the Autonomous Communities which, with regard to such property, emanated from the Constitution and the Statutes of Autonomy. This Law is therefore issued by virtue of regulations contained in sections 1 and 2 of article 149 of our Constitution which for the legislator and the State Administration amount to both a mandate and an area of competence.

This Law lays down a new definition of Historical Heritage and greatly increases its scope. It covers the movable and immovable property forming it, archaeological and ethnographic heritage, museums and State-owned archives and libraries as well as documentary and bibliographical heritage. Essentially, it aims to guarantee protection and to promote material culture resulting from action by man in the broad sense, conceiving the former as property that should be appreciated without setting limits for reasons of ownership, usage, age or economic value.

This does not mean that measures for protection and promotion should be applied uniformly to all property forming part, by virtue of the Law, of our Historical Heritage. The Law establishes different levels of protection for different legal categories. The most general and the one that gives its name to this Law is the category of Spanish Historical Heritage which comprises all property having historical, artistic, scientific or technical value and which forms part of Spain's contribution to universal culture. It is around this concept that the basic measures of the Law are structured and techniques for intervention are defined, these falling within the competence of the State Administration, especially defence against illegal export and protection against spoliation.

Within the Spanish Historical Heritage, and for the purpose of granting greater protection and safeguarding, the category of property of cultural interest takes on special value, and this covers movable and

immovable property forming part of the heritage which has greatest need for such protection. This category implies special measures which the Law establishes according to the type of property covered.

The Law also has the necessary formulae to make evaluation possible because the defence of a nation's Historical Heritage must not be carried out exclusively through regulations prohibiting certain actions or restricting certain types of usage, but should be based on clauses encouraging preservation and therefore allowing enjoyment and facilitating promotion.

The Law therefore lays down a set of taxation and fiscal measures and opens up certain new channels placing Spain on a similar plane to that existing today in countries close to it for historical and cultural reasons and consequently for reasons of their heritage. It therefore promotes a suitable policy for efficiently managing the Spanish Historical Heritage.

The policy aims to complement safeguarding with educational, technical and financial stimulation, in the conviction that the more the people who live with the Historical Heritage appreciate it and the more aid is established to deal with it, the better it will be promoted and defended with obvious consideration towards society when it is the public authorities granting such aid.

The Spanish Historical Heritage is collective wealth containing the most worthy expressions of the historical contribution made by Spaniards to universal culture. Its value comes from the esteem felt towards it by citizens as part of their cultural identity. Because the property comprising it has become heritage exclusively as a result of the social action it carries out which stems from the esteem felt by citizens leading them to place increasing value on it.

As a result and as its final objective, the Law aims to achieve access to the property constituting our Historical Heritage. All measures for protection and promotion established by the Law only serve a purpose if they eventually lead an increasing number of citizens to view and enjoy the works that are the heritage of the collective capacity of a nation.

Because in a democratic State such property should be duly placed at the service of the people in the conviction that enjoyment of it will facilitate access to culture and that the latter is the path towards freedom for nations.

PRELIMINARY TITLE.
GENERAL CLAUSES

Article 1.
1. The purposes of this Law are the protection, promotion and transmission to future generations of the Spanish Historical Heritage.
2. The Spanish Historical Heritage is made up of movable and immovable objects of artistic, historical, palaeontological, archaeological, ethnographic, scientific or technical interest. It also comprises documentary and bibliographical heritage, archaeological sites and areas as well as natural sites, gardens and parks having artistic, historical or anthropological value.
3. The most relevant property forming part of the Spanish Historical Heritage shall be inventoried or declared of cultural interest in the terms of this Law.

Article 2.
1. Without prejudice to the powers of other public authorities, it is the duty and essential attribute of the State Administration in compliance with the terms of Articles 46 and 44, 149.1.1, and 149.2 of the Constitution to guarantee the preservation of the Spanish Historical Heritage, promote its enrichment and safeguard access for all citizens to the property included in it. In addition and in line with the provisions of Article 149.1.28 of the Constitution, the State Administration shall protect such property from illegal export and spoliation.

2. With regard to the Spanish Historical Heritage, the State Administration shall adopt the necessary measures to facilitate collaboration with and amongst other public authorities and to gather and provide whatever information might be necessary for the purposes stated in the above paragraph.
3. It is also the competence of the State Administration to disseminate on an international level knowledge of the property comprising the Spanish Historical Heritage, to recover any such property that may have been illegally exported and to exchange cultural, technical and scientific information concerning it with other States and with international organisations in compliance with the terms of article 149.1, number 3 of the Constitution. The other appropriate authorities shall collaborate to this end with the State Administration.

Article 3.
1. The communication and exchange of programmes of action and information concerning the Spanish Historical Heritage shall be facilitated by the Council for the Historical Heritage which shall be made up of one representative from each Autonomous Community designated by its governing council and the Director General for the State Administration who shall act as Chairman. 2. Without prejudice to the functions assigned to the Council for the Historical Heritage, for the
purposes of this Law, the following shall be consultative institutions for the State Administration: the Board for the Certification, Valuation and Export of Property of the Spanish Historical Heritage, the Royal Academies, the Spanish Universities, the Higher National Council for Scientific Research and any Higher Boards officially determined by the State Administration and, with regard to an Autonomous Community, the Institutions recognised by it. This shall be irrespective of any advice received from other professional bodies and cultural entities.

Article 4. For the purposes of this Law, spoliation shall be understood as any action or omission placing all or any of the values of the property comprising the Spanish Historical Heritage at risk of loss or destruction or preventing it from carrying out its social function. In such cases, irrespective of the powers of the Autonomous Communities, the State Administration may at any time urge the appropriate department of the Governing Council of the appropriate Autonomous Community to urgently adopt measures to prevent spoliation. If this request is not met, the State Administration shall act as necessary to recover and protect the endangered property both legally and technically.

Article 5.
1. For the purpose of this Law, export shall be understood as the departure from Spanish territory of any of the property forming part of the Spanish Historical Heritage.
2. The owners or possessors of such property that is more than one hundred years old and, in all circumstances, of property registered in the General Inventory described in article 26 of this Law shall require express authorisation in advance from the State Administration for export by the method and under the conditions laid down in regulations.
3. In spite of the provisions of the above section and without prejudice to the terms of Articles 31 and 34 of this Law, it shall be prohibited to export property declared to be of cultural interest and any other property which, because it belongs to the Spanish Historical Heritage, the State Administration declares expressly to be unexploitable as a measure of precaution until proceedings are taken to include the property in one of the categories for special protection covered by this Law.

Article 6.
For the purpose of this Law, the organisations considered responsible for enforcing it shall be understood to be:

a. Those in each Autonomous Community responsible for protection of the Historical Heritage.
b. Those of the State Administration when it is expressly stated or it becomes necessary for them to intervene to defend property belonging to the Spanish Historical Heritage against illegal export and spoliation. These organisations shall also have competence with regard to property forming part of the Spanish Historical Heritage that is assigned to public services managed by the State Administration or that form part of the national heritage.

Article 7.
Town Councils shall co-operate with the organisations that are responsible for enforcing this Law in the preservation and safeguarding of the Spanish Historical Heritage contained within their municipal territory, adopting any measures necessary to prevent them from deteriorating or being lost or destroyed. They shall notify the appropriate Administration of any threat, damage or disturbance to the social function of such property and of any difficulties and needs they may have for protecting such property. They shall also carry out the other functions expressly attributed to them by virtue of this Law.

Article 8.
1. Any people who note a danger of destruction or deterioration of property forming part of the Spanish Historical Heritage shall, in the shortest time possible, make this known to the appropriate Administration which shall check the substance of the report and act in accordance to the provisions of this Law.
2. Action taken to demand that the administrative bodies and judicial review courts comply with the terms of this Law for the defence of property forming part of the Spanish Historical Heritage shall be public.

TITLE I.
ON THE DECLARATION OF PROPERTY OF CULTURAL INTEREST

Article 9.
1. Property forming part of the Spanish Historical Heritage and declared of cultural interest under this Law or individually by Royal Decree shall enjoy special protection and safeguarding.
2. Declaration by Royal Decree shall require prior administrative proceedings to be taken by the appropriate organisation in compliance with the provisions of article 6 of this Law. These proceedings shall include a favourable report from one of the consultative institutions named in article 3, paragraph 2, or one that is recognised as being of this nature within the area of an Autonomous Community. Three months after this report is requested, if it has not yet been issued, it shall be understood that the report requested finds in favour of the declaration of cultural interest. When the proceedings refer to immovable property, a period of public
information shall be opened and the interested Town Council shall be heard.
3. The proceedings shall result in a decision within a maximum period of twenty months as from the date on which they were initiated. They shall expire at the end of this period if a delay has been reported and provided there is no decision during the four months subsequent to report of the delay. Once the proceedings have expired, they may not be re-initiated during the next three years, except at the request of the holder.
4. The work of a living author may not be declared as of cultural interest unless there is express authorisation on the part of its owner or it has been purchased by the Administration.
5. Officially or at the request of the holder of a legitimate, direct interest, administrative proceedings may be initiated by the appropriate official organisation containing a favourable, reasoned report from one of the consultative institutions to invalidate by Royal Decree the declaration of cultural interest for a specific property.

Article 10.
Any person may request proceedings to be initiated for the declaration of cultural interest for a property. The appropriate official organisation shall decide if such proceedings can be admitted. This decision and, where appropriate, any incidents and the resolution of the proceedings shall be notified to the person who requested them.

Article 11.
1. Initiation of proceedings for the declaration of cultural interest for a property shall
determine provisional application of the same system of protection that is provided for property declared of cultural interest with regard to the property in question.
2. Resolution of the proceedings declaring property to be of cultural interest shall describe it clearly. In the case of immovable property, it shall delimit the area affected by the declaration and, where appropriate, shall define and list the component parts, and any belongings and accessories included in the declaration.

Article 12.
1. Property declared of cultural interest shall be recorded in a general Register held by the State Administration which shall be organised and run according to the regulations. This Register shall be notified of any proceedings initiated leading to the corresponding preventive entry until a final resolution is passed.
2. In the case of immovable property, the entry shall be made according to one of the concepts mentioned in article 14.2.
3. In the case of historical monuments and gardens, the appropriate Administration shall also officially arrange the free entry of the declaration in the Land Register.

Article 13. 1. An official title shall be issued by the general Register for property declared to be of cultural interest to identify it and record all legal or artistic actions on it. Any conveyance or transfer of such property shall be entered in the Register. The type and character of this title shall be laid down in regulations.
2. Moreover, the owners or, where appropriate, the holders of real rights on such property or persons possessing them under any title shall be obliged to permit and facilitate inspection by the appropriate organisations, study by researchers on reasoned application by same and public visits which shall be free as officially determined at least four days a month on the days and at the times stipulated in advance. Fulfilment of this latter obligation may be waived completely or partially by the appropriate Administration for a justified cause.
In the case of movable property and in substitution of this obligation, an agreement may be reached to deposit the property in a place covered by suitable conditions of security and exhibition during a maximum period of five months every two years.

TITLE II.
ON IMMOVABLE PROPERTY

Article 14.
1. For the purpose of this Law, all elements that can be considered inherent to buildings and that form, or formed, part of them or of their environment shall be considered immovable property, in addition to those listed in article 334 of the Civil Code, even if they can be separated constituting a perfect unit that can be easily applied to other constructions or to other uses apart from their original use, whatever they are made of, and even if such separation does not visibly affect the historical or artistic merit of the property to which they are joined.
2. Historical monuments, gardens, units and sites, and archaeological areas forming part of the Spanish Historical Heritage may be declared to be property of cultural interest.

Article 15.
1. Immovable property comprising architectural or engineering work or works of colossal sculpture shall be monuments provided they are of historical, artistic, scientific or social interest.
2. A historical garden is the delimited area resulting from organisation by man of natural elements, sometimes complemented by constructions, and considered of interest because of its origin or historical past or its aesthetic, sensory or botanical values.
3. A historical unit is a group of immovable properties forming a continuous or dispersed unit of settlement, covered by a physical structure representing the development of a human community in that it testifies to their culture or constitutes a value for public use and enjoyment. A historical unit is also any individualised group of properties included in a larger population unit having the same characteristics and that can be clearly delimited.
4. A historical site is a place or natural landscape linked to events or memories of the past or to popular tradition, cultural or natural creations and works of man having historical, ethnological, palaeontological or anthropological value.
5. An archaeological area is the place or natural landscape where there are movable or immovable properties that can be studied using archaeological methodology, whether or not they have been extracted and whether they are to be found on the surface, underground or below Spanish territorial waters.

Article 16.
1. When proceedings are initiated for a declaration of cultural interest with regard to an immovable property, any municipal licences for land division, building or demolition in the areas involved shall be suspended, as well as the effects of any permits already granted. Any work that must be carried out without delay in such areas for reasons of force majeure shall, under all circumstances, require authorisation from the organisations responsible for enforcement of this Law.
2. The suspension referred to in the above section will depend on the resolution or expiry of the proceedings initiated.

Article 17.
In proceedings for declaring a historical unit as property of cultural interest, its links with the territorial area it belongs to shall be considered, as shall protection of any geographical accident and natural landscapes forming its surroundings.

Article 18.
An immovable property declared to be of cultural interest is inseparable from its surroundings.
It cannot be displaced or moved unless this is essential for reasons of cause majeure or social interest and, under all circumstances, this shall be done in compliance with the procedure described in article 9, paragraph 2 of this Law.

Article 19.
1. In monuments declared to be of cultural interest, no internal nor external building work may be carried out that will directly affect the building or any of its parts or belongings without express authorisation from the organisations responsible for enforcement of this Law. The
same authorisation shall be necessary for placing any type of sign or symbol on facades or roofs and for carrying out any work in the surrounding area covered by the declaration.
2. Work affecting historical gardens declared to be of cultural interest and their surroundings and the placing of any type of sign or symbol in them shall require express authorisation from the organisations responsible for enforcement of this Law.
3. The placing of commercial advertising and any type of cable, aerial and visible ducting in historical gardens and on the facades and roofs of monuments declared to be of cultural interest shall be prohibited. Any construction that alters the character of the buildings to which this article refers or alters the view of them shall also be prohibited.

Article 20.
1. Declaration of a historical unit or site or archaeological area as property of cultural interest shall entail the obligation for the municipality or municipalities in which they are located to draw up a special Plan for protection of the area involved by the declaration or another of the types of plan included in town planning legislation providing that under all circumstances it meets the requirements of this Law. Approval of this Plan will require a favourable report from the Administration responsible for the protection of the cultural property in question. A favourable report shall be understood to have been issued three months after presentation of the Plan. The obligatory nature of this Plan cannot be obviated based on the pre-existence of another plan that goes against the protection nor on the lack of prior existence of a general plan.
2. The Plan referred to in the above section shall establish for all public uses the order of priority for its implementation in buildings and spaces suitable for this purpose. It shall alsocover possible areas for integral rehabilitation allowing recovery of the residential area and of appropriate economic activities. It shall also contain criteria relating to the preservation of facades and roofs and installations on them.
3. Until final approval of this Plan, the granting of licences or the implementation of those granted prior to initiating the proceedings for declaring the historical unit or site or the archaeological area shall require a favourable resolution from the Administration responsible for the protection of the property involved and under no circumstances shall it be allowed to carry out new alignments, alter building potential nor divide or combine land.
4. Once final approval of the Plan referred to in this article has been granted, the Town Councils involved shall be entitled to directly authorise work to implement the approved plan affecting only buildings that are not monuments or historical gardens and are not included within their surrounding area, and the

Administration responsible for enforcing this Law shall be informed of any authorisations or licences granted in a maximum period of ten days after they are granted. Any work carried out under licences that go against the approved Plan shall be illegal and the appropriate Administration shall order that they be reconstructed or demolished by the organisation that granted the licence in question, without prejudice to the provisions of town planning legislation regarding liability for infringements.

Article 21.
1. In planning instruments for historical units, both buildings and free exterior or interior free spaces or other significant structures as well as any accompanying natural components shall be catalogued in accordance with town planning legislation, defining the types of action that are possible. Integral protection shall be given to special elements. A suitable level of protection shall be accorded in each case to the other elements.
2. Exceptionally, the Plan for the protection of a historical unit may allow urban remodelling but only when this implies improved relations with the territorial or urban surroundings or avoids use that is damaging for the unit.
3. Preservation of historical units declared property of cultural interest involves the maintenance of urban and architectural structures and of the general characteristics of the environment. The replacement of buildings shall be considered as exceptional, even if only partial, and shall only be permitted to the extent that it helps to maintain the general character of the unit. Under all circumstances, existing urban alignments shall be maintained.

Article 22.
1. Any plans for building work or earth moving to be carried out in a historical site or in an archaeological area declared of cultural interest shall require authorisation from the Authority responsible for protecting such property and the latter may, prior to granting authorisation, order prospecting and, where appropriate, archaeological excavations in compliance with the terms of Title V of this Law.
2. The placement of any type of commercial advertising and of cables, aerials and visible ducts shall be prohibited in archaeological areas.

Article 23.
1. Licences may not be granted for carrying out work which, in compliance with the terms of this Law, requires administrative authorisation until the latter has been granted.
2. Any work carried out without complying with the terms of the above section shall be illegal and the Town Councils or, where appropriate, the Administration responsible for protecting the Spanish Historical Heritage may order re-construction or demolition to be carried out by whoever was responsible for the infringement in the terms covered by town planning legislation.

Article 24.
1. If, in spite of the terms of article 36, proceedings are initiated for the declaration of ruin of a building covered by proceedings for declaration as a property of cultural interest, the Administration responsible for enforcing this Law shall be allowed to act as an interested party in the proceedings, and shall be notified of the opening of proceedings and of any resolutions adopted in them.
2. Under no circumstances shall a building be demolished without prior confirmation of the declaration of ruin and authorisation from the relevant official Administration which shall only grant such authorisation on receiving a favourable report from at least two of the consultative institutions referred to in Article 3.
3. If there is urgency and imminent danger, the entity that initiated the proceedings for the declaration of ruin shall order the necessary measures to prevent danger to persons. Any work to be carried out for reasons of force majeure shall not give rise to demolition acts unless strictly necessary for preservation of the building and shall under all circumstances require prior authorisation as under article 16.1 and, in addition, any elements removed shall be replaced.

Article 25.
The appropiate organisation may order suspension of any work on total or partial demolition or change of use of buildings forming part of the Spanish Historical Heritage not declared of the Administration

responsible for town planning may decide on the appropriateness of the initial approval of a special plan or other measures of protection apart from those covered in town planning legislation. This resolution, which shall be notified to the organisation that ordered the suspension, shall not prevent the exercise of the power covered in Article 37.2.

TITLE III.
ON MOVABLE PROPERTY

Article 26.
1. The State Administration, in collaboration with other appropriate Administrations, shall draw up the general Inventory on the movable property of the Spanish Historical Heritage not declared to be of cultural interest that is of special relevance.
2. For the purposes of the above paragraph, the appropriate Administrations shall be able to claim permission from the holders of the rights on the movable property of the Spanish Historical Heritage to inspect it and to obtain any relevant information for inclusion, if appropriate, in this inventory.
3. The owners and other holders of real rights on movable property of special historical or artistic, archaeological, scientific or technical/cultural value shall present a duly documented application to the appropriate Administration for initiation of the proceedings for inclusion of the property in the general Inventory. Resolution on this application shall fall due in a period of four months.
4. The owners or possessors of movable property having the value and characteristics officially laid down shall be obliged to notify the appropriate Administration of the existence of such objects before proceeding to sell or transfer them to third parties. The same obligation is established for people or entities that habitually carry out trade in movable property forming part of the Spanish Historical Heritage who shall also formalise with the Administration a Register of any transfers made of such objects.
5. The organisation and functioning of the general Inventory shall be officially laid down 6. The following regulations shall be applicable to movable property forming part of the Spanish Historical Heritage and included in the general Inventory:
a. The appropriate Administration shall at all times be able to inspect the state of conservation.
b. Its owners and, where appropriate, any other holders of real rights over such property shall be obliged to allow researchers to examine it on prior, reasoned application and to lend it, with proper guarantees, to any temporary exhibitions organised by the bodies referred to in article 6 of this Law. It shall not be obligatory to carry out such loans for periods in excess of one month a year.
c. Inter vivos or mortis causa transfers and any other change in the situation of property shall be notified to the appropriate Administration and entered in the general Inventory.

Article 27.
Movable property forming part of the Spanish Historical Heritage may be declared of cultural interest. Under all circumstances, the movable property contained in a building that has been covered by such a declaration recognising them as an essential part of the building's history shall be so considered.

Article 28.
1. Movable property declared to be of cultural interest and property included in the general Inventory that are in the possession of ecclesiastical institutions, in any of their establishments or on any of their premises, may not be transferred by title acquired by purchase nor free of charge nor may they be assigned to private persons or mercantile entities. Such property may only be sold or assigned to the State, to public law entities or to other ecclesiastical institutions.
2. Movable property forming part of the Spanish Historical Heritage may not be sold by the public Administrations, except for transfers carried out amongst the latter and except for the provisions of articles 29 and 34 of this Law.
3. The property referred to by this article shall not lapse. Under no circumstances shall the provisions of article 1.955 of the Civil Code be applicable to such property.

Article 29.
1. Any movable property belonging to the Spanish Historical Heritage that is exported without the authorisation required under article 5 of this Law belongs to the State. It is inalienable and cannot lapse.
2. The State Administration shall carry out any actions leading to total recovery of illegallyexported property.
3. When the previous holder accredits the prior loss or theft of the illegally-exported property, he may request assignment from the State, entering the obligation to pay the amount of any costs for recovery and, where appropriate, to refund the price paid by the State to the bona fide purchaser. When the previous holder was a public corporation, an illegally-exported property shall be considered lost or stolen.
4. Any property recovered and not assigned shall be allocated to a public centre; after the Council for Historical Heritage has first issued a report.

Article 30.
Permission for the export of any movable property forming part of the Spanish Historical Heritage shall be subject to a fee established in compliance with the following rules:
a. Taxable event: this shall be the granting of the export permit for the property in question.
b. Exemptions: the following shall be exempt from the payment of taxes:
a. The export of movable property taking place during the period of ten years after its import provided the latter was carried out legally, is covered in documents and the property was not declared of cultural interest in compliance with the provisions of article 32 of this Law.
b. The temporary, legally-permitted departure from the country of property forming part of the Spanish Historical Heritage.
c. The export of movable objects by living authors.
c. Taxpayer: the persons or national or foreign entities to whom export permits are granted shall be obliged to pay the tax.
d. Tax base: the tax base shall be determined by the real value of the property for which
the export permit is requested. The real value of the property shall be the value declared by the applicant, without prejudice to the administrative confirmation carried out by the appropriate body of the State Administration, which shall prevail when higher than the former.
e. Type of levy: the tax shall be imposed as follows:
Up to 1,000,000 pesetas : 5%
From 1,000,001 to 10,000,000 pesetas : 10%
From 10,000,001 to 100,000,000 pesetas: 20%
From 100,000,001 : 30%
f. Due date: the tax shall fall due when the export permit is granted.
g. Settlement and payment: the Government shall regulate the procedures for valuation, settlement and payment of the tax.
h. Management: management of this tax shall be attributed to the Ministry of Culture.
i. Allocation: the product of this tax shall be paid into the Public Treasury, being allocated exclusively to the purchase of property of interest for the Spanish Historical Heritage.

Article 31.
1. The State Administration may permit temporary departure from Spain, by the method and under the conditions laid down in regulations, of movable property subject to the terms of article 5 of this Law. Under all circumstances, the permit shall specify the time period and guarantees for the export. Any property exported in this way may not be subject to the right of pre-emption.
2. Non-fulfilment of the conditions for the return to Spain of property exported in this way shall be considered illegal export.

Article 32.
1. Movable property that has been imported legally and is duly documented so that the imported property is fully identified may not be declared of cultural interest in a period of ten years after the date on which it was imported.

2. Such property may be exported with a permit from the State Administration to be granted provided that the application meets the requirements of current legislation, and no right of pre-emption may be exerted on it. After the period of ten years, such property shall be subject to the general terms of this Law, unless its possessors request that the State Administration extend this situation for another equal period and this is granted after a judgement from the Board for Certification, Valuation and Export of Property forming part of the Spanish Historical Heritage.
3. In spite of the provisions of the above sections, movable property possessing any of the values stated in article 1 of this Law may be declared of cultural interest before the end of the ten-year period if its owner requests such a declaration and the State Administration determines that the property enriches the Spanish Historical Heritage.

Article 33.
Except for the provisions of article 32, provided that an export application is made, the value declaration made by the applicant shall be considered an irrevocable offer for sale in favour of the State Administration which, if it does not permit the export, shall have a period of six months in which to accept the offer and one year after that to make due payment. Refusal of the export application does not amount to acceptance of the offer which must be made expressly.

Article 34.
The Government may agree with other States to exchange State-owned movable property belonging to the Spanish Historical Heritage for other property of at least the same value and historical significance. Approval will require a favourable report from the Royal Academies of History and Fine Arts of St. Ferdinand and the Board for the Certification, Valuation and Export of Property forming part of the Spanish Historical Heritage.

TITLE IV.
ON THE PROTECTION OF MOVABLE AND IMMOVABLE PROPERTY

Article 35.
1. For the protection of property belonging to the Spanish Historical Heritage and for the purposes of facilitating access to it by citizens, promoting communication amongst the different departments and obtaining the necessary information for carrying out scientific and technical research, national information Plans shall periodically be drawn up on the Spanish Historical Heritage.
2. The Council for the Spanish Historical Heritage shall draw up and approve the national information Plans referred to in the above section.
3. The various public departments and the holders of property forming part of the Spanish Historical Heritage shall collaborate in the preparation of the national information Plans.

Article 36.
1. Property forming part of the Spanish Historical Heritage shall be preserved, maintained and safeguarded by its owners or, where appropriate, by the holders of real rights or the possessors of such property.
2. The use of property declared to be of cultural interest and of movable property included in the general inventory shall only be possible when the values recommending its preservation are not placed at risk. Any change of usage must be authorised by the bodies responsible for
enforcement of this Law.
3. When the owners or holders of real rights on property declared of cultural interest or property included in the general inventory do not carry out the actions required in fulfilment of the obligation stipulated in section 1 of this article, the appropriate Administration may, after first notifying the interested parties, order appurtenant action. It may also grant assistance in the form of a repayable advance which, in the case of immovable property, shall be entered in the Land Register. The appropriate Administration may also directly carry out any necessary work if this is required for more efficient preservation of the property. Exceptionally, the appropriate Administration may order that movable property be deposited in centres of a public nature until such time as the causes leading to the necessity disappear.

4. Non-fulfilment of the obligations laid down in this article shall be a cause of social interest for compulsory purchase of the property declared to be of cultural interest by the appropriate Administration.

Article 37.
1. The appropriate Administration may prevent demolition and suspend any type of building work or action on a property declared of cultural interest.
2. It may also act in this way even if there has been no such declaration, provided one of the values mentioned in article 1 of this Law is present. In this case, the Administration shall resolve in a maximum period of thirty working days to continue the work or action begun or shall proceed to initiate the declaration of a property of cultural interest.
3. The risk of destruction or deterioration or of usage that is incompatible with its values shall be a just cause of social interest for expropriation by the appropriate Administration of property covered by a declaration of cultural interest. Buildings preventing or hindering the view of property covered by a declaration of cultural interest or giving rise to risks for the latter may be expropriated for this same cause. Municipal authorities may also agree to expropriate such property and shall first notify the appropriate Administration of its intention, and the latter shall have priority to exercise this power.

Article 38.
1. Any person trying to sell a property declared of cultural interest or included in the general Inventory referred to in article 26 shall duly notify the organisations mentioned in article 6 and declare the price and conditions proposed for the sale. Auction houses must also give due notification in advance of public auctions in which it is planned to sell any property forming part of the Spanish Historical Heritage.
2. Within the period of two months subsequent to the notification referred to in the above section, the State Administration may use its right of pre-emption to purchase the property for a charity organisation or for any public corporation, entering the obligation to pay the agreed price or, where appropriate, the auction price within a period not exceeding two financial years, unless an agreement is reached with the interested party on other payment terms.
3. When the intention to sell is not correctly notified, the State Administration may, in the same terms as those for the right of pre-emption, exercise its right of redemption within a period of six months after the date on which it receives reliable information on the sale.
4. The provisions of the above sections do not exclude the possibility of the rights of preemption and redemption on the same property being exercised in identical terms by other organisations responsible for the enforcement of this Law. However, the State Administration shall have preference for exercising these rights provided that such property is acquired for a museum, archive or State-owned library.
5. Land and Mercantile Registrars shall not enter any document covering the transfer of ownership or any other real right on the property referred to in this article unless it is accredited that all its requirements have been met.

Article 39.
1. Public authorities shall aim, using all technical methods, to preserve, consolidate and improve property declared to be of cultural interest and movable property included in the general Inventory referred to in article 26 of this Law. Property declared to be of cultural interest may not be subject to any type of treatment without the express authorisation of the organisations that are responsible for enforcement of this Law.
2. In the case of immovable property, the actions referred to in the above paragraph shall aim to achieve preservation, consolidation and rehabilitation and shall prevent any attempts at reconstruction except when the original parts of the buildings are used and their authenticity can be proved. If materials or essential parts for stability or maintenance are added, such additions must be recognisable and confusion through imitation should be avoided.
3. Restoration of property referred to in this article shall respect any existing contributions made at any time. The elimination of any of these shall only be authorised exceptionally and provided that the elements to be removed amount to a clear degradation of the property and elimination is necessary to allow better historical interpretation of the property. The parts removed shall be duly documented.

TITLE V.
ON ARCHAEOLOGICAL HERITAGE

Article 40.
1. According to the terms of article 1 of this Law, movable or immovable property of a historical nature that can be studied using archaeological methodology forms part of the Spanish Historical Heritage, whether or not it has been extracted and whether it is to be found on the surface or under ground, in territorial seas or on the continental shelf. Geological and palaeontological elements relating to the history of man and his origins and background also form part of this heritage.
2. Caves, shelters and places containing expressions of cave art are declared property of cultural interest for the operation of this Law.

Article 41.
1. For the purposes of this Law, earth moving on the surface, under ground or under water that is carried out for the purpose of discovering and investigating all types of historical or palaeontological remains and the geological components related to them are considered archaeological excavations.
2. Surface or under-water exploration not involving earth moving for the purpose of study, investigation or the examination of data on any of the elements referred to in the above section are considered archaeological prospections.
3. Discoveries of objects and material remains which, having the values of the Spanish Historical Heritage, have taken place by chance or as a result of any type of earth moving, demolition or work of any type are considered chance finds.

Article 42.
1. Any excavation or archaeological prospecting shall be duly authorised by the appropriate Administration which, through appropriate procedures of inspection and control, shall check
that the work is planned and carried out following a detailed, coherent programme containing the requirements for appropriateness, professionalism and scientific interest.
2. Permission for carrying out excavations or archaeological prospecting shall oblige beneficiaries to deliver any objects obtained, duly inventoried and catalogued and with an accompanying report to the museum or centre designated by the appropriate Administration and within the time limit established, taking into account its proximity to the place of the find and the circumstances facilitating not only proper conservation but also proper cultural and scientific functioning. Under no circumstances, shall the terms of article 44.3 of this Law be applicable to these objects.
3. Any excavations or archaeological prospecting carried out without due permission or those carried out without fulfilling the terms of the permission as well as earth moving, demolition or any other work carried out subsequently in the place where the chance find of archaeological objects took place that were not immediately notified to the appropriate Administration shall be illegal and those responsible for them shall be sanctioned in compliance with the terms of this Law.

Article 43.
The appropriate Administration may order that excavations or archaeological prospecting be carried out on any public or private land within Spanish territory on which it is presumed that there are archaeological or palaeontological remains or geological components relating to them. For the purpose of compensation, the terms of the current legislation on expropriation shall be applied.

Article 44.
1. All objects and material remains possessing the values of the Spanish Historical Heritage that are discovered as a result of excavations, earth moving or works of any type or by chance are considered of the public domain. The discoverer shall notify the appropriate Administration of the discovery within a maximum period of thirty days and immediately in the case of casual finds. Under no circumstances shall the provisions of article 351 of the Civil Code be applicable to such finds.
2. Once the find has been notified, and until such time as the objects are delivered to the appropriate

Administration, the rules for legal deposit shall be applied to the discoverer unless the objects are delivered to a public Museum.

3. The discoverer and owner of the place on which the object was found shall be entitled, by way of a reward, to half the value attributed to it in the legal valuation and this shall be shared between them in equal proportions. If there are two or more discoverers or owners, the same proportions shall be maintained.
4. Non-fulfilment of the obligations given in sections 1 and 2 of this article shall deprive the discoverer and, where applicable, the owner of the right to the above-mentioned reward and the objects shall immediately pass to the appropriate Administration, without prejudice to any liability and due sanctions.
5. The find of parts of the architectural structure of a building included in the Register of property of cultural interest shall be excepted from the provisions of this article. However, the find must be notified to the appropriate Administration in a maximum period of thirty days.

Article 45.
Any archaeological objects purchased by public entities for any reason shall be deposited in whatever Museums or centres the purchasing Administration decides on, taking into account the circumstances mentioned in article 42, section 2 of this Law.

TITLE VI.
ON THE ETHNOGRAPHIC HERITAGE

Article 46.
Any movable or immovable property and knowledge and activities that are or have been a relevant expression of the traditional culture of the Spanish nation in its material, social or spiritual aspects form part of the Spanish Historical Heritage.

Article 47.
1. Any buildings and installations whose method of constitution is an expression of knowledge acquired, established and transmitted by custom and whose creation belongs totally or partially to a type or form of architecture traditionally used by communities or human groups shall be considered buildings of an ethnographic nature and shall be covered by the terms of Titles II and IV of this Law.
2. All objects that constitute the expression or the product of labour, aesthetic and pleasure activities of any human group that are established and transmitted by custom shall be considered property of an ethnographic nature and shall be covered by the terms of Titles III and IV of this Law.
3. Any knowledge or activities derived from traditional models or techniques used by a specific community shall be considered to have ethnographic value and shall receive administrative protection. When such knowledge or activities are considered to be at risk of disappearing, the appropriate Administration shall adopt suitable measures for such property to be studied and scientifically documented.

TÍTULO VII.
ON THE DOCUMENTARY AND BIBLIOGRAPHICAL HERITAGE OF ARCHIVES, LIBRARIES AND MUSEUMS

Chapter I.
On Documentary and Bibliographical Heritage

Article 48.
1. For the purpose of this Law, any property whether or not in archives and libraries that is declared in this Chapter as forming part of the documentary and bibliographical heritage of the Spanish Historical Heritage shall form part of it.
2. Documentary and bibliographical heritage shall be governed by specific rules given in this Title. For any part that is not covered in these the general provisions of this Law and those for movable property shall be applicable.

Article 49.
1. For the purpose of this Law, a document is understood as being any expresison in natural or conventional language and any other type of graphic, sound or image expression given on any type of material medium, including computer media. Non-original copies of publications are excluded.
2. Documentary heritage includes documents from any time generated, preserved or collected during the exercise of its functions by any public organisation or entity, by legal entities in which the State or other public entities hold a majority share of the capital and by private persons or legal entities managing public services with regard to the management of such services.
3. Documentary heritage also includes documents more than forty years old that are generated, preserved or collected during the exercise of their activities by entities and associations of a political, trade union or religious nature and by entities, foundations and cultural and educational associations of a private nature.
4. Documentary heritage also includes documents more than one hundred years old that are generated, preserved or collected by any other private entities or persons.
5. The State Administration may declare that certain documents, though not as old as those mentioned in the above sections, shall form part of the documentary heritage.

Article 50.
1. The bibliographical heritage shall include libraries and bibliographical collections owned by the State and literary, historical, scientific or artistic works, whether single or in series and whether in manuscript or printed form, of which there is no record of the existence of at least three copies in public libraries or services. It shall be assumed that this number of copies exists in the case of works published as from 1958.
2. The Spanish Historical Heritage also includes, and the system for bibliographical heritage shall be applied to, copies resulting from the production of cinematographic films, records, photographs, audiovisual material and other similar materials, whatever the material medium, of which there is no record of at least three copies in public services or one in the case of cinematographic films.

Article 51.
1. The State Administration, in collaboration with other appropriate Administrations, shall draw up a census of property forming part of the documentary heritage and the joint catalogue of property forming part of the bibliographical heritage in compliance with regulations.
2. For the purpose of the above section, the appropriate Administration may arrange with the holders of rights on property forming part of the documentary and bibliographical heritage to examine them and collect pertinent information for inclusion, where appropriate, in the abovementioned census and catalogue.

Article 52.
1. All holders of rights on property forming part of the documentary and bibliographical heritage are obliged to preserve and protect it, use it in a way that does not prevent preservation and maintain it in suitable places.
2. If the obligors fail to comply with the provisions of the above section, the appropriate Administration shall adopt appropriate measures to ensure compliance, in accordance with the provisions of article 36.3 of this Law. Non-compliance with these obligations when, in addition, the notification by the Administration is disregarded may amount to a cause of social interest for compulsory expropriation of the property in question.
3. Those obliged to preserve property forming part of the documentary and bibliographical heritage shall facilitate inspection by the appropriate organisations to check the situation or status of the property and shall allow study by researchers on reasoned application by the latter. Private persons may be excused from meeting this latter obligation if this would involve intrusion in their right to their own and their family's privacy and their own image in the terms established by the legislation in this respect.
4. The obligation to allow study by researchers may be replaced by the appropriate
Administration by means of temporarily depositing the property in an archive, library or similar public centre having suitable conditions for the safety of the property and for it to be studied.

Article 53.
Property forming part of the documentary and bibliographical heritage that is of special importance shall be included in a special section of the general inventory of movable property of the Spanish Historical Heritage, in compliance with the procedure established in article 26 of this Law.

Article 54.
1. Any persons having responsibility through the position they hold for documents referred to in article 49.2 of this Law shall be obliged, on relinquishing the position, to pass them over to the persons replacing them in the position or to send them to the appropriate archive.
2. Unjustified retention of documents described in the above section by private persons or institutions shall lead the Administration that would have preserved, generated or collected them to order such property to be transferred to a public archive, without prejudice to any liability incurred.

Article 55.
1. The exclusion or elimination of property forming part of the documentary and bibliographical heritage covered in article 49.2 and of any publicly-owned property shall be authorised by the appropriate Administration.
2. Under no circumstances may such documents be destroyed while their probatory value of the rights and obligations of persons or public entities persists.
3. In other cases, the exclusion or elimination shall be authorised by the appropriate Administration at the proposal of its owners or possessors, by means of the legally-established procedure.

Article 56.
1. Any acts of disposal, export and import of property forming part of the documentary and bibliographical heritage shall be subject to the provisions of article 5 and Titles III and IV of this Law as applicable.
2. Under all circumstances, when such property is publicly-owned it shall be unexploitable except for the provisions of articles 31 and 34 of this Law.

Article 57.
1. Consultation of documents forming part of the Spanish documentary heritage referred to in article 49.2 shall be covered by the following rules:
a. In general, once such documents have been duly processed and deposited and
registered in the central archives of the appropriate official entities in accordance with legally-established procedure, they shall be available for consultation unless they relate to subjects classified under the Official Secrets Law or that must not be made known publicly because of an express provision of the Law, or unless dissemination of their content may involve risks for State safety and defence or investigation of crime.
b. In spite of the provisions of the above paragraph, it may be possible to request administrative authorisation for access to documents excluded from public consultation.
Such authorisation may be granted, in the case of secret or reserved documents, by the authority which made the respective declaration and, in other cases, by the head of the department responsible for safeguarding the documents.
c. Documents containing personal details of interest to the police, courts, medical services or of any other type that may affect persons' safety, honour, personal and family privacy and image may not be publicly consulted without express consent on the part of those involved or until twenty-five years have passed after the person's death, if the date is known and, if not, fifty years after the date of the documents.
2. The conditions for carrying out consultation of the documents referred to in this article and for obtaining reproductions of them shall be established in regulations.

Article 58.
Consideration and decisions on any matters relating to the classification and use of documents belonging to the State Administration and to the State public sector as well as their inclusion in archives and the rules for access and administrative withdrawal of such documents shall be carried out by a high-level Commission for the classification of administrative documents and the composition, functioning and specific competence of this Commission shall be laid down in regulations. Classification commissions may also be set up in any public organisations as
appropriate.

Chapter II.
On Archives, Libraries and Museums

Article 59.
1. Archives are organic collections of documents or groups of several of them organised by public or private legal entities in the exercise of their activities to be used for the purpose of research, culture, information and administrative management.
Archives shall also be considered to be cultural institutions in which such organic collections are brought together, preserved, organised and disseminated for the above-mentioned purposes.
2. Libraries are cultural institutions in which collections of books, manuscripts and other bibliographical materials are preserved, brought together, selected, inventoried, catalogued, classified and disseminated or reproduced by any means for reading in public rooms or for temporary loan at the service of education, research, culture and information.
3. Museums are institutions of a permanent nature that acquire, preserve, investigate,
communicate and exhibit collections of historical, artistic, scientific and technical or any other cultural nature for the purposes of study, education and viewing.

Article 60.
1. Any buildings devoted to the installation of state-owned archives, libraries and museums shall be subject to the rules established by this Law for property of cultural interest, as shall any movable property forming part of the Spanish Historical Heritage that is held in them.
2. At the suggestion of the appropriate Administrations, the Government may extend the rules mentioned in the above section to other archives, libraries and museums.
3. The organisations responsible for enforcement of this Law shall ensure that catalogues, censuses and files on the collections in the institutions referred to in this Article are duly drawn up and updated.

Article 61.
1. The State Administration may, after first consulting the relevant Autonomous Community, create any archives, libraries and museums it considers appropriate when cultural and social needs make this necessary irrespective of the initiative of other organisations, institutions or private persons.
2. Any State-owned archives, libraries and museums on a national level shall be set up by Royal Decree.
3. The State Administration shall promote the communication and co-ordination of all Stateowned archives, libraries and museums existing in Spanish territory and for this purpose may collect any information from them it considers appropriate and may inspect their functioning and take measures to improve the fulfilment of their purposes in the terms given, where applicable, in the management agreements with the Autonomous Communities.

Article 62.
The State Administration shall guarantee access for all Spanish citizens to State-owned archives, libraries and museums, without prejudice to any restrictions which may be laid down for the purpose of preservation of the property held in them or the function of the institution itself.

Article 63.
1. State-owned archives, libraries and museums may accept deposits of property that is privately-owned or that belongs to other public Administrations in accordance with official regulations.
2. Property of cultural interest and any property forming part of the documentary and bibliographical heritage kept in State-owned archives and museums may not leave the latter without prior authorisation which shall be granted in the form of a ministerial order. In the case of objects under deposit the terms of the agreement reached when the deposit was made shall be followed.
3. The same rules that are given in the above section shall be applied to property of cultural interest kept in State-owned libraries, without prejudice to the terms established on public loan services.

Article 64.
The buildings in which State-owned archives, libraries and museums are installed as well as any buildings

or land on which these are to be installed may be declared to be of public utility for the purposes of expropriation. This declaration may be made extensive to any adjacent buildings or land if so required for security reasons for proper preservation of the buildings or of the property they contain.

Article 65.
1. Each ministerial department shall carry out co-ordination of the functioning of all the archives of the Ministry and of any organisations linked to it for the purpose of proper fulfilment of the terms of this Law and of any regulations that may be passed to implement it.
2. The documentation of any organisations that report to the State Administration shall be regularly transferred following the legally-established procedure to the State archives.

Article 66.
The Spanish archive, library and museum systems respectively are made up of the archives, libraries and museums and any technical or educational services directly linked to them that enter the system by virtue of official provisions.

TITLE VIII.
ON MEASURES FOR PROMOTION

Article 67.
The Government shall take any measures necessary so that the financing of work on preservation, maintenance and rehabilitation and on archaeological protection and excavation of property declared to be of cultural interest is given preferential access to official credit following the method and with the requirements established in regulations. For this purpose, the State Administration may, through agreements with persons and public and private entities, establish the conditions for receiving credit benefits.

Article 68.
1. The budget for any public works that are financed completely or partially by the State shall include an item for at least 1% of the funds provided by the State for financing work on the preservation or enrichment of the Spanish Historical Heritage or for promoting artistic creativity, preferentially on the actual site of the work or in the immediate surroundings.
2. If the public works are to be built and operated by private persons through an administrative concession without financial participation by the State, 1% will be applied to the whole budget.
3. The following public works shall be exempted from the provisions of the above sections:
   a. Those for which the total budget does not exceed one hundred million pesetas.
   b. Those relating to the security and defence of the State and the safety of public services.
   4. The specific method of allocating the funds resulting from the provision of 1% referred to in this Article shall be determined by regulations.

Article 69.
1. In order to promote fulfilment of duties and in compensation for the burden imposed by this Law on the holders or possessors of property forming part of the Spanish Historical Heritage, in addition to the tax exemptions in urban land tax provisions for special Personal Capital Gains Tax, tax benefits are established in the following articles.
2. In order to receive such benefits, except for the one established in article 72.1, the property in question must first have been registered in the general Register established in article 12 in the case of property of cultural interest, and in the general inventory referred to in articles 26 and 53 in the case of movable property. In the case of historical units or sites or archaeological areas, only those buildings they include that meet the legally-established conditions shall be considered as registered.
3. In the terms established in municipal ordinances, immovable property declared to be of cultural interest shall be exempt from the payment of other local taxes on property or required for enjoyment or transfer when its owners or real right-holders have embarked on or carried out work on preservation, improvement or rehabilitation in such buildings.

4. Under no circumstances shall the Town Councils involved receive compensation from the General State Budget.

Article 70.
1. Persons paying Income Tax shall be entitled to a deduction on the tax liability of the equivalent of 20% of any investments they make on the purchase, preservation, repair, restoration, dissemination and exhibition of property declared to be of cultural interest under the legally-established conditions. Under no circumstances shall the amount of the deduction exceed 30% of the tax base.
2. In addition, persons paying this tax shall be entitled to deduct 20% from the tax liability for any pure and simple donations made on property forming part of the Spanish Historical Heritage, provided these are made in favour of the State and other public entities, as well as those carried out in favour of establishments, institutions, foundations or associations, even de facto ones of a temporary nature, for raising funds, those that are classified or declared to be charitable or of public utility by the appropriate State bodies whose positions for patrons, legal representatives or de facto managers are gratuitous and which render accounts to the appropriate supporting body.
The basis for this deduction may not exceed 30% of the tax base.

Article 71.
Repealed by Law 43/1995, of 27 December, on Corporation Tax.

Article 72.
1. Purchases of works of art shall be exempt from payment of Luxury Tax and Business Traffic Tax (these taxes were eliminated and incorporated into Value Added Tax) provided the authors are living at the time of transfer.
2. Imports of movable property included in the inventory or declared of cultural interest in compliance with articles 26.3 and 32.3 respectively shall be exempt from all taxation. Requests made to this effect by owners at the time of importation shall have the effect of cancelling the tax debt.

Article 73.
Tax debts may be paid by delivering property belonging to the Spanish Historical Heritage that is entered in the General Register of Property of Cultural Interest or included in the General Inventory in the terms and conditions officially established.
Capital gains becoming manifest on the occasion of delivery of the above-mentioned property in payment of any of the above-mentioned taxes shall be exempt from Income or Corporation Tax.

Article 74.
Any necessary valuations for applying the measures for promotion laid down in this Title shall be made under all circumstances by the Board for the Certification, Valuation and Export of property belonging to the Spanish Historical Heritage in the terms of and in compliance with the legally-established procedure. In the case of the previous article, such valuations shall not be binding for the interested party who may choose to pay in cash.

TITLE IX.
ON ADMINISTRATIVE INFRINGEMENTS AND DISCIPLINARY PENALTIES

Article 75.
1. Any export of a movable property belonging to the Spanish Historical Heritage without the authorisation provided for in article 5 of this Law shall constitute a crime or, where applicable, an offence of smuggling under the relevant law. Any persons involved in the export of property and any others who, by action or omission, either wilfully or through negligence, facilitated or made possible such an export shall be jointly responsible for the offence or crime.
2. The value of illegally-exported property shall be set by the Board for the Certification, Valuation and Export of property belonging to the Spanish Historical Heritage, which reports to the State Administration and whose composition and functions shall be laid down in regulations.

Article 76.
1. The following facts, unless they constitute crimes, shall constitute administrative infringements to be penalised according to the provisions of this article:
Article:

a. Non-compliance by the owners or holders of real rights or the possessors of property with the provisions given in articles 13, 26.2, 4 and 6, 28, 35.3, 36.1 and 2, 38.1, 39, 44, 51.2 and 52.1 and 3.
b. Illegal retention or unjustified deposit of documents, according to the provisions of Article 54.1.
c. The granting of licences for building work that does not comply with the provisions of Article 23.
d. Building work in historical sites or archaeological areas without the authorisation required by Article 22.
e. Any type of building work or intervention violating the provisions of Articles 16, 19, 20, 21, 25, 37 and 39.
f. Archaeological excavations or other illegal work as referred to in Article 42.3.
g. The illegal demolition, displacement or movement of any building covered by proceedings for declaration as a property of cultural interest.
h. The illegal export of property referred to in articles 5 and 56.1 of this Law.
i. Non-compliance with the return conditions set for legally-authorised temporary exports.
j. The exclusion or elimination of property belonging to documentary and bibliographical heritage in violation of the terms of Article 55.

2. When the damage to the Spanish Historical Heritage caused by the infringements referred to in the above section can be valued in money terms, the infringement shall be penalised with a fine amounting to up to four times the value of the damage caused.
3. In other cases, the following fines will be imposed:

a. A fine of up to 10,000,000 pesetas in cases a) and b) of section 1.
b. A fine of up to 25,000,000 pesetas in cases c), d), e) and f) of section 1.
c. A fine of up to 100,000,000 pesetas in cases g), h), i) and j) of section 1.

Article 77.
1. Administrative penalties shall require proceedings to be taken involving a hearing for the interested party to establish the facts and shall be proportional to the seriousness of the facts, the personal circumstances of the person being penalised and the damage caused or that might have been caused to the Spanish Historical Heritage.
2. The fines imposed on different subjects as a consequence of a single infringement shall be independent from each other.

Article 78.
Fines of up to 25,000,000 pesetas shall be imposed by the organisations responsible for enforcement of this Law. Those exceeding 250,00,000 pesetas shall be imposed by the Council of Ministers or the Governing Councils of the Autonomous Communities.

Article 79.
1. Administrative infringements of the terms of this Law shall lapse five years after having been committed, except for those given in sections g), h), i) and j) of Article 76.1, which shall lapse after ten years.
2. For all cases not covered in this Title, Chapter II of Title VI of the Law for Administrative Proceedings shall be applicable. (*This Chapter was expressly repealed by* Law 30/1992).

ADDITIONAL CLAUSES.

One. Property that was previously declared historical-artistic property or was included in the Inventory of Spanish artistic and archaeological heritage shall now be considered and named
property of cultural interest; movable property that was declared to belong to the Treasury or that was included in the Inventory of the Historical-artistic Heritage shall be classified as inventoried property under article 26 of this Law, without prejudice to possible express declaration as property of cultural interest. All of these shall be subject to the legal regulations established by this Law for such property.

Two. Property covered by the Decrees of 22 April 1949, 571/1963 and 499/1973, shall also be considered of cultural interest and shall be subject to the regulations established by this Law.

Three.

1. Documents in the Inventory of Spanish artistic and archaeological property shall be included in the general Register referred to in Article 12 of this Law.
2. Documents in the Inventory of national artistic Treasury shall be included in the general Inventory of movable property covered in Article 26.
3. In addition, documents belonging to the Census-Guide to archives shall be included in the Census of documentary heritage and those in the general Catalogue of bibliographical Treasury shall pass to the joint Catalogue.
4. The General Department for Fine Arts and Archives shall proceed to integrate the documents referred to in the above sections within the period of one year as from the entry into force of this Law.

Four. The requirement referred to in article 69.2 of this Law shall also oblige the holders of property as mentioned in article 6.j) of Law 50/1977 of 14 November on Urgent Measures for Fiscal Reform for benefiting from the tax exemptions covered in the latter. The same requirement shall be included in those established in Royal Decree 1382/1978 of 2 June in which the reference to the Inventory in its article 2 has been eliminated.

Five. Any movable and immovable property belonging to the national Heritage shall be subject to the provisions of this Law and may be included in the scope of article 1, without prejudice to its status and its relevant legal situation.

Six. The Government shall, in any relevant International Agreements, Conventions and Treaties, negotiate clauses aiming to restore to Spanish territory any cultural property that may have been illegally exported.

Seven. Without prejudice to the terms of this Law, the Administrations responsible for enforcing it shall also be subject to internationally valid Agreements signed by Spain. The activity of such Administrations shall also aim to comply with any resolutions and recommendations for the protection of Historical Heritage adopted by the international Organisations to which Spain belongs

Eight. The acceptance of donations, inheritances or legacies in favour of the State, even if a different body of the Administration is named as beneficiary, for all property constituting the expression or testimony of human creation and having cultural value of a historical, artistic, scientific or technical nature shall be carried out by the Ministry of Culture, and the inheritance shall be understood as accepted for the inventory.
This Ministry shall also accept similar cash donations made with the specific purpose of acquiring, restoring or improving one item of such property. The amount of such a donation shall be paid into the public Treasury and shall generate credit for the appropriate amount in the budget of the Ministry of Culture.
The Ministry of Finance shall be informed through the Ministry of Culture of any donations, inheritances or legacies accepted in accordance with the terms of the above paragraphs.

Nine.

1. The State may undertake to indemnify for the destruction, loss, theft or damage to any works of relevant artistic, historical, palaeontological, archaeological, ethnographic, scientific or technical interest that are temporarily assigned for public exhibition to Stateowned museums, libraries or archives that fall within the exclusive competence of the Ministry of Culture and its independent Organisations.
2. For the purposes of this provision, the Thyssen-Bornemisza Foundation Collection shall hava the same status as the museums mentioned in the above paragraph.

3. Granting of the State commitment shall be agreed in each case by the Ministry of Culture at the request of the assignee entity. Any such agreement shall state the work or works referred to, the amount, the security and protection requirements and obligations to be met by the interested parties. The maximum limit for the commitment granted to a work or set of works for display in a single exhibition and the limit of the total accrued amount of the commitments granted by the State shall be set in the annual General State Budget Laws.
4. The procedure and requirements for granting this commitment and the way in which it is effected in each case shall be laid down by Royal Decree at the proposal of the Ministers of Culture and Finance

TEMPORARY PROVISIONS.

One. While precise rules are being drawn up for the implementation of this Law, the regulations for the Historical-artistic Heritage, libraries and museums shall be understood as applicable for all matters that do not violate its provisions.

Two. Within the period of one year as from the entry into force of this Law, the Government, at the proposal of the Ministry of Culture, shall pass the Regulation for the organisation, functioning and staffing of State-owned archives, libraries and museums and for the technical or teaching services related to them or to the activities to be carried out by the State Administration for the protection of the Spanish Historical Heritage

Three. Any persons who, at the entry into force of this Law, own, possess or hold any of the properties referred to in articles 26 and 53 of this Law shall have the period of one year to notify the existence of such property to the appropriate Administration. In this case, such notification shall determine exemption with regard to such property of any previously unpaid taxes and of any liability towards the Public Treasury or other bodies of the Administration for non-compliance, sanctions, surcharges or interest.

Four. *Repealed by Law 43/1995, of 27 December on Corporation Tax..*

Five. During the five years subsequent to the entry into force of this Law, the provisions of its article 28.1 shall be understood to refer to movable property belonging to the Spanish Historical Heritage and in the possession of ecclesiastical institutions. *This period was extended to the ten years subsequent to the entry into force of Law 42/1994, of 30 December : 1January 2005.*

Six.
1. The processing and effects of proceedings for the declaration of immovable property of historical-artistic value that began prior to the entry into force of this Law shall be governed by the regulations by virtue of which they were begun, but resolution shall be carried out by Royal Decree in line with the categories laid down in article 14.2 of this Law.
2. In historical units already covered by a declaration and having a special Plan for protection or another planning instrument for the area covered by the declaration that was approved prior to the entry into force of this Law, any authorisation for building work shall be governed by the provisions of article 20.3 until such time as the favourable report on the planning instrument to be applied is received from the appropriate Administration.

Seven. During the period of five years after the entry into force of the Law, those responsible for the installation shall remove any commercial advertising as well as cables and ducting referred to in Article 19.3.
Eight. The picturesque landscapes referred to in the Temporary Provision of Law 15/1975 of 2 May on Protected Natural Areas, until such time as they are re-classified under its final provision, shall retain the status of property of cultural interest.

FINAL PROVISION.

1. In addition to the regulatory Provisions expressly stated in this Law, the Government shall be authorised to pass any that are necessary to ensure its enforcement.
2. The Government shall also be authorised to officially proceed to update the amount of the fines laid down in article 76 of this Law although the percentage increases thus established may under no circumstances be greater than the official rate for the cost of living.
3. The Law for the General State Budget may determine annually the formulae for updating the tax base and the type of levy on exports referred to by Article 30.
4. The Government is also authorised to create, at the initiative of the Ministry of Culture and at the proposal of the Ministry for the Interior and within the State Security Corps and Forces, an investigation Group comprising staff specialising in the subjects of this Law for the purpose of pursuing infringements.

REPEAL PROVISION

1. The following are repealed: the Law of 7 July 1911 on Archaeological Excavations; Royal Decree-Law of 9 August 1926 on the Protection, Preservation and Promotion of Artistic Wealth; the Law of 13 May 1933 on the Defence, Preservation and Promotion of the Historical-Artistic Heritage; the Law of 22 December 1955 on the Preservation of the Historical-Artistic Heritage, Decree 1641/1959 of 23 September on the export of Objects of value and Archaeological or Artistic Interest and imitations or copies, and Law 26/1972 of 21 June on the Defence of the Documentary and Bibliographical Treasure of the Nation, except for the Provisions on the National Centre for Documentary and Bibliographical Treasure which, however, shall from now on have the rank of a regulation, and Royal Decree 2832/1978 of 28 October on the 1% for culture.
2. Any provisions violating the terms of this Law shall also be repealed.

_
I therefore order that all Spanish people, both private persons and authorities, observe and enforce this Law.

Palacio de la Zarzuela, Madrid, 25 June 1985.

Juan Carlos R. -

_
The Prime Minister

Felipe González Marquez.

B1) Act 4/1990, of 30th May, on the Historic Heritage of Castile-La Mancha. (Ley 4/1990, de 30 de mayo, del Patrimonio Histórico de Castilla-La Mancha)[1]

(A full report highlighting the main provisions of this Act is included in section 5.b.4)

Las Cortes de Castilla-La Mancha han aprobado y yo, en nombre del Rey, promulgo la siguiente Ley:

Preámbulo.

El Patrimonio Histórico de Castilla-la Mancha atesora las experiencias culturales que sucesivas generaciones nos han legado como testimonio de sus inquietudes, y como estímulo para la creatividad contemporánea. Por eso, la protección y realce del Patrimonio Histórico y Artístico es uno de los objetivos básicos que el Estatuto de Autonomía establece, en su artículo 4.4, g), en el ejercicio del poder por la Junta de Comunidades. Se pretende así hacer efectivo el propio concepto de Patrimonio como conjunto de bienes que, precisamente por ser de índole cultural y artística, se han convertido en patrimoniales por la exclusiva acción social de los ciudadanos, al apreciarlos como riqueza colectiva y como aportación histórica al interminable horizonte de la creatividad humana. Amasados siglo a siglo y de pueblo en pueblo, los bienes culturales del Patrimonio Histórico de Castilla-la Mancha llevan el cuño de la identidad española y forman parte de la contribución de España a la civilización universal, por lo que su protección y enriquecimiento se hallan vinculados al mandato establecido en el artículo 46 de la norma constitucional.

En cumplimiento de dicho artículo constitucional, se promulgo la Ley 16/1985, de 25 de junio, del Patrimonio Histórico Español, que consagró una nueva definición del mismo y desarrollo las diferentes categorías legales para la protección, tutela y disfrute de unos bienes que, puestos al servicio de la sociedad, son baluarte para la libertad cultural de todas las personas. No obstante y sin perjuicio de lo dispuesto en el artículo 149.1, 28. , de la Constitución, el Estatuto de Autonomía de Castilla-la Mancha establece para la Junta de Comunidades, en su artículo 31.1, m), la competencia exclusiva en lo concerniente al Patrimonio monumental, histórico, artístico y arqueológico y para los centros culturales de interés para la región.

Corresponde, por tanto, a la Junta de Comunidades regular cuantos aspectos contribuyan a gestionar con eficacia la protección, acrecentamiento y transmisión a las generaciones futuras de los bienes culturales de Castilla-la Mancha como parte del Patrimonio Histórico Español. En este sentido, la competencia para ejecutar y administrar las garantías y normas establecidas en la Ley 16/1985, de 25 de junio, del Patrimonio Histórico Español, tal y como se determina en su artículo 6, a), exige también el desarrollo de fórmulas de protección y realce que atiendan las peculiaridades y las posibilidades de enriquecimiento del Patrimonio Histórico Español en Castilla-la Mancha. Una Ley que disponga tales instrumentos para el ámbito territorial de Castilla-la Mancha, es la medida que debe garantizar tanto el cumplimiento del mandato estatutario como la gestión de las competencias mencionadas. De este modo, se garantiza a los ciudadanos de Castilla-la Mancha el máximo rango legal para conservar y patrimonializar la fabulosa riqueza cultural de nuestra región.

En los diversos títulos y disposiciones de la Ley 16/1985, de 25 de junio, del Patrimonio Histórico Español, y en el Real Decreto 111/1986, de 10 de enero, de desarrollo parcial de la antedicha Ley, se contienen suficientes fórmulas para garantizar el cumplimiento del mandato del artículo 46 de la Constitución. Sólo se hace necesario regular contenidos y valores propios del Patrimonio Cultural de Castilla-la Mancha, y proceder sobre todo a la regulación de los centros de deposito de los bienes culturales de interés para

[1] Artículo 47: Ley 9/2000, de 21 de diciembre, de Presupuestos generales de la Junta de Comunidades de Castilla-La Mancha para el año 2001.
Artículos: 24, 27, 28, 29, 36, 37, 38, 39, 40, 41, 42, 43, 44 y 45.
Derogados por Ley19/2002, de 24 de noviembre, de Archivos Públicos de Castilla - La Mancha.
Artículo 21: Redacción según Ley 9/2007, de 29 de marzo de 2007, por la que se modifica la Ley 411990, de 30 de mayo, de Patrimonio Histórico de Castilla-La Mancha.

la región. Para ello se estructura la presente Ley del Patrimonio Histórico de Castilla-la Mancha en diversos títulos que, dando por supuesta la normativa de rango estatal, versan sobre medidas de protección y fomento que adquieren especial relevancia en la organización de centros culturales como los museos y archivos que albergan los bienes patrimoniales para estudio y deleite de todos los ciudadanos.

Se amplían de este modo ciertos contenidos del concepto de bien de interés cultural, aplicándolo al área de la arqueología industrial y al ámbito de la etnografía, con el fin de conservar los testimonios del quehacer anónimo y de las soluciones técnicas que han condicionado en cada época la vida cultural.

Por lo que se refiere a los Centros Archivísticos, se contempla la recogida y deposito de los documentos de los ámbitos municipal, provincial y regional, no solo para proteger la integridad de su conservación e inalienabilidad, sino también para coordinar el inventario, estudio y difusión de la base documental para la historia de la sociedad regional, que culmina en la creación del Archivo Regional de Castilla-la Mancha.

Por lo demás, la ordenación y salvaguarda de los fondos museísticos de interés regional supera la idea de museo como simple depósito de materiales y centro de investigación minoritario, para desplegarse como núcleos de vida cultural ciudadana, con una continua función didáctica.

En consecuencia, con esta Ley se pretende conservar y extender la pluralidad de una riqueza cultural, cuyo conocimiento y disfrute estético permita transmitir a las futuras generaciones un Patrimonio labrado sobre la tolerancia y abierto a la solidaridad creativa.

TÍTULO PRELIMINAR.

Artículo 1. Objetivos.
1. Es objeto de la presente Ley, la protección, acrecentamiento y transmisión a las generaciones futuras del Patrimonio Histórico de Castilla-la Mancha, en cumplimiento del mandato del artículo 4.4.g del Estatuto de Autonomía.
2. Forman parte del Patrimonio Histórico de Castilla-la Mancha los inmuebles y objetos muebles de interés histórico, artístico, arqueológico, paleontológico, etnográfico, científico o técnico de interés para Castilla-la Mancha. También forman parte del mismo el Patrimonio documental y bibliográfico, los yacimientos y zonas arqueológicas, así como los sitios naturales, jardines y parques que tengan valor artístico, histórico o antropológico.

Artículo 2. Colaboración Institucional.
1. La Junta de Comunidades de Castilla-la Mancha adoptará las medidas necesarias para facilitar su colaboración con la administración del Estado, las corporaciones locales, y así como instituciones públicas o privadas, con el fin de garantizar la conservación del Patrimonio Histórico de Castilla-la Mancha como parte integrante del Patrimonio Histórico Español.
2. La elaboración, comunicación e intercambio de programas de actuación e información relativos al Patrimonio Histórico de Castilla-la Mancha, serán facilitados por el consejo regional del Patrimonio histórico, como órgano consultivo, constituido por representantes de los siguientes órganos y entidades con la siguiente distribución:

- Siete representantes de la Federación de Municipios y Provincias de Castilla-la Mancha.
- Los cinco presidentes de las Comisiones Provinciales del Patrimonio Histórico.
- Dos representantes de la Iglesia Católica en Castilla-la Mancha.
- Dos representantes de la Universidad de Castilla-la Mancha.
- Dos representantes de los Sindicatos.
- Un representante de cada una de las Reales Academias existentes en la Región.
- Los cinco presidentes de las Diputaciones Provinciales o Personas en quienes deleguen.
- Dos personalidades de reconocido prestigio en el ámbito de las profesiones relacionadas con la conservación del Patrimonio Histórico, designados por la Consejería de Educación y Cultura.

- Se podrá incorporar el delegado del Gobierno en Castilla-la Mancha o persona en quien delegue.
- Actuará como presidente el Consejero de Educación y Cultura y como vicepresidente el Director General de Cultura.

Artículo 3. Instituciones Consultivas.
Son también instituciones consultivas de la Junta de Comunidades de Castilla-la Mancha a los efectos previstos en la presente Ley los institutos de estudios provinciales y las comisiones provinciales del Patrimonio histórico, además de las instituciones enunciadas en el artículo 3.2 de la Ley 16/1985, de 25 de junio, del Patrimonio Histórico Español. Todo ello sin perjuicio del asesoramiento que pueda recabarse de otros organismos profesionales, instituciones científicas y entidades culturales.

Artículo 4. Colaboración de los Ayuntamientos.
Los ayuntamientos y demás corporaciones públicas territoriales e institucionales de Castilla-la Mancha cooperarán con la Junta de Comunidades de Castilla-la Mancha para la ejecución de esta Ley en la conservación y custodia del Patrimonio Histórico de Castilla-la Mancha comprendido en su ámbito territorial de actuación, adoptando las medidas oportunas para evitar su deterioro, pérdida o destrucción. Vendrán obligados a notificar a la Consejería de Educación y Cultura cualquier amenaza, daño o perturbación de la función social que tales bienes sufran, así como las dificultades y necesidades que tengan para el cuidado de estos bienes. Ejercerán, asimismo, las demás funciones que tengan atribuidas en virtud de esta Ley.

Artículo 5. Colaboración de los Particulares.
1. Las personas que observen peligro de destrucción o deterioro en un bien integrante del Patrimonio Histórico de Castilla-la Mancha deberán, en el menor tiempo posible, ponerlo en conocimiento de la Consejería de Educación y Cultura, quien comprobará el objeto de la denuncia y actuará de acuerdo a lo que esta Ley dispone.
2. Los propietarios de bienes integrantes del Patrimonio Histórico de Castilla-la Mancha conservarán, mantendrán y custodiarán dichos bienes de conformidad con lo dispuesto en la presente Ley.
3. Las asociaciones, fundaciones y particulares contribuirán a la conservación del Patrimonio Histórico de Castilla-la Mancha pudiendo acogerse a las medidas de fomento y beneficios establecidos por la administración para ellos.

TÍTULO I.
DE LAS MEDIDAS DE PROTECCIÓN Y REALCE DE LOS BIENES DE INTERÉS CULTURAL.
Capítulo I. De la Declaración de Bienes de Interés Cultural.

Artículo 6. Bienes de Interés Cultural.
1. Gozarán de especial protección y tutela los bienes integrantes del Patrimonio Histórico de Castilla-la Mancha declarados de interés cultural.
2. En el expediente tramitado a tal efecto deberá constar informe favorable de algunas de las instituciones consultivas señaladas en el artículo 3.
Transcurridos tres meses desde la solicitud del informe sin que este hubiera sido emitido, se entenderá que aquel es favorable a la declaración de interés cultural. Cuando el expediente se refiera a bienes inmuebles se dispondrá además la apertura de un período de información pública y se dará audiencia al ayuntamiento interesado. Iguales requisitos se exigirán para que la declaración de un determinado bien de interés cultural quede sin efecto.
3. El expediente deberá resolverse en el plazo máximo de veinte meses a partir de la fecha en que hubiese sido iniciado.

Artículo 7. Incoación.
El expediente para la declaración de bien de interés cultural podrá iniciarse de oficio o a instancia de particulares. La Junta de Comunidades de Castilla-la Mancha decidirá si procede la incoación. Esta decisión y, en su caso, las incidencias y resolución del expediente deberá notificarse a quienes lo instaron.

Artículo 8. Incoación y Declaración de Bienes de Interés Cultural.
1. Los planes urbanísticos deberán recoger explícitamente aquellos edificios que tengan incoado expediente de declaración de bien de interés cultural o estén declarados de interés cultural y la definición de sus entornos. La definición de las condiciones urbanísticas en dichos entornos, requerirá informe favorable de la Consejería de Educación y Cultura, que deberá ser obtenido por el ayuntamiento respectivo con anterioridad a la aprobación provisional de dichos planes.
2. Si la declaración del bien de interés cultural no incluye la definición del entorno, los planes urbanísticos propondrán su delimitación que requerirá también el informe favorable de la Consejería de Educación y Cultura, en las mismas condiciones a que se refiere el apartado anterior.

Artículo 9. Planes Regionales de Información.
1. Para la protección de los bienes integrantes del Patrimonio Histórico de Castilla-la Mancha y al objeto de facilitar el acceso de los ciudadanos a los mismos, fomentar la comunicación entre los diferentes servicios y promover la información necesaria para el desarrollo de la investigación científica y técnica, se formularán periódicamente planes regionales de información sobre el Patrimonio Histórico de Castilla-la Mancha.
2. Corresponde al consejo regional del Patrimonio Histórico de Castilla-la Mancha la propuesta de los planes regionales de información referidos en el apartado anterior, y a la Consejería de Educación y Cultura la aprobación, en su caso.
3. Los diferentes servicios públicos y los titulares de bienes del Patrimonio Histórico de Castilla-la Mancha deberán prestar su colaboración en la ejecución de los planes regionales de información.

Capítulo II. De los Bienes Inmuebles y Muebles.

Artículo 10. Bienes Inmuebles.
Los bienes inmuebles integrados en el Patrimonio Histórico de Castilla-la Mancha pueden ser declarados monumentos, jardines, conjuntos históricos, sitios históricos, así como zonas arqueológicas, todos ellos como bienes de interés cultural.

Artículo 11. Conjunto Histórico.
1. En la tramitación del expediente de declaración como bien de interés cultural de un conjunto histórico deberán considerarse sus relaciones con el área territorial a que pertenece, así como la protección de los accidentes geográficos y parajes naturales que conforman su entorno.
2. En la definición del entorno deberán establecerse los criterios generales de protección a considerar en la valoración del conjunto.
3. Cuando el conjunto forme parte de un núcleo de población, los planes urbanísticos deberán delimitar con exactitud la zona considerada como tal y las condiciones urbanísticas del entorno afectado. Estos extremos requieren informe favorable de la Consejería de Educación y Cultura en la forma prevista en el artículo 8 de la presente Ley.

Artículo 12. Planes Especiales de Conjuntos Históricos.
1. En los instrumentos de planeamiento relativos a conjuntos históricos se realizará, con arreglo a lo dispuesto en la legislación urbanística, la catalogación de los elementos unitarios que conforman el conjunto. A los elementos singulares se les dispensará una protección integral, definiendo, si no lo esta en la declaración, su entorno y condiciones de actuación en el mismo. Para el resto de los elementos se fijará, en cada caso, un nivel adecuado de protección.
2. La conservación de los conjuntos históricos declarados bienes de interés cultural comporta el mantenimiento de la estructura urbana y arquitectónica así como las características generales de su ambiente.
3. La normativa de actuación recogerá la necesaria armonización de la conservación del conjunto con el mantenimiento de la ciudad como estructura viva, desde las necesarias adecuaciones edificatorias en sus aspectos estructurales y de habitabilidad, las adaptaciones a los nuevos usos y la presencia de los equipamientos sociales necesarios.

Artículo 13. Obras sin Licencia.
1. Cuando los actos de edificación o uso del suelo que conforme a la presente Ley requieren autorización de la Consejería de Educación y Cultura se efectúen sin licencia u orden de ejecución o sin ajustarse a las condiciones señaladas en las mismas, el alcalde o la Consejería de Educación y Cultura, dispondrá la suspensión inmediata de dichos actos. El acuerdo de suspensión se comunicará al Ayuntamiento en el plazo de tres días si aquel no hubiese sido adoptado por el alcalde.
2. En el plazo de dos meses, contados desde la notificación de la suspensión, el interesado habrá de solicitar la oportuna licencia o, en su caso, ajustar las obras a la licencia u orden de ejecución.
3. Transcurrido dicho plazo sin haberse instado la expresada licencia, o sin haberse ajustado las obras a las condiciones señaladas, el ayuntamiento acordará la demolición de las obras a costa del interesado y procederá a impedir definitivamente los usos a los que diera lugar. De igual manera procederá si la licencia fuere denegada por ser su otorgamiento contrario a las prescripciones que afecten a la actuación propuesta.
4. Si no se procediera a la demolición en el plazo de un mes contado desde la expiración del termino al que se refiere el apartado precedente o desde que la licencia fuese denegada por los motivos expresados, el alcalde o el órgano de la Junta de Comunidades de Castilla-la Mancha competente en materia urbanística, dispondrá directamente dicha demolición, a costa, asimismo, del interesado.

Artículo 14. Facultad de la Junta de Comunidades de Castilla-la Mancha.
La Consejería de Educación y Cultura queda expresamente facultada para impedir un derribo y suspender cualquier clase de obra o intervención en un bien declarado de interés cultural o su entorno, o en los que tengan incoado el correspondiente expediente para su declaración. También queda facultada para acordar la realización de obras a costa de propietarios para impedir deterioros irreparables por abandono o negligencia.

Artículo 15. Inventario de Bienes Muebles.
La Junta de Comunidades de Castilla-la Mancha colaborará con la administración del Estado para la confección del inventario general de aquellos bienes muebles del Patrimonio Histórico de Castilla-la Mancha, no declarados de interés cultural, pero que tengan singular relevancia.

TÍTULO II. DEL PATRIMONIO ARQUEOLÓGICO Y ETNOGRÁFICO.
Capítulo I. Arqueología.

Artículo 16. Excavaciones y Prospecciones.
1. Toda excavación o prospección arqueológica o paleontológica, excepto las realizadas en inmuebles o terrenos de titularidad estatal, deberá ser expresamente autorizada antes de su inicio por la Consejería de Educación y Cultura, que mediante los procedimientos de inspección y control idoneos comprobará que los trabajos estén planteados y desarrollados conforme a un programa detallado y coherente que contenga los requisitos concernientes a la conveniencia, profesionalidad e interés científico.
La Consejería de Educación y Cultura comunicará al ayuntamiento respectivo las autorizaciones concedidas, en el plazo de un mes.
2. La autorización para realizar excavaciones o prospecciones arqueológicas o paleontológicas, obliga a los beneficiarios a entregar los objetos obtenidos debidamente inventariados, catalogados y acompañados de una memoria en el museo o centro que la Consejería de Educación y Cultura determine y en el plazo que se fije, teniendo en cuenta su proximidad al lugar del hallazgo y las circunstancias que la hagan posible, además de su adecuada conservación, su mejor función cultural y científica. En ningún caso será de aplicación a estos objetos lo dispuesto en el artículo 44, apartado 3, de la Ley del Patrimonio Histórico Español.

Artículo 17. Permiso de Excavación.
La realización de excavaciones o prospecciones en terrenos de valor arqueológico de Castilla-la Mancha que carezcan del oportuno permiso y que se realicen con el fin de obtener cualquier tipo de resto arqueológico serán ilícitas y sancionadas conforme a lo dispuesto en la presente Ley. Se incluye en este

concepto la utilización de cualquier aparato cuyo funcionamiento este encaminado a la obtención de restos arqueológicos. Igual consideración tendrán las excavaciones o prospecciones realizadas con incumplimiento de los términos en que fueron autorizadas las obras de remoción de tierra, de demolición o cualesquiera otras realizadas con posterioridad en el lugar donde se haya producido un hallazgo casual de objetos arqueológicos que no hubiera sido comunicado inmediatamente a la Consejería de Educación y Cultura.

Artículo 18. Parques Arqueológicos.
Cuando las características de los yacimientos arqueológicos así lo aconsejen se tenderá a la creación de parques arqueológicos que aseguren la consolidación, recuperación y conocimiento de los yacimientos arqueológicos de Castilla-la Mancha.

Artículo 19. Documentación Arqueológica.
La Junta de Comunidades de Castilla-la Mancha propiciará la recopilación de la documentación arqueológica que permita disponer de un conocimiento amplio del territorio de Castilla-la Mancha en cuanto a su realidad y potencial arqueológico y en lo relativo a trabajos de investigación, prospección y excavación realizados en el mismo.

Artículo 20. Planes Urbanísticos.
En los planes urbanísticos deberá incorporarse la documentación arqueológica necesaria para garantizar las medidas preventivas y de conservación de este Patrimonio . En cada uno de los ámbitos físicos a que se refiere el planeamiento elaborado deberá incorporarse como documentación informativa la carta arqueológica que será facilitada por la Consejería de Educación y Cultura, que recoja todos los conocimientos existentes sobre dicho territorio.

Artículo 21. Obras en lugares con Restos Arqueológicos.
1. En las zonas, parcelas, solares o edificaciones en los que existan o razonablemente se presuma la existencia de restos arqueológicos, especialmente en el caso de actuaciones colindantes a otras en las que ya han aparecido restos, el propietario o promotor de las obras que se pretendan realizar deberá aportar un estudio referente al valor arqueológico de la parcela, solar o edificación y la incidencia que pueda tener en el proyecto de obras. Estos estudios serán autorizados y programados por la Consejería competente en materia de patrimonio histórico.
2. La Consejería competente en materia de patrimonio histórico, a la vista del resultado de este trabajo, establecerá las condiciones que deben incorporarse en la licencia de obras. Los planes urbanísticos establecerán la obligatoriedad de este procedimiento en todas aquellas actuaciones en las que se determine su necesidad de acuerdo con la información arqueológica existente.
3. Cuando un propietario o promotor no iniciara el estudio arqueológico preceptivo, o lo suspendiera sin causa justificada, impidiendo en el caso de actuaciones colindantes a otras en las que ya han aparecido restos la realización del estudio en las parcelas o solares contiguos, la Consejería competente en materia de patrimonio histórico formulará requerimiento para el inicio o reanudación del estudio en el plazo de un mes. Si el propietario o promotor no lo hiciera, o haciéndolo volviera a producirse, sin causa justificada, la interrupción, la Consejería citada podrá ejecutar subsidiariamente, a cargo de dicho propietario o promotor, la realización del estudio arqueológico.
4. En todos aquellos supuestos en que el estudio arqueológico se interrumpiera por parte del propietario o promotor, dejando sin protección alguna los bienes arqueológicos que hasta la fecha hubieran sido descubiertos, la Consejería competente en materia de patrimonio histórico formulará requerimiento para ejecutar la protección de los bienes arqueológicos descubiertos en el plazo de un mes. Si el propietario o promotor no lo hiciera, la Consejería citada podrá ejecutar subsidiariamente, a cargo de dicho promotor o propietario, la protección de los bienes citados.

Capítulo II. Patrimonio Arqueológico-Industrial y Etnológico.

Artículo 22. Arqueología Industrial.
1. Forman parte del Patrimonio Histórico de Castilla-la Mancha los bienes muebles e inmuebles que constituyen huellas físicas del pasado tecnológico y productivo. La Consejería de Educación y Cultura fijará las

informaciones a obtener, las matrices culturales, los fines operativos de la investigación y la delimitación del ámbito de arqueología industrial para su protección.
2. La Consejería de Educación y Cultura propiciará o realizará el estudio, investigación y documentación de estos materiales de forma sistemática en todo el territorio de Castilla-la Mancha.

Artículo 23. Patrimonio Etnológico.
1. En las actuaciones de protección del Patrimonio Histórico de Castilla-la Mancha, la Junta de Comunidades atenderá de modo especial la conservación y realce de los bienes de interés cultural que caracterizan la región y que son específicos de las experiencias culturales de Castilla-la Mancha.
2. Quedan incoados los expedientes para la declaración como bienes de interés cultural de todos aquellos molinos de viento existentes en el territorio de Castilla-la Mancha con una antiguedad superior a los cien años.
3. Quedan incoados los expedientes para la declaración como bienes de interés cultural de todas aquellas manifestaciones de arquitectura popular, como silos, bombos, ventas y arquitectura negra, existentes en el territorio de Castilla-la Mancha con una antiguedad superior a los cien años.
4. La Consejería de Educación y Cultura propiciará o realizará el estudio, investigación y documentación de los materiales integrantes del Patrimonio Etnológico de Castilla-la Mancha.

TÍTULO III. DEL PATRIMONIO DOCUMENTAL Y BIBLIOGRÁFICO.
Capítulo I. De los Archivos, Bibliotecas y Museos

Artículo 24. Concepto de Archivo, Biblioteca y Museo.
1. Son Bibliotecas las instituciones culturales donde se conservan, reúnen, seleccionan, inventarian, catalogan, clasifican y difunden conjuntos o colecciones de libros, manuscritos y otros materiales bibliográficos o reproducidos por cualquier medio para su lectura en sala pública o mediante préstamo temporal, al servicio de la educación, la investigación, la cultura y la información.
2. Son Museos las instituciones de carácter permanente que adquieren, conservan, investigan, comunican y exhiben para fines de estudio, educación y contemplación conjuntos y colecciones de valor histórico, artístico, científico y técnico o de cualquier otra naturaleza cultural.

Artículo 25. Inmuebles.
1. Quedarán sometidos al régimen que la presente Ley establece para los bienes de interés cultural los inmuebles destinados a la instalación de archivos, bibliotecas y museos de titularidad de la Junta de Comunidades de Castilla-la Mancha, así como los bienes muebles integrantes del Patrimonio Histórico Español en ellos custodiados.
2. La Consejería de Educación y Cultura podrá extender el régimen previsto en el apartado anterior a otros archivos, bibliotecas y museos, integrados en los sistemas de Castilla-la Mancha.
3. La Consejería de Educación y Cultura velará por la elaboración y actualización de los catálogos, censos y ficheros de los fondos de las instituciones a que se refiere este artículo.

Artículo 26**.** Declaración de utilidad pública.
Los edificios en que están instalados los archivos, bibliotecas y museos de Castilla-la Mancha, así como los edificios o terrenos en que vayan a instalarse, podrán ser declarados de utilidad pública a los fines de su expropiación. Esta declaración podrá extenderse a los edificios o terrenos contiguos cuando así lo requieran razones de seguridad para la adecuada conservación de los inmuebles o de los bienes que contengan.

CAPÍTULO II . DE LOS ARCHIVOS.
Sección I. De los Archivos Públicos.

Artículo 27. Archivos Públicos.

Artículo 28. Selección y Expurgación de Documentos.

Artículo 29. Deposito de Documentos.

Sección II. De los Archivos Privados.

Artículo 30. Archivos y Documentos Privados.
1. A los efectos de la presente Ley, se consideran privados los archivos y documentos pertenecientes a las personas físicas o jurídicas de derecho privado que ejerzan sus actividades principales en Castilla-la Mancha y que radiquen dentro de su ámbito territorial.
2. Tendrán la consideración de documentos de carácter histórico aquellos documentos privados que formen parte del Patrimonio documental según lo establecido en la Ley 16/1985, de 25 de junio, del Patrimonio histórico español.
3. La Junta de Comunidades de Castilla-la Mancha podrá declarar históricos aquellos documentos que merezcan ser conservados en atención a su especial relevancia o interés informativo, cultural o investigador, de acuerdo con lo dispuesto en el artículo 28 de la presente Ley.

Artículo 31. Archivos Históricos Privados.
Son archivos privados de carácter histórico los que se encuentran en poder de las personas físicas o jurídicas señaladas en el artículo 30 de esta Ley, que contengan documentos considerados como históricos.

Artículo 32. Declaración de Archivo y Documento Histórico.
La Consejería de Educación y Cultura iniciará, de oficio o a instancia de parte, el expediente para la declaración de archivo o documento histórico, en la forma que reglamentariamente se determine.
La incoación del expediente sujeta al archivo o documento afectado a las obligaciones fijadas por la presente Ley, que cesarán si la resolución firme es negativa.

Artículo 33. Obligaciones de los Propietarios.
Los propietarios y poseedores de archivos y documentos privados declarados históricos por la presente Ley, o por resolución dictada de acuerdo con ella, vendrán obligados a:
Conservarlos y mantenerlos ordenados e inventariados, debiendo entregar una copia del inventario al Archivo Regional de Castilla-la Mancha.y otra al archivo histórico provincial que territorialmente corresponda.
Conservar integra su organización. Para desmembrarlos, excluirlos o eliminarlos será necesaria la autorización de la Consejería de Educación y Cultura.
Permitir a los estudiosos la consulta de tales archivos y documentos en el marco de los acuerdos que, en su caso, se establezcan con la Consejería de Educación y Cultura siempre que ello no suponga una intromisión en su derecho a la intimidad personal y familiar y a la propia imagen, según lo establecido en la legislación vigente. En cualquier caso, será libre el acceso a los investigadores de documentos generados, conservados o reunidos por personas privadas, jurídicas o físicas, siempre que tengan una antigüedad superior a cien años.
Restaurar los documentos deteriorados, previa autorización de la Consejería de Educación y Cultura.
Comunicar de forma previa y fehaciente a la Consejería de Educación y Cultura cualquier enajenación o cambio de titularidad de la propiedad o posesión de los archivos o documentos.

Artículo 34. Depósito de Documentos.
1. Los propietarios y poseedores de archivos y documentos privados declarados históricos podrán depositarlos en el Archivo Regional de Castilla-la Mancha .o en el archivo que territorialmente corresponda entre los que integran el sistema de archivos de Castilla-la Mancha. A petición del interesado, el archivo público correspondiente hará constar en catálogos la titularidad y procedencia de los fondos.
2. Podrán recuperarlos comunicando dicha intención con dos meses de antelación ante la Consejería de Educación y Cultura, siempre que se garantice ante esta el cumplimiento de las obligaciones a que hace referencia el artículo anterior.

3. Los titulares de archivos o documentos depositados en cualquiera de los centros que integran el sistema de archivos de Castilla-la Mancha podrán consultarlos libremente y obtener copia de los mismos.

Artículo 35. Comercio de Documentos.
1. Las personas y empresas dedicadas al comercio de documentación y archivos de carácter histórico deberán enviar semestralmente a la Consejería de Educación y Cultura una relación de los que tengan puestos a la venta, así como de los que adquieran y efectivamente vendan.
2. La Consejería de Educación y Cultura facilitará a las instituciones, corporaciones y entidades públicas territoriales interesadas, el acceso a dichas relaciones.

Sección III. Del Sistema de Archivos de Castilla-La Mancha.

Artículo 36. Sistema de Archivos.

Artículo 37. Coordinación de Centros.

Artículo 38. Centros del Sistema de Archivos.

Artículo 39. Conservación de Documentos.

Artículo 40. Censo de Archivos.

Artículo 41. Obligaciones de Conservación.

Sección IV. Del acceso y difusión del Patrimonio Documental de Castilla-La Mancha.

Artículo 42. Acceso a los archivos.

Artículo 43. Acceso a los Archivos de Uso Público.

Artículo 44. Archivos privados.

Sección V. De la calificación de los Documentos.

Artículo 45. Comisión Calificadora de Documentos.

TÍTULO IV. DE LOS MUSEOS.
Capítulo I. Disposiciones Generales.

Artículo 46. Creación de Museos.
1. Los organismos públicos y las personas físicas o jurídicas interesadas en la creación de museos promoverán, ante la Consejería de Educación y Cultura, el oportuno expediente, debiendo garantizar, en todo caso, la conservación y el mantenimiento de los bienes culturales que integran los fondos fundacionales o futuros de los museos en la forma que reglamentariamente se determine. En el expediente se incluirá un estudio detallado de las instalaciones, personal y medios con que estará dotado y necesidades del ámbito territorial en que se instale.
2. La creación de los museos de la Junta de Comunidades y el reconocimiento oficial del resto de los museos tendrá lugar por decreto del consejo de Gobierno.

Artículo 47. Acceso a los Museos.

El acceso a los museos de los que sea titular la Junta de Comunidades de Castilla-La Mancha se efectuará con arreglo a los precios públicos que se establezcan, sin perjuicio de las exenciones o bonificaciones que de igual modo se acuerden. El resto de los museos, cualquiera que sea su titularidad, salvo los del Estado, deberán contar con autorización expresa de la Consejería de Cultura para la percepción de cualquier derecho de acceso.

Capítulo II. Del Sistema de Museos de Castilla-La Mancha.

Artículo 48. Coordinación e Inspección de los Museos.
La Consejería de Educación y Cultura, dentro del ámbito de competencias de la Junta de Comunidades de Castilla-la Mancha, y en los términos de los respectivos convenios, en su caso, planificará, coordinará e inspeccionará la organización y servicios de los museos integrados en el sistema de museos de Castilla-la Mancha. A tales efectos, los museos integrados en el sistema de museos de Castilla-la Mancha formarán una unidad de gestión al servicio de la comunidad.

Artículo 49. Sistema de Museos de Castilla-la Mancha.
1. El sistema de Museos de Castilla-la Mancha se configura como un conjunto de centros y servicios encargados de la protección y custodia de los museos y bienes muebles conservados en los mismos.
2. El sistema de museos de Castilla-la Mancha estará integrado por los siguientes centros:
Los museos de titularidad estatal gestionados por la Junta de Comunidades de Castilla-la Mancha.
Los museos de las corporaciones locales reconocidos por la Consejería de Educación y Cultura.
Cualesquiera otros museos de titularidad pública que pueda crear la Junta de Comunidades de Castilla-la Mancha.
Los museos de titularidad privada reconocidos como tales por la Consejería de Educación y Cultura y que tengan firmados los correspondientes convenios de servicio público con la mencionada consejería.

Artículo 50. Servicio de Museos.
La Consejería de Educación y Cultura, a través de sus correspondientes servicios y con el asesoramiento del Consejo Regional del Patrimonio Histórico, se ocupará del estudio, planificación y programación de las necesidades museográficas, así como del informe, inspección y apoyo técnico a los centros del sistema de museos de Castilla-la Mancha.

Artículo 51. Registro de Museos.
1. La Consejería de Educación y Cultura mantendrá un registro actualizado de los museos radicados en Castilla-la Mancha, cualquiera que sea su titularidad, así como de sus fondos y dotación de sus servicios.
2. Se crea el libro de registro de los bienes de titularidad de la Junta de Comunidades de Castilla-la Mancha, que será obligatorio en cada museo que posea bienes de esta naturaleza.

Artículo 52. Denominación de los Museos.
Los museos integrados en el sistema de Museos de Castilla-la Mancha adoptarán la denominación que mas convenga a su función, en la cual harán constar esta integración.

Artículo 53. Gestión de los museos.
Los museos integrados en el sistema de museos de Castilla-la Mancha estarán gestionados por sus propietarios y se ajustarán a las directrices generales que marque un órgano colegiado, en el que habrá un representante de la Junta de Comunidades de Castilla-la Mancha y un representante por cada diez museos reconocidos en la región, debiendo existir, al menos, un representante por provincia.

Capítulo III. De los Museos de Castilla-La Mancha.

Artículo 54. Titularidad de los Museos.
Los museos de Castilla-la Mancha podrán ser de titularidad pública o de titularidad privada.

1. Los de titularidad pública, excepto los del Estado, quedan integrados, en virtud de esta Ley, en el sistema de museos de Castilla-la Mancha.
2. Los museos de titularidad privada podrán integrarse en el sistema de museos de Castilla-la Mancha a través del oportuno convenio con la Consejería de Educación y Cultura.

Artículo 55. Depósito de los Fondos de los Museos.
1. Los bienes culturales muebles de extraordinario interés existentes en un museo, cuando las deficiencias de instalación o el incumplimiento de la normativa existente por parte de la entidad u organismo responsable pongan en peligro la conservación, seguridad o accesibilidad de los fondos existentes en el mismo, la Consejería de Educación y Cultura podrá disponer el deposito de dichos fondos en otro museo, hasta tanto no desaparezcan las causas que han motivado dicha decisión.
2. En caso de disolución o clausura de un museo, todos sus fondos serán depositados en otro museo acorde a la naturaleza de los bienes culturales expuestos, teniendo en cuenta la proximidad territorial y de acuerdo con lo que reglamentariamente se determine. Todos sus fondos se reintegrarán al museo de origen en caso de nueva creación o reapertura del mismo.

CAPÍTULO IV. DE LAS COLECCIONES, FONDOS MUSEÍSTICOS Y PERSONAL.

Artículo 56. Depósito de fondos.
1. Los museos podrán admitir y realizar depósitos de bienes culturales muebles. Dicho depósito se regirá por lo previsto en la normativa al respecto y por las condiciones acordadas para el deposito.
2. Cuando se produjera en un museo un considerable aumento, cuantitativo o cualitativo, de sus fondos con motivo de legados, donaciones o depósitos que suponga problemas de capacidad, adecuación, seguridad u otros que impidan o dificulten su normal función, la Consejería de Educación y Cultura promoverá, de oficio o a petición de la institución titular del museo, un expediente de adecuación, en cuya resolución se evaluarán las capacidades de todo orden del museo para asumir las nuevas responsabilidades.
En caso de que la resolución de dicho expediente fuese negativa, los fondos cuya atención exceda dicha capacidad deberán depositarse en el museo que se determine por la Consejería de Educación y Cultura.

Artículo 57. Préstamo de Fondos.
1. Los fondos de titularidad pública, no estatal, de los museos de Castilla-la Mancha no podrán salir de ellos sin autorización de la Consejería de Educación y Cultura.
2. Para los fondos de propiedad estatal o privada depositados en los museos de Castilla-la Mancha se respetarán las condiciones estipuladas al establecer el correspondiente deposito.

Artículo 58. Bienes Muebles Arqueológicos.
Los bienes muebles procedentes de actuaciones arqueológicas deberán ser depositados en los museos cuya titularidad corresponda a la Junta de Comunidades de Castilla-la Mancha o los de titularidad estatal gestionados por la Junta de Comunidades. No obstante, los museos integrados en el sistema de museos de Castilla-la Mancha, considerando la proximidad al lugar del hallazgo, su conservación y función cultural y científica, podrán solicitar su deposito con sujeción a las normas reglamentarias que lo regulen.

TÍTULO V. DE LAS MEDIDAS DE FOMENTO Y DEL RÉGIMEN SANCIONADOR.
Capítulo I. Medidas de Fomento. Dotación Económica.

Artículo 59. Porcentajes.
En los presupuestos generales de Castilla-la Mancha se incluirá una partida equivalente, al menos, al 1 % de los fondos destinados a obras públicas, con destino a financiar los trabajos de conservación o enriquecimiento del Patrimonio Histórico de Castilla-la Mancha o de fomento de la creatividad artística, con preferencia en las propias obras o en su entorno.

Capítulo II. Del Régimen Sancionador

Artículo 60. Infracciones y Sanciones.
En materia de infracciones y sanciones se estará a lo dispuesto en la legislación estatal.
Las multas hasta 25.000.000 de pesetas serán impuestas por la Consejería de Educación y Cultura y las superiores a dicha cantidad, por el consejo de Gobierno de la Junta de Comunidades de Castilla-la Mancha.

Artículo 61. Medidas sancionadoras.
Toda actuación contraria al Patrimonio histórico podrá dar lugar a:
La adopción por parte de los organismos competentes de las medidas precisas para la restauración del orden jurídico infringido y de la realidad física alterada o transformada, en lo posible, como consecuencia de la actuación ilegal.
La iniciación de los procedimientos para instar la suspensión y anulación de los actos administrativos en los que presuntamente pueda ampararse la actuación ilegal.
La imposición de sanciones a los responsables, previa tramitación del correspondiente procedimiento sancionador, sin perjuicio de las posibles responsabilidades de orden penal en que hubieran podido incurrir.
La obligación de resarcimiento de daños e indemnización de los perjuicios a cargo de quienes sean declarados responsables.

Artículo 62. Medidas de Reposición.
En ningún caso podrán los organismos responsables dejar de adoptar las medidas tendentes a reponer los bienes afectados al Estado anterior a la producción de la situación ilegal. Las sanciones por las infracciones relativas al Patrimonio histórico que se aprecien se impondrán con independencia de dichas medidas.

DISPOSICIÓN ADICIONAL.

La ejecución de lo establecido en la presente Ley, en relación con el Patrimonio Histórico de la Iglesia Católica, podrá realizarse en el marco de convenios de colaboración entre esta y la Junta de Comunidades en materias de interés común.

DISPOSICIÓN TRANSITORIA.

No será de aplicación lo dispuesto en los artículos 8 y 11 a los planes urbanísticos que se encuentren, a la entrada en vigor de la presente Ley, en trámite de información pública previa a la aprobación inicial o posteriores trámites.

DISPOSICIÓN FINAL.

Se autoriza al consejo de Gobierno para el desarrollo reglamentario de esta Ley.

Toledo, 30 de mayo de 1990.

José Bono Martínez, Presidente.

B2) Legislative Decree 1/2010 of 18th May 2010, which approves the Reworded Text on Land Regulations and Urban Planning Activity in Castile-La Mancha (Official Gazette of Castile-La Mancha of 21st May 2010).

(Given its length, the text of this instrument is included in the additional information provided with this dossier).

II.- TEXTS DIRECTLY RELATING TO PROTECTIVE DESIGNATION (C, D, E, F)

C.- Agreement of the Council of Goverment of the Autonomous Government of Castile-La Mancha of 25th November 2008 (Official Gazette of Castile-La Mancha of 1st December 2008) declaring the Historic Mining Ensemble of Almadén as a Property of Cultural Interest (BIC) / Acuerdo del Consejo del Gobierno Autónomo de Castilla-La Mancha de 25 de noviembre de 2008 (Diario Oficial de Castilla-La Mancha de 1 de diciembre de 2008), por el que se declara Bien de Interés Cultural el Conjunto Histórico Minero de Almadén (Ciudad Real).

Consejería de Cultura, Turismo y Artesanía

Acuerdo de 25-11-2008, de Consejo de Gobierno, por el que se declara Bien de Interés Cultural, el Conjunto Histórico Minero de Almadén (Ciudad Real).

Culminada la tramitación del expediente para la declaración de Bien de Interés Cultural del Conjunto Histórico Minero de Almadén (Ciudad Real), conforme a las prescripciones establecidas por la normativa vigente sobre Patrimonio Histórico, la Consejería de Cultura, Turismo y Artesanía considera, vistas las alegaciones, los informes y datos técnicos pertinentes, que el mencionado bien reúne los valores históricos necesarios para gozar de la protección que la legislación vigente dispensa a los Bienes de Interés Cultural; por lo que entiende procedente su declaración como tal, con la categoría de Conjunto Histórico.

En consecuencia, y de acuerdo con lo establecido en el artículo 9 apartado 2 de la Ley 16/1985, de 25 de junio, del Patrimonio Histórico Español (interpretado conforme a la Sentencia 17/1991, de 31 de enero, del Tribunal Constitucional), con el artículo 11.2 del Real Decreto 111/1986, de 10 de enero, de desarrollo reglamentario de la citada Ley (en la redacción dada a dicho precepto por el también Real Decreto 64/1994, de 21 de enero) y con los artículos 6 y 10 de la Ley 4/1990, de 30 de mayo, del Patrimonio Histórico de Castilla-La Mancha, a propuesta de la Consejera de Cultura, Turismo y Artesanía y previa deliberación en su reunión del día 25 de noviembre de 2008, y en uso de las competencias atribuidas, el Consejo de Gobierno acuerda:

Primero.- Declarar Bien de Interés Cultural, el Conjunto Histórico Minero de Almadén (Ciudad Real), cuya descripción y entorno afectado por la presente declaración, figuran como anexo al presente Acuerdo.

Segundo.- Proceder a la publicación del presente acuerdo en el Diario Oficial de Castilla-La Mancha y comunicar la misma al Ministerio de Cultura a efectos de su inscripción en el Registro General de Bienes de Interés Cultural.

Contra este acuerdo, que pone fin a la vía administrativa, cabe interponer, en el plazo de dos meses, a contar desde el día siguiente al de la publicación, recurso contencioso-administrativo ante el Tribunal Superior de Justicia de la Comunidad de Castilla-La Mancha, conforme a lo dispuesto en los artículos 10 y 46 de la Ley 29/1998, de 13 de julio, Reguladora de la Jurisdicción Contencioso-Administrativa. Asimismo, cabe interponer potestativamente recurso de reposición en vía administrativa, según establecen los artículos 116 y 117 de la Ley 30/1992, de 26 de noviembre, de Régimen Jurídico de las Administraciones Públicas y del Procedimiento Administrativo Común.

Toledo, 25 de noviembre de 2008

El Secretario del Consejo de Gobierno
JOSÉ VALVERDE SERRANO

Anexo

Descripción

Mina de Almadén.-

La zona propuesta para su protección consta de dos partes diferenciadas: “Objeto de BIC” y “Entorno de BIC”.

El “Objeto” comprende un espacio vinculado a la Mina de Almadén o Mina Vieja, situada al O del núcleo urbano de Almadén, en concreto el espacio definido por el Cerco de Buitrones, el Cerco de San Teodoro, las escombreras y varios lugares cercanos en los que existen un yacimiento arqueológico vinculado a la mina (al NO del cerco minero) o un inmueble destacado vinculado a la mina (al SE del cerco minero). Ocupa una superficie de 39,813 ha. Incluye, en primer lugar, como elementos patrimoniales que justifican la creación del ámbito, el extraordinario conjunto patrimonial industrial de épocas medieval, moderna y contemporánea que constituye la Mina de Almadén y sus elementos, algunos de los cuales se encuentran individualizados por contar con la condición de Bien de Interés Cultural, que proponemos para el conjunto; en segunda instancia, un yacimiento arqueológico de cronología medieval, moderna y contemporánea vinculado a la mina; y en última instancia se ha querido incluir otro elemento inmueble moderno y contemporáneo (ermita) de notable entidad, situado en un entorno susceptible de albergar restos arqueológicos de otros inmuebles históricos interesantes desaparecidos. La existencia de estos elementos patrimoniales se encuentra en relación directa con la existencia en el subsuelo de este espacio del mayor yacimiento de mercurio del planeta, y con la creación de la Mina de Almadén y de toda la infraestructura asociada

a la misma, con elementos de Arqueología Industrial extraordinarios.

El “Entorno” comprende un espacio también vinculado a la Mina, pero en la parte exterior del denominado Cerco de Buitrones. En este apartado encontramos, aparte de toda la construcción del entramado del pueblo, a partir de las minas, tres edificios que entrarían dentro del objeto de BIC. Estos son:

Castillo de Retamar, comprende un sólo elemento patrimonial situado en el centro del casco urbano histórico de Almadén. Ocupa una superficie de 0,173 ha. El elemento patrimonial es un castillo medieval, que permanece como inmueble en ruinas mínimamente acondicionado y habilitado, parcialmente destruido y con susceptibilidad de mostrar más restos arqueológicos ocultos en el entorno, dentro del ámbito propuesto. La existencia de este elemento patrimonial aparece vinculada al desarrollo histórico de la ciudad, de la que constituye uno de los restos materiales más antiguos, ya que se le otorga una cronología medieval indeterminada, aunque parece ser que en 1467 fue reforzado y ampliado por el clavero de la Orden de Calatrava, López de Padilla, y en 1535 parece ser que fue objeto de reparación, para posteriormente ser reutilizado como torre campanario entre otros fines.

Academia de Minas, comprende un sólo elemento patrimonial situado en el centro del casco urbano histórico de Almadén. Ocupa una superficie de 0,145 ha. El elemento patrimonial es un inmueble de cronología moderna y contemporánea, la antigua Academia de Minas, de gran entidad patrimonial de acuerdo a su arquitectura muy notable y a su significado histórico destacado. La existencia de este elemento patrimonial aparece vinculada a la de la Mina de Almadén y al devenir histórico de la ciudad, ya que el 14 de julio de 1777 el rey Carlos III dispuso por Real Orden la fundación de la Casa-Academia de Minas de Almadén, con el fin de formar al personal de dicha explotación, bajo la dirección del entonces regidor de la Mina D. Enrique Cristóbal Störr. Las obras comenzaron a finales de 1782, siendo director de las mismas el maestro de obras D. Antonio del Villar. Por fin, el edificio se ocupó en los últimos meses de 1785, siendo la cuarta institución más antigua del mundo dentro de su categoría. Se ha utilizado hasta 1973.

Casa de la Superintendencia, comprende un sólo elemento patrimonial situado en el centro del casco urbano histórico de Almadén. Ocupa una superficie de 0,213 ha. El elemento patrimonial es un inmueble de época moderna y contemporánea, la antigua Casa de la Superintendencia o Casa del Superintendente de las Minas, un edificio muy importante en la historia de la ciudad, que actualmente se encuentra en un estado de ruinas muy avanzado, habiéndose edificado parcialmente sobre él una plaza y contando con restos sepultados por las ruinas; en realidad es un elemento a medio camino entre la categoría de inmueble y de yacimiento arqueológico, y aunque ha sido incluido dentro de la primera, parece necesaria la creación de un ámbito de protección específico para evitar su destrucción, que es potencialmente muy probable. La existencia de este elemento patrimonial está ligada a la de la Mina de Almadén y fue conocido vulgarmente como “Casa Grande” por la gran extensión que ocupaba. En ella residía el jefe superior del establecimiento minero y se ubicaban las oficinas de la Contaduría y Tesorería de la misma.

Plaza de toros.-

La zona propuesta para su protección, denominada Plaza de Toros, comprende un sólo elemento patrimonial situado al SE del casco urbano histórico de Almadén. Ocupa una superficie de 0,467 ha. El elemento patrimonial que justifica la creación del ámbito es un inmueble de época moderna y contemporánea, la Plaza de Toros o Plaza Nueva, de extraordinaria entidad patrimonial de acuerdo a su arquitectura muy notable y a su significado histórico destacado, que además cuenta con la condición de BIC, y que ha sido restaurado y rehabilitado recientemente. Este elemento patrimonial aparece vinculado a la historia de la ciudad y de la Mina de Almadén, ya que fue construido por la entidad entre 1752 y 1754 respondiendo fundamentalmente a la necesidad de obtener rentas para la edificación del Real Hospital de Mineros.

Real Hospital de Mineros.-

La zona propuesta para su protección, denominada Real Hospital de Mineros, comprende un sólo elemento patrimonial situado al S del casco urbano histórico de Almadén. Ocupa una superficie de 0,488 ha. El elemento patrimonial es un inmueble moderno y contemporáneo, el Real Hospital de Mineros de San Rafael, de gran entidad patrimonial de acuerdo a su arquitectura notable y a su significado histórico destacado, que además cuenta con la condición de Bien de Interés Cultural, y que ha sido restaurado y rehabilitado recientemente. El elemento patrimonial aparece vinculado a la historia de la ciudad y de la Mina de Almadén, ya que fue construido hacia mediados del siglo XVIII, debido al aumento de la producción de mercurio de las minas que supuso un incremento paralelo de trabajadores y por lo tanto el mayor número de enfermos. El superintendente Francisco Javier de Villegas decidió construir un nuevo hospital, para lo que se levantó la Plaza de Toros con viviendas con el fin de sufragar los gastos. Las obras del mismo comenzaron durante el reinado de Fernando VI en 1755 y terminaron en 1773 reinando Carlos III, para entrar en funcionamiento en marzo de 1774. Después de la creación en diciembre de 1999 de la Fundación Almadén-Francisco Javier de Villegas, la empresa Minas de Almadén y Arrayanes S.A. (Mayasa) y la Fundación Caja Madrid, dentro de su programa de Conservación del Patrimonio Histórico Español, firmaron un convenio de colaboración para la conservación del Antiguo Hospital de Mineros de San Rafael y su rehabilitación para albergar la sede de la Fundación, el Archivo Histórico de las Minas de Almadén y un Museo de las Minas y Museo Hospitalario. El proyecto de reforma del edificio fue redactado por la arquitecta Virginia Cinca Gutiérrez y supervisado por el arquitecto Pedro Ponce de León. La reforma fue realizada por la empresa constructora Necso. El edificio se inauguró el día 19 de febrero de 2004.

Real Cárcel de Forzados.-

Situado en el casco urbano histórico de Almadén, en el interior de la Escuela Politécnica. Ocupa una superficie de 0,876 ha. El elemento patrimonial es un gran edificio de cronología moderna y contemporánea, es hoy un yacimiento arqueológico parcialmente recuperado y puesto en valor (sólo se ha exhumado una pequeña parte del antiguo edificio de la cárcel, que fue destruido bastante recientemente), que aparece musealizado dentro de las instalaciones de la escuela. La existencia de este elemento patrimonial aparece vinculada a la de la Mina de Almadén y a su historia, ya que fue construida por la entidad bajo la dirección del Ingeniero de los Reales Ejércitos Silvestre Abarca, terminándose hacia el año 1754. Se empleó como presidio para forzados a las minas hasta el 8 de agosto de 1800, momento en que el rey resolvió que no se condenase a ningún preso a la pena de minas. Durante el siglo XIX fue Presidio Provincial. Durante la Guerra Civil fue ocupado por el ejército republicano. Hasta el año 1943 se empleó como campo de concentración y, por último, entre los años 1941 a 1969 fue almacén de trigo. Finalmente, se demolió el día 5 de mayo de 1969 para construir la Escuela Politécnica de Almadén.

Puerta de Carlos IV.-

Puerta de entrada al Cerco de Buitrones, por aquí salían las carretas que transportaban el mercurio hasta Sevilla. Como figura en el escudo de su parte superior, fue construida durante el reinado de Carlos IV, en 1795.

Construida en ladrillo, con arco de rebajado, doble columna adosada a doble pilastra y frontón triangular con escudo en piedra caliza. Dicho escudo tiene representado el collar del Toisón de Oro, la Corona Real y por encima la Santa Cruz.

En 1983 se inició el expediente de declaración de BIC y en el año 2004 se procedió a su restauración.

Objeto de la declaración

Estaría comprendido por:

Manzana 00365, parcelas de 01 a 025, completas.
Manzana: 03386, parcelas 17,34 y 35, completas.
Manzana: 03370, parte de la parcela 03.
Vía pública (subida al Castillo).
Manzana: 12368, completa.
Manzana: 08336, parcela 01, completa.
Manzana: 10330, parcela 01, completa.

Delimitación del entorno

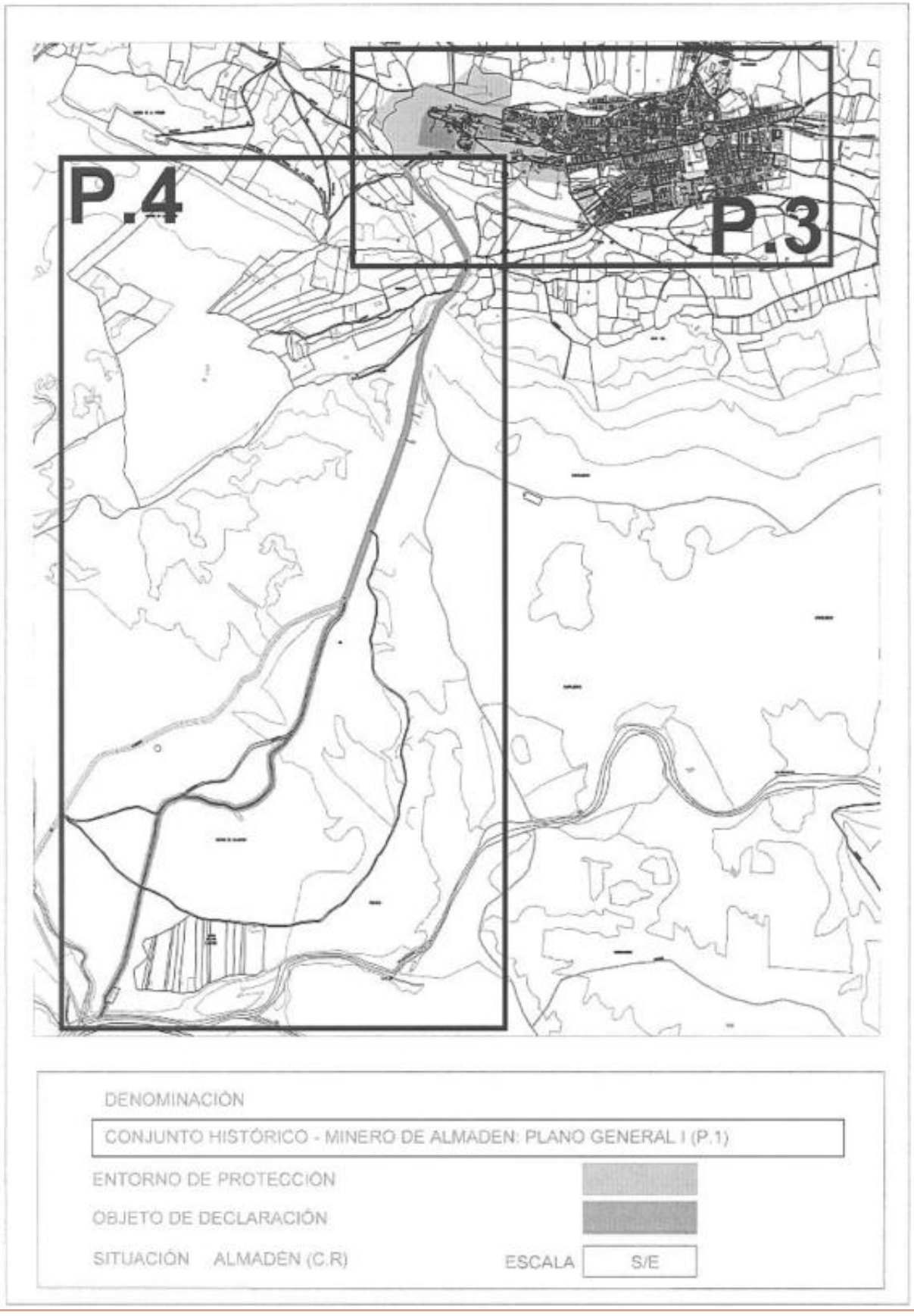
Vendría definido por:

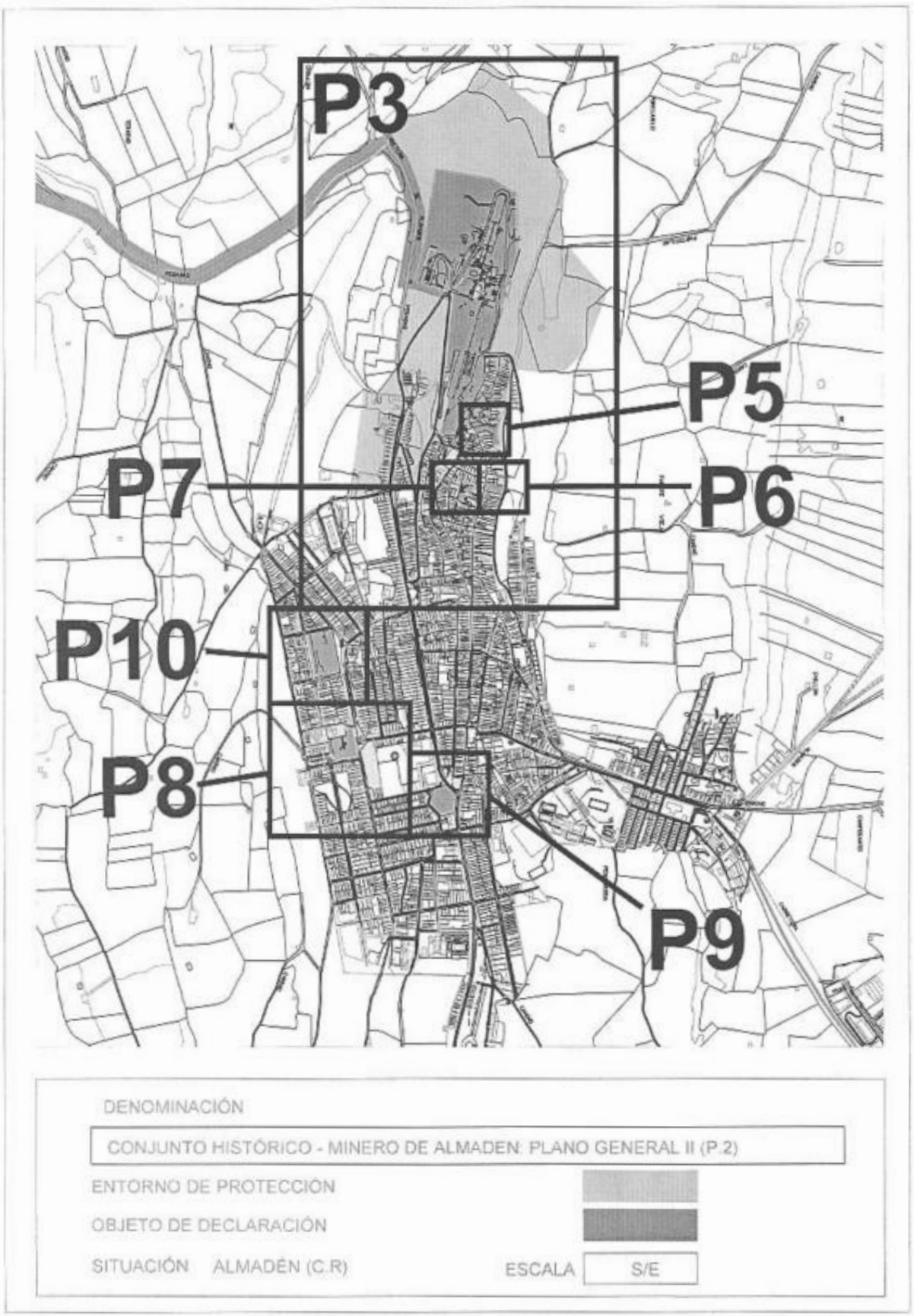
Manzana: 00384, parcelas de 01 a 25, completas.
Manzana: 00386, parcelas de 01 a 011, completas.
Manzana: 03386, parcelas de 01 a 016, 018 a 033, 036 a 039, completas.
Manzana: 02370, parcelas de 01 a 029, completas.
Manzana: 02376, parcelas de 01 a 022, completas.
Manzana: 02363, parcelas de 01 a 023, completas.
Manzana: 02364, parcelas de 01 a 017, completas.
Manzana: 03364, parcelas de 01 a 019, completas.
Manzana: 04365, parcelas de 01 a 08, completas.
Manzana: 05368, parcelas de 01 a 27, completas.
Manzana: 05376, parcelas de 01 a 041, completas.
Manzana: 04377, parcelas de 01 a 012, completas.
Manzana: 04376, parcelas de 01 a 016, completas.
Manzana: 03370, parcelas 01,02,04 a 028, completas.
Manzana: 06386, parcelas de 01 a 016, y parte de la parcela 017.
Manzana: 00351, parcelas de 01 a 020, completas.
Manzana: 01341, parcelas de 01 a 026, completas.
Manzana: 02353, parcelas de 01 a 18, completas.
Manzana: 01352, parcelas de 01 a 20, completas.
Manzana: 12362, parcela 1, completa.
Plaza de Waldo Ferrer, Calle Libertad, calle Esparteros, Plaza Doctor Fleming, calle Barcelona.
Manzana: 09330, parcelas 15,16,17 y 35, completas.
Manzana: 09321, parcelas 15 a 18 y 33, completas.
Manzana: 10330, parcelas 02 a 06, completas.
Manzana: 10334, parcelas 01,02,10 a 13, completas.
Manzana: 11336, parcelas 01 y 02, completas.
Manzana: 12337, parcelas 01 a 03, completas.
Manzana: 12346, parcelas 01 a 08 y 24 a 31, completas.
Manzana: 09347, parcelas 17 a 20 y 45, completas.
Manzana: 11350, parcelas 08 y 22, completas.

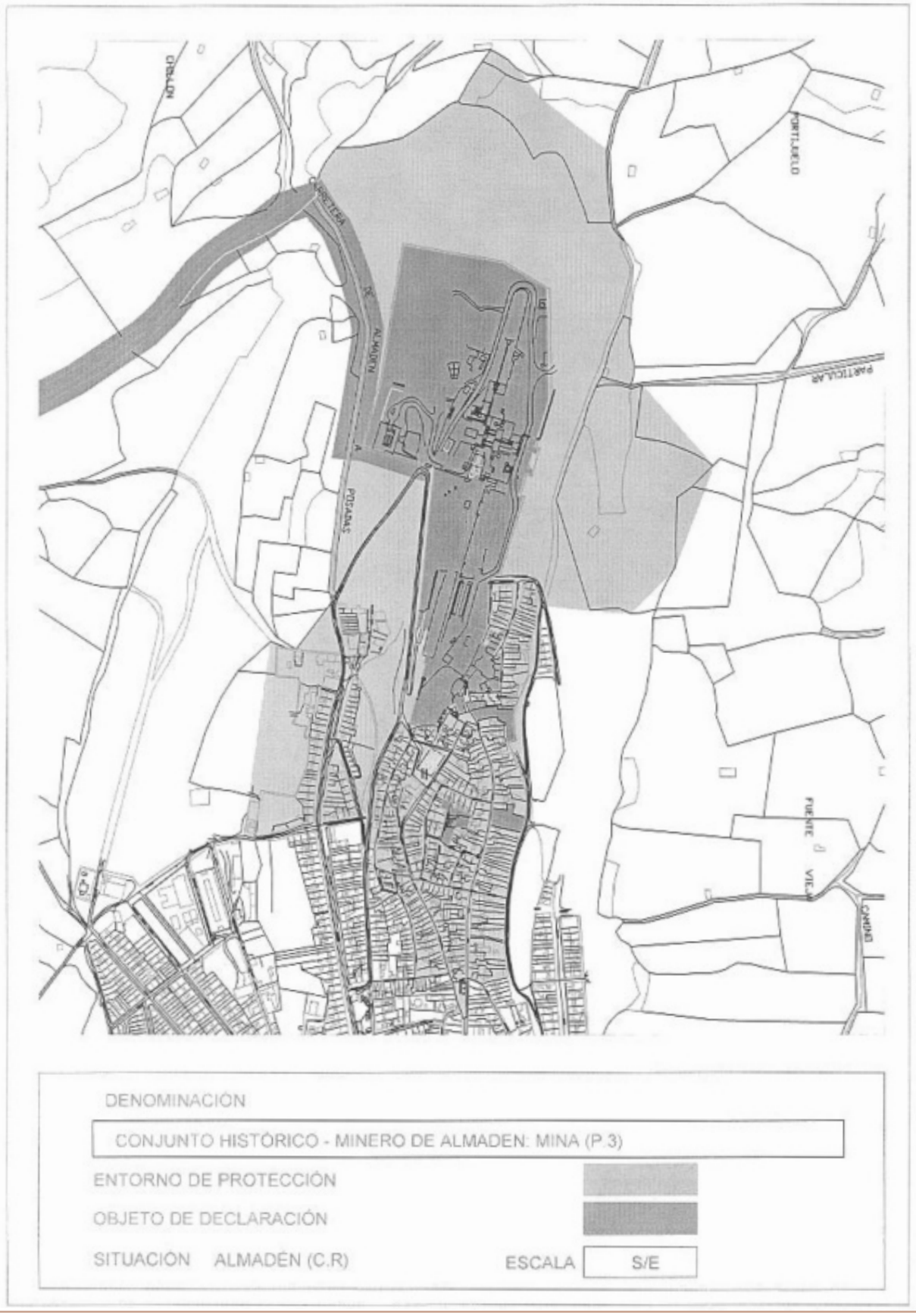
El entorno de protección afecta, asimismo, a todos los espacios públicos contenidos por la línea que bordea el perímetro exterior de las citadas manzanas y parcelas y las une entre sí.

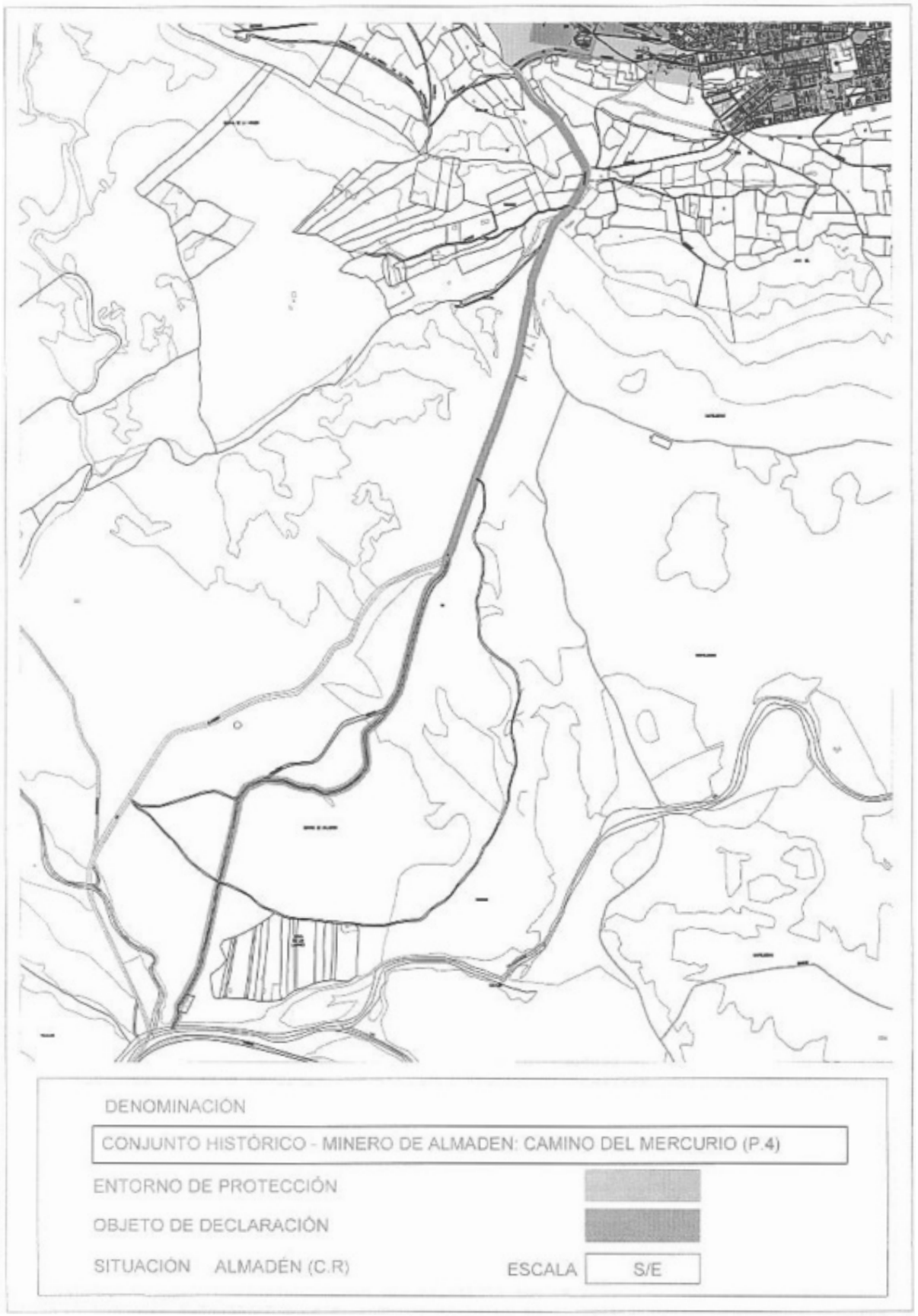
Se juzga necesario posibilitar el control administrativo establecido en la legalidad de Patrimonio Histórico sobre el entorno de protección señalado, en razón de que cualquier intervención en el se considera susceptible de aceptar negativamente a la conservación o a la contemplación del bien objeto de tutela.

Todo ello según plano adjunto.


P.4
P.3
DENOMINACIÓN
CONJUNTO HISTÓRICO - MINERO DE ALMADEN: PLANO GENERAL I (P.1)
ENTORNO DE PROTECCIÓN
OBJETO DE DECLARACIÓN
SITUACIÓN ALMADÉN (C.R)
ESCALA S/E


P3
P5
P7
P6
P10
P8
P9
DENOMINACIÓN
CONJUNTO HISTÓRICO - MINERO DE ALMADEN: PLANO GENERAL II (P.2)
ENTORNO DE PROTECCIÓN
OBJETO DE DECLARACIÓN
SITUACIÓN ALMADÉN (C.R)
ESCALA S/E


DENOMINACIÓN
CONJUNTO HISTÓRICO - MINERO DE ALMADEN: MINA (P.3)
ENTORNO DE PROTECCIÓN
OBJETO DE DECLARACIÓN
SITUACIÓN ALMADÉN (C.R)
ESCALA S/E


DENOMINACIÓN
CONJUNTO HISTÓRICO - MINERO DE ALMADEN: CAMINO DEL MERCURIO (P.4)
ENTORNO DE PROTECCIÓN
OBJETO DE DECLARACIÓN
SITUACIÓN ALMADÉN (C.R)
ESCALA S/E

En consecuencia, esta Delegación Provincial de Industria, Energía y Medio Ambiente, por delegación de competencias (Resolución de 25-04-2007, de la Dirección General de Evaluación Ambiental) y en el ejercicio de las atribuciones conferidas en el Decreto 143/2008, de 9 de septiembre, por el que se establece la estructura orgánica y las competencias de los distintos órganos de la Consejería de Industria, Energía y Medio Ambiente y la Ley 4/2007 de Evaluación Ambiental de Castilla-La Mancha, resuelve que no es necesario someter el proyecto: "Explotación de ganadería en extensivo" en el término municipal de Buenache de la Sierra (Cuenca), a un procedimiento reglado de Evaluación de Impacto Ambiental.

Se recuerda que esta resolución de no sometimiento caducará con carácter general y como máximo a los tres años, si no se hubiera comenzado su ejecución.

Lo que se publica en cumplimiento de lo dispuesto en el artículo 60 de la Ley 30/92, de 26 de noviembre, de LRJPAC, con los efectos previstos en dicha ley.

Cuenca, 17 de noviembre de 2008

El Delegado Provincial
ENRIQUE HERNÁNDEZ VALERO.

* * * * * * *

Consejería de Cultura, Turismo y Artesanía

Acuerdo de 25-11-2008, de Consejo de Gobierno, por el que se declara Bien de Interés Cultural, el Conjunto Histórico Minero de Almadén (Ciudad Real).

Culminada la tramitación del expediente para la declaración de Bien de Interés Cultural del Conjunto Histórico Minero de Almadén (Ciudad Real), conforme a las prescripciones establecidas por la normativa vigente sobre Patrimonio Histórico, la Consejería de Cultura, Turismo y Artesanía considera, vistas las alegaciones, los informes y datos técnicos pertinentes, que el mencionado bien reúne los valores históricos necesarios para gozar de la protección que la legislación vigente dispensa a los Bienes de Interés Cultural; por lo que entiende procedente su declaración como tal, con la categoría de Conjunto Histórico.

En consecuencia, y de acuerdo con lo establecido en el artículo 9 apartado 2 de la Ley 16/1985, de 25 de junio, del Patrimonio Histórico Español (interpretado conforme a la Sentencia 17/1991, de 31 de enero, del Tribunal Constitucional), con el artículo 11.2 del Real Decreto 111/1986, de 10 de enero, de desarrollo reglamentario de la citada Ley (en la redacción dada a dicho precepto por el también Real Decreto 64/1994, de 21 de enero) y con los artículos 6 y 10 de la Ley 4/1990, de 30 de mayo, del Patrimonio Histórico de Castilla-La Mancha, a propuesta de la Consejera de Cultura, Turismo y Artesanía y previa deliberación en su reunión del día 25 de noviembre de 2008, y en uso de las competencias atribuidas, el Consejo de Gobierno acuerda:

Primero.- Declarar Bien de Interés Cultural, el Conjunto Histórico Minero de Almadén (Ciudad Real), cuya descripción y entorno afectado por la presente declaración, figuran como anexo al presente Acuerdo.

Segundo.- Proceder a la publicación del presente acuerdo en el Diario Oficial de Castilla-La Mancha y comunicar la misma al Ministerio de Cultura a efectos de su inscripción en el Registro General de Bienes de Interés Cultural.

Contra este acuerdo, que pone fin a la vía administrativa, cabe interponer, en el plazo de dos meses, a contar desde el día siguiente al de la publicación, recurso contencioso-administrativo ante el Tribunal Superior de Justicia de la Comunidad de Castilla-La Mancha, conforme a lo dispuesto en los artículos 10 y 46 de la Ley 29/1998, de 13 de julio, Reguladora de la Jurisdicción Contencioso-Administrativa. Asimismo, cabe interponer potestativamente recurso de reposición en vía administrativa, según establecen los artículos 116 y 117 de la Ley 30/1992, de 26 de noviembre, de Régimen Jurídico de las Administraciones Públicas y del Procedimiento Administrativo Común.

Toledo, 25 de noviembre de 2008

El Secretario del Consejo de Gobierno
JOSÉ VALVERDE SERRANO

Anexo

Descripción

Mina de Almadén.-

La zona propuesta para su protección consta de dos partes diferenciadas: "Objeto de BIC" y "Entorno de BIC".

El "Objeto" comprende un espacio vinculado a la Mina de Almadén o Mina Vieja, situada al O del núcleo urbano de Almadén, en concreto el espacio definido por el Cerco de Buitrones, el Cerco de San Teodoro, las escombreras y varios lugares cercanos en los que existen un yacimiento arqueológico vinculado a la mina (al NO del cerco minero) o un inmueble destacado vinculado a la mina (al SE del cerco minero). Ocupa una superficie de 39,813 ha. Incluye, en primer lugar, como elementos patrimoniales que justifican la creación del ámbito, el extraordinario conjunto patrimonial industrial de épocas medieval, moderna y contemporánea que constituye la Mina de Almadén y sus elementos, algunos de los cuales se encuentran individualizados por contar con la condición de Bien de Interés Cultural, que proponemos para el conjunto; en segunda instancia, un yacimiento arqueológico de cronología medieval, moderna y contemporánea vinculado a la mina; y en última instancia se ha querido incluir otro elemento inmueble moderno y contemporáneo (ermita) de notable entidad, situado en un entorno susceptible de albergar restos arqueológicos de otros inmuebles históricos interesantes desaparecidos. La existencia de estos elementos patrimoniales se encuentra en relación directa con la existencia en el subsuelo de este espacio del mayor yacimiento de mercurio del planeta, y con la creación de la Mina de Almadén y de toda la infraestructura asociada


MAYOR
CORTAZAR
CASTILLO
SUBIDA
SAN
DENOMINACIÓN
CONJUNTO HISTÓRICO - MINERO DE ALMADEN: ACADEMIA DE MINAS (P.6)
ENTORNO DE PROTECCIÓN
OBJETO DE DECLARACIÓN
SITUACIÓN ALMADÉN (C.R)
ESCALA S/E


MAYOR
CONTAZAR
CALLE
CASTILLO
SAN ROQUE
CORDOBA
SUBIDA CASTILLO
SUBIDA
PLAZA DE ESCOSURA
CASTILLO PONIENTE - LEVANTE
MARTIN SANCHEZ
CALLE GUILLERMO
CALLE SAUCO
TORNO
CASTRO
DENOMINACION
CONJUNTO HISTORICO - MINERO DE ALMADEN: CASTILLO DE RETAMAR (P.7)
ENTORNO DE PROTECCIÓN
OBJETO DE DECLARACIÓN
SITUACIÓN ALMADEN (C.R)
ESCALA S/E


DENOMINACIÓN
CONJUNTO HISTÓRICO - MINERO DE ALMADEN: HOSPITAL DE SAN RAFAEL (P.8)
ENTORNO DE PROTECCION
OBJETO DE DECLARACIÓN
SITUACIÓN ALMADÉN (C.R)
ESCALA S/E



DENOMINACIÓN

CONJUNTO HISTÓRICO - MINERO DE ALMADEN: PLAZA DE TOROS (P.9)

ENTORNO DE PROTECCIÓN

OBJETO DE DECLARACIÓN

SITUACIÓN ALMADÉN (C.R) ESCALA S/E


BADAJOZ
SEVILLA
CALLE
CALLE
PLAZA
CALLE
SAN
CALLE
CALLE
CALLE
CALLE
PLAZA
DENOMINACIÓN
CONJUNTO HISTÓRICO - MINERO DE ALMADEN: CARCEL DE FORZADOS (P 10)
ENTORNO DE PROTECCIÓN
OBJETO DE DECLARACIÓN
SITUACIÓN ALMADÉN (C.R)
ESCALA
S/E

THE FOLLOWING ARE THE SPECIFIC CONTENTS OF THE GENERAL MUNICIPAL PLANNING (POM) AND THE SPECIAL PROTECTING PLAN (PECHA) WHICH ARE BEING DEVELOPED IN ALMADEN BY ITS TOWN COUNCIL (D AND E):

D.- General Municipal Land Regulations Plan (POM). Summary.

URBANATURA TECHNICAL – LEGAL TEAM (WRITER): REPORT ON MUNICIPAL LAND REGULATIONS PLAN**.-** Contract for the provision of assistance and advisory services to local entities in the Province of Ciudad Real. TECHNICAL ASSISTANCE.- *Advisory service*.- Provincial Government Council of Ciudad Real.- 2007

1. CONTENT OF THE MUNICIPAL LAND REGULATIONS PLAN (P.O.M.)

The purpose of the Municipal Land Regulations Plan (POM) is to define urban planning regulations for the entire extension of the municipality and organise management of implementation of the plan.

To be specific and considering the case at hand, the POM (Municipal Land Regulations Plan) shall establish, among others, the urban planning decisions regarding the detailed classification of specific areas of the urban unit, with the objective of restructuring its consolidation, without detriment to the possibility of deferring them to Special Internal Rehabilitation Plans (PERI).

The content of POM (Municipal Land Regulations Plan) shall be expressed in the following documents:

- Report containing information and justification.
- Information Plans.
- Urban Planning Regulations and planning, development and management records.
- Catalogue of Protected Property and Spaces and Catalogue of public residential land.
- Land Regulations Plans.

Among other aspects, the POM (Municipal Land Regulations Plan) should analyse the existing landscape and ecological values, the urban and historic-artistic ensembles in existence, the socio-economic characteristics of the population of the municipality and foreseeable trends in its demographic evolution.

On the basis of the analytical-informative content in which the above aspects are included, the territorial model to be implemented shall be described and reasoned out.

Based on the body of legislation comprised of the Act on Territorial Land Regulations and Urban Planning Activity for Castilla – La Mancha (Act 1/2003 of 17th January), the LOTAU (Territorial Land Regulations and Urban Activity Act) and its Planning Regulations (RP), the criteria of the urban planning regulations, the elements of the territorial model or solution proposed by the POM (Municipal Land Regulations Plan) which the new land regulations follow, including the new growths, should justify the coherence of its integration in the existing territorial structure of which the historic quarter is a fundamental part.

Among the most interesting documents from the point of view of conserving the Historic Quarter of Almadén is the Catalogue of Protected Property and Spaces (CAT), which will formalise the public policies of conservation, rehabilitation or protection of the real estate property and spaces considered to be of relevant value because of their artistic, historic, palaeontological, archaeological, ethnological, architectonic or botanic interest, and those that are conceived to be decisive or integrated in a characteristic or traditional atmosphere, or representative of the common cultural tradition or for reasons related to landscape or nature.

Although the Municipal Land Regulations Plan includes the relevant CAT, the may be approved on an independent basis or as part of Special Plans.

REPORT ON MUNICIPAL LAND REGULATIONS PLAN

The purpose of the CAT is to describe the state of conservation of the property that are included and the measures for protection, preservation and maintenance. It is the team of writers that defines the content

of the CAT, in which at least the following rules from article 67 of the Planning Regulations (RP) must be followed:

"a) The possibility of installing commercial signs or similar should be restricted for all catalogued elements and partial rehabilitation work on ground floors should be limited; the latter according to the terms that are necessary in order to preserve the image of the properties and ensure that they remain coherent.

b) Unless there is a provision to the contrary in the planning or in the actual Catalogue, it shall be understood that protection is extended to the entire plot on which the catalogued element is located.

c) In the event of the disappearance of catalogued constructions or buildings, the disassociation from the regime derived from the land cataloguing that has been used in support shall require modification of the relevant CAT.

The CAT shall establish the decisions on preservation of property included in accordance with the following levels of protection, according to article 68 of the Planning Regulations (RP):

- Comprehensive protection level: which shall integrate buildings in which architectonic or constructive characteristics should be preserved.
- Partial protection level: which shall include the constructions and premises in which the elements that define the architectonic or spatial structure should be preserved and those of intrinsic value.
- Environmental protection level: which shall be extended to those buildings or ensembles that contribute towards defining an environment that is worthy of protection because of its beauty or traditional character.

The catalogue shall also establish the type of works that may be authorised on the buildings and the regime of uses according to the protection level to which they are assigned in accordance with the guidelines defined by the actual Planning Regulations (RP).

The POM (Municipal Land Regulations Plan) shall use the catalogue to delimit the historic nucleus as a differentiated zone, so that the urban planning land regulations may not allow for indiscriminate replacement of buildings and that they may demand that conservation, implementation, rehabilitation or renovation should be carried out in harmony with the historic typology.

The CAT shall consist of the following documents:

- Report containing information and justification
- Complementary studies
- Information plans
- Individual record
- Location map
- Regulations

2. PROCEDURE FOR APPROVAL OF THE GENERAL PLAN

The procedure for filing and approval of the POMs is expressly regulated in arts. 36 and 37 of the TRLOTAU (Territorial Land Regulations and Urban Planning Act) and described by the content of arts. 40 to 49 of the Planning Regulations.

The current TRLOTAU (Act on Territorial Land Regulations and Urban Planning Activity for Castilla–La Mancha) regulation has omitted the so-called preparatory acts for the Plan, as well as the public exhibition of this preparatory work. However, the importance of these initiatives means that it is necessary for the Town Councils to comply with this formality, despite not being required by the LOTAU (Territorial Land Regulations and Urban Planning Activity Act).

To summarise the procedure for filing an POM, it should be explained that these Plans are drawn up and promoted by the respective Municipalities, including consultations to other administrations (in accordance with expectations on inter-administrative charters).

Art. 36 of the TRLOTAU (Act on Territorial Land Regulations and Urban Planning Activity for Castilla-La Mancha), in a similar content to art. 132 of the Planning Regulations, provides as follows:
"During the technical writing of the plans, the Administration promoting same shall engage in consultations with other Administrations or entities that represent citizen groups that are particularly affected, reflecting the results in the document that is drawn up. In the case of Municipal Land Regulation Plans, it shall be mandatory in preparing the inter-administrative charter to engage in consultations with the adjoining Municipalities, with the Administrations whose competencies and public properties are affected and, particularly, when the state of instruction allows to identify its basic and structural definitions, with the Department that is competent in the area of territorial and urban planning land regulations in order to define a municipal territorial model that is suited to the supra-municipal content and where applicable, with the Territorial Land Regulations in force.."

Interested entities and bodies may formulate and forward advance proposals to the Municipalities and the Department that is competent in matters of urban planning in order that they may be used as a guideline in writing the plans.
Approval of the advances shall only have the internal administrative effects of preparing the writing or formulation of the relevant urban planning land regulations instrument by the competent body. However, these advances are used when preparing the administrative charter referred to in art. 36 of LOTAU (Territorial Land Regulations and Urban Planning Activity Act).

1.- Technical writing of the POM (Municipal Land Regulations Plan).

The consultations and initiatives that are aimed at preparing the inter-administrative charter referred to in this art. 36 of the TRLOTAU (Act on Territorial Land Regulations and Urban Planning Activity for Castilla-La Mancha), shall be reflected in the dossier by means of the incorporation of the following documents:

- The advance proposal and partial draft projects that have been used in writing the document.
- The suggestions and request letters presented by the various interested parties.
- The reports that have been issued or, in the absence of the latter, the applications made to the said administrations or entities in order that they might issue same.

If any, the minutes of meetings held to deliberate on the Plan while it is being drawn up and the certificate of the agreements and decisions issued by the various bodies.

2.- Public Information.

A timeframe for public information on the text and the reports issued by other bodies and adjoining Municipalities is subsequently opened.

The public information period must last at least one month after the mandatory notice is published in the Official Gazette of Castilla-La Mancha and in one of the most widely-read newspapers in the latter region. During this period, the draft of the plan that has been written must be left for public consultation in the premises of the Municipality or Municipalities affected by the land regulations to be established, which shall be named in the published notice.

The timeframe for public information on the plans shall commence the day after the aforementioned notice is published.

The Department that is competent in the area of territorial land regulations and urban planning shall, within one month of presentation of the charter document, issue a report in which it shall issue its verdict on the territorial model defined in the presented document and on the convenience or otherwise of considering the charter stage to be over.

Reports must also be requested on a simultaneous basis from the various competent Departments and bodies in the Administrations that are required by the legislation regulating their respective competences, unless inter-administrative agreements have been reached in advance. The same is true of the reports that are established in other laws, such as those referring to Roads, Artistic Heritage and Water.

The Planning Regulation establishes the obligation to request the report from the Department of Public Works if the plan is liable to affect water supply and sanitation, as well as from the Department of Social Welfare regarding accessibility and the Department that is competent in the area of territorial land regulations and urban planning.

A verdict is also required of the Municipalities that are adjoining to the one promoting the plan in such cases as are described in the regulations, unless an agreement on the content of the land regulations to be established has been reached with them in advance.

3.- Approval by the Plenary Session of the Town Council or competent body in the promoting Administration.

The next step is approval by the Plenary Session of the Town Council or competent body in the promoting Administration, thus ending the procedure followed before the Town Council.

It shall then be forwarded to the Department that is competent in territorial land regulation and urban planning issues in an application for definitive approval.

4.- Consultation and analysis stage.

After this formality, the Department commences and period of consultation and analysis of the Plan with the affected administrations, at the conclusion of which the Department proceeds to total or partial definitive approval (with corrections), suspension or refusal of the Plan.

In this regard, it should be noted that after forty days have elapsed since the application for definitive approval, the Administration promoting the Plan may request that it be resolved without further delay if it considers it to be opportune for the consultative period to be concluded on an immediate basis.

If three months elapse without any express resolution on this new application, the Municipality or Administration promoting the Plan may ask the Department to acknowledge and publish the definitive approval.

5.-Dissemination of the Plan.

The agreements to approve the urban planning land regulation plans shall be published in full by the Town Council in the Official Gazette of the Province, which means that they shall produce binding effects and all the other consequences established in art. 157 of the Planning Regulations (RP).

In the interest of ensuring this dissemination, a full copy of the POM in question, including any amendments and updates, shall be forwarded to the Town Council and to the Department that is competent in matters of territorial land regulations and urban planning.

E.- Special Protecting Plan (PECHA)

CONTENTS

1. INFORMATIVE MEMORANDUM

1.1 Name
1.2 Purpose
1.3 Delimitation
1.4 Documentation
1.5. Geological and topographical characteristics
1.6. Climatic and hydrological characteristics
1.7. Land use, ownership structure and existing buildings
1.8. Conditions deriving from the regulations contained in the Subsidiary Rules

2. JUSTIFYING MEMORANDUM

2.1 General provisions for the protection of the historic town centre
2.2 Justification of the solution adopted
2.3 Situation of buildings and building land
2.4 Protection regime
2.5 Types of intervention in buildings
2.6 Conservation determinations for assets depending on their level of protection:
2.7 Permits for repair works, building works and installation works

3. REGULATIONS

3.1 Conditions and definitions
3.2 Conditions of the plot
3.3 Conditions for placement on the plot
3.4 Conditions for occupation of the plot
3.5 Conditions for building capacity
3.6 Conditions regarding volume and shape
3.7 Hygienic and health constraints
3.8 Conditions for use
3.9 Aesthetic conditions
3.10 Non-regulated works

4. LIST OF PLANS

COMMISSION

The present document responds to the commission made by the MOST EXCELLENT PROVINCIAL COUNCIL OF CIUDAD REAL on the basis of the "CONTRACT FOR THE PROVISION OF TECHNICAL ASSISTANCE AND CONSULTANCY SERVICES FOR LOCAL GOVERNMENT AGENCIES IN THE PROVINCE OF CIUDAD REAL"

The TOWN COUNCIL OF ALMADÉN requested technical assistance from the Most Excellent Provincial Council for the drafting of a new version of its current general town planning instrument. URBANATURA has travelled to the town to collect information, hold meetings with the municipal government team and its technical services and to carry out the appropriate field work visits, as well as contacts with other Administrations.
The present commission comprises the drafting of the SPECIAL PLAN FOR THE HISTORIC TOWN CENTRE OF ALMADÉN (PECHA in its Spanish acronym).

TEAM OF AUTHORS

Town Planning Department

TECHNICAL SUPERVISION

Ricardo Moraleda Novo	Architect

TECHNICIAN

María Castro Fernández	Architect

DRAUGHTSMEN

Mercedes García Sánchez	Draughting
Godofredo Díaz Moreno	Draughting
Demetrio Prado Martín	Draughting

Legal Department

LEGAL SUPERVISION

Rafael Ayala González	Lawyer. Technician in Town Planning – INAP

LAWYERS

Rodrigo Caballero Veganzones	Lawyer. Specialist in Town Planning

Environment Department

TECHNICAL SUPERVISION

Rafael Ubaldo Gosalvez Rey	Geographer

TECHNICIANS

Teresa Martínez Romero	Graduate in Environmental Sciences
Rodrigo Moraleda Novo	Techical Engineer in Agriculture
Adoración Trujillo Ciudad-Real	Sociologist

CLERICAL, COMPUTING AND ACCOUNTING DEPARTMENT

Vanesa Novalbos Lara	Computing Applications and Clerical Services

1. Informative memorandum

1.1 Name
Historic town centre.

1.2 Purpose
The present PECHA is intended to regulate the recovery and rehabilitation operations, as well as the social and economic revitalisation of the architectural and urban heritage contained within the historic town centre.

1.3 Delimitation
The scope of the PECHA comprises the buildings and amenities located within the historic area, defined by the blocks and buildings included within the following limits and shown on the graphic documentation attached:
North: the northern limit of the urban area and the Avenida de San Juan to the Calle Córdoba
South: the northern limit of the mining palisade, the Calle Torrecilla and the Calle Mineros streets
East: the Calle Jacinto Benavente street, the Plaza de la Constitución square and the Calle Cordoba street.
West: Calle de San Sebastián street.

1.4 Documentation
The PECHA comprises the following documentation:

1. Informative memorandum
2. Justifying memorandum
3. Municipal regulations
4. Informative plans
5. Organisational plans
6. Catalogue of protected properties

1.5. Geological and topographical characteristics
The territory under study is located in the natural district of Alcudia valley and the Sierra Madrona mountains, and it is characterized from a geological standpoint by the dominance of the oldest materials present in the province of Ciudad Real. Specifically, there are materials from the Archaic Period, shales and graywackes from the pre-Cambrian period, and stone types corresponding to the Primary or Palaeozoic Era, mainly quartzites, slates and sandstones from the Ordovician, Silurian and Devonian periods, as well as sedimentary volcanic deposits (Lower and Upper Devonian).
The first are allocated to the south of the urban area of Almadén, specifically in the valley of the River Valdeazogues, giving rise to low hills and gullies, characterized by a low level of compression, scant permeability (deficient drainage due to infiltration and an acceptable level of run-off) and a negligible degree of expansion, although there are slopes at risk of landslide in favour of the tectonization directions.
The Palaeozoic materials, on the other hand, are found in the town itself, both to the south and to the north, giving rise to more marked forms of relief (mountains and hills), occasionally covered by accumulations of blocks of the Perry glazier origin (Pleistocene and Apollo seen Tories). In general these stone types are characterized by a low level of permeability and compression, and a negligible degree of expansion, although there are risks of landslide, in this case, in favour of the slate planes.
From a geomorphological point of view, the dominant morphostructures correspond to the Almadén-Chillon syncline (to the north of the town) and the western extension of the anticline in the valley of Alcudia (to the south of the town of Almadén).
It is surrounded by the Sierra de Osa, Calanizos, Duranes, Cerrata, Alcudia and Hoyuelas mountains. To the north are the hills of Cerro del Ciervo and the grazing lands of Almadén Common. The high areas of Lobera and Confieso are outstanding for their stark relief running from the west-northwest down to the east-southeast. Puerto Grande is found in the centre of the municipality.
The town centre is located to the north of the mountains, specifically at the foot of the hill it is mainly it stands mainly on May small one long hill running east to west; as a result of this really is abrupt relief part of the roadways in the town have steep slopes.

1.6. Climatic and hydrological characteristics

Temperate Mediterranean climate with mild winters. Mean annual rainfall is 400 to 600 mm. Mean temperatures from 6º to 8ºC in winter (extremes of -2º) and from 20º to 30º in summer (extremes of 40ºC). Dominant winds from the southwest.

The River Valdeazogues runs from east to west through the municipality and meets it tributary, the Alcudia river before flowing into the Guadalmez, as well as the streams Los Álamos and Gargantiel. The territory of the municipality contains the Castilseras reservoir above the river Valdeazogues, the works for which were concluded in 1983, with a volume of five cubic hectometres and a surface area of 97 Ha. The reservoir belongs to the Minas de Almadén y Arrayanes, S.A. company and its waters are used for irrigation purposes. Water levels in the river depend on the climate, therefore there is a long period of water shortage from the end of May until the middle of October. In this period, the rivers have an intermittent flow, enough to maintain the pools to be found along the main riverbeds.

The aquifers are of no importance as the geological constitution of the terrain prevents the accumulation of groundwater.

To the north of the town centre, we find the small stream of the Arroyo de la Pila, of scant, seasonal importance.

1.7. Land use, ownership structure and existing buildings

Most of the historic town centre is used for residential purposes. This is the oldest part of the city and to the west of it stands the mining palisade, comprising the mercury mine and its associated installations. This is an area of great importance in which a very thorough process of museum creation is being carried out in order to highlight its ethnographic as well as its historic and industrial significance.

The structure of the town centre is constrained by its topography and by the location of the mine. It basically follows a longitudinal growth pattern coinciding with the long east-west hill, with the access and the upper part of the town running from the Plaza de la Constitución in the east to the mine in the west passing through Calle de San Juan street. There are slopes to the north and south on either side of this axis.

In general the buildings have only one or two storeys, or two storeys plus a traditional loft.

The traditional roofing system is a pitched roof with red tiles and the walls are generally whitewashed or painted.

1.8. Conditions deriving from the regulations contained in the Subsidiary Rules

The Subsidiary Rules currently in force were approved by the Provincial Town Planning Commission on December 5th, 1984.

The current planning regulations stipulate that the area of the historic town centre should be subjected to a Special Internal Restructuring Plan (PERI in its Spanish Acronym), pursuant to article 4.3.2 of the Urban Land Regulations.

Article 4.3.2

"Definition of an area to be developed by means of a Special Internal Restructuring Plan, covering practically all of the old town centre with the purpose of resolving the current problems of lack of population, deterioration, pollution and lack of amenities, particularly commercial, recreational and assistance amenities, as well as improvements in the hygienic and sanitary conditions of the existing accommodation.

In this area, the buildings and areas of interest will be catalogued with their protective measures for the conservation of the traditional models. In addition the reorganization of traffic will be studied.

The PERI will seek to resolve the lack of public gardens and parks by means of expropriation or land compensation and swaps. The most important problems stem from both the noise and environmental pollution coming directly from the mine area and its installations, mainly the ventilation shafts from the tunnels that affect the urban area.

The exploitation conditions will be similar to those of the rest of the town area and in accordance with the schedule for building capacity on the different streets, with additional capacity being allowed depending on the requirements of adjacent parks and gardens and protected areas, and also in accordance with the detailed study of the system of compensation to be used and providing that this exploitation does not affect areas of environmental or architectural interest nor negatively affects the image of the town as a whole. As a result, it will be necessary to study in advance the sector or sectors with the potential for this kind of exploitation.

In any case the maximum height authorized by these Regulations will never be exceeded by more than 1 1/2 storeys."

2. Justifying Memorandum

2.1 General provisions for the protection of the historic town centre

2.1.1 Principles and goals of the protection

The protection of the historic town centre of Almadén is to be ensured by means of the definition of its historic area including all of the constructions which, for their traditional and historic values and characteristics, are suitable candidates for the performance of rehabilitation, recovery and revitalisation operations in accordance with the State and Regional Government Regulations that may be applicable, and the provisions contained in the present PECHA. The following organizational guidelines shall be respected in all cases :

- 1. Conservation of the current urban structure and architecture as well as the general characteristics of the surroundings.
- 2. Protection of buildings and areas of interest by means of the preparation of Individual Specification Records which will be grouped together to form the Catalogue of Protected Spaces and Assets.
- 3. It will only be possible to carry out the substitution of properties (including partial substitutions) that are allowed under the present PECHA and which are listed and appropriately described on the corresponding Individual Specification Records, justified on the basis of improvements in the characteristics of the historic area.
- 4. Protection of environmental quality levels. The cessation of all activities in the mine implies the disappearance of all types of pollution risk coming therefrom, therefore environmental and air quality in the historic town centre and in the rest of the town is ensured. There is also no industrial activity in the area that puts at risk the quality of the air in the area.
- 5. Determination of the considerations for applicable usage regulations, in such a way that those uses to be authorized shall be compatible with the demands of the conservation and protection of the area, encouraging the implementation of uses that help to create a dynamic and lively urban structure.
- 6. Establishment of detailed organizational measures in accordance with an analysis of the different types of property co-existing in the area, so that the new buildings and the rehabilitation and conservation works are comprehensively integrated into the historic town centre, thus contributing to the recovery and maintenance of the town's structure.
- 7. The conditions for any exploitation shall be as determined in the PECHA without in any case the total of 10,000 square metres of residential building per hectare being exceeded, as stipulated in article 31.a) of the Redrafted Text of the Urban Planning Act (TR LOTAU).

2.2 Justification of the solution adopted

The delimitation of the scope described and its development by means of the PECHA is intended to protect and recover the buildings and scopes that morphologically must be included within the historic area in accordance with the organizational guidelines stipulated in the preceding section as the same will be developed by means of regulations. Therefore, a well characterized and defined unit is constituted in the centre of the town, including complete blocks within this Special Plan, their limits coinciding with adjacent roadways. The recovery of the values in the historic town centre are intended to alleviate the effects of a declining population in the centre that have led to the gradual abandonment of the area and its buildings, by promoting the recovery of the structures and the economic, social, administrative and cultural activities that will help to revitalise the area and therefore integrate this area within the town centre and turn it once more into its nerve centre.

2.3 Situation of buildings and building land

All of the buildings and building land in the area delimited by the Special Plan are included in one of the following categories:

1. Category 1: Historic Area
All of the buildings and building land in the historic centre are included in one of the following sub-categories which appear in the corresponding individual specification sheet constituting the catalogue of protected spaces and properties:

- Sub-category 1: Building land and with buildings of heritage value (Code VP).
- Sub-category 2: Building land and with buildings without specific values or without buildings (Code SVE).

2. Category 2: Respected Area
All of the buildings and building land in the Respected Area are included in the following sub-category:
Sub-category 2: Building land and with buildings without specific values or without buildings (Code SVE).

2.4 Protection regime

All the buildings and scopes of the two categories and subcategories will be included in one of the following protection regimes and this will be reflected in each individual record:

- Level 1: This ensures the comprehensive protection of the building. This includes monuments, properties and scopes declared to be properties of cultural interest in accordance with specific legislation. (Code PI).
- Level 2: This ensures the partial protection of the building (Code PP).
- Level 3: This ensures the environmental protection of the group. (Code SP).
- No protection (Code SP).

The actions that are to be carried out on buildings and building land will be subject to the determinations established in the protection regime or specific category corresponding to the same. The characteristics, values and protection levels of all buildings, building land and scopes will be reflected in the corresponding Individual Specification Record that will form part of the Catalogue of Protected Spaces and Assets.
In any case, the building conditions stipulated in the regulations of the present PECHA must be respected, insofar as they do not oppose the specific prescriptions of the Individual Specification Records.
The modification of the protection level of a building or scope will be effected at the initiative of the town council which may act ex officio or at the urging of the party responsible for its conservation. Such resolutions shall always be reasoned and shall require in all cases the favourable report of the competent administration for the protection of historic heritage and the corresponding amendment of the Catalogue.

2.5 Types of intervention in buildings

The works to be carried out on buildings or scopes may be in one of the following categories:

- Restoration: these works are intended to return the architectural values of a building or scope or any part thereof to their original status, reproducing with absolute fidelity the load-bearing structure, the architectural structure, the external and internal façades and the ornamental elements. It may include consolidation work or partial demolition.
- Conservation: these interventions are intended to conserve the decorative and health and safety characteristics of the building or scope, maintaining its architectural characteristics: without modifying the structure and spatial distribution and without hiding or altering its constructive or morphological values.
- Consolidation: these works of a structural nature are intended to protect, reinforce or replace damaged elements of the building's load-bearing structure; these works may vary between the literal reproduction of the pre-existing damaged elements and their replacement by other elements affecting solely the stability of the property and carried out with more modern technology.

- **Preparation:** these works are intended to improve the suitability of the building or scope or any part thereof for habitation, by means of the replacement or modernisation of its installations and even the redistribution of its internal space, in all cases maintaining the morphological characteristics.
- **Restructuring:** these works carried out on the structural elements of the building represents alterations in its morphology. They may be partial affecting premises or floors of the building or they may be total when referring to the building as a whole and implying its total internal destruction.
- **Reconstruction:** these are works for the total or partial replacement of a building, reproducing its morphological characteristics.
- **Demolition:** those works entailing the total or partial disappearance of a building.
- **New construction:** those works intended for new buildings on empty building land.
- **Refurbishment:** any kind of work intended for the recovery of architectural and historic values of a building or scope and the improvement of the habitability thereof, adapting them to the needs of modern life and at the same time conserving their elements of cultural interest and avoiding their replacement.

2.6 Conservation determinations for assets depending on their level of protection:

Level 1: PI

The buildings and scopes which must be given comprehensive protection intended to conserve the architectural characteristics or original construction details due to their uniqueness or monumental nature and for reasons of historic and artistic value will be included here.

Assets subject to this level of protection will only be allowed to have the following kinds of works, without prejudice to specific determinations for those assets declared to be Cultural Interest Properties and stipulated in specific legislation:

a) Restoration and conservation works intended for the maintenance of a reinforcement of structural elements, as well as preparation works intended to improve the buildings installations.

b) Demolition of those elements of the work which, because they are additions to the original work, spoil the original architectural unity.

c.) Reconstruction works of the original elements and gaps when this action is for the benefit of the historic and artistic value of the building or scope as a whole.

d) Preparation works when involving adaptation or redistribution of internal space without alteration of the structural characteristics or external elements of the building, providing that it does not impair the values protected nor affect the constructive elements to be conserved.

e) Uses or activities other than those from which the original building was intended may only be implemented if they do not entail any risks for the conservation of the building.

Level 2: PP

This level includes construction or areas which, for their historic or artistic value, must be given protection aimed at the conservation at least of the elements defining their spatial or architectural structure and those presenting intrinsic value.

For assets subject to this level of protection, in addition to the works indicated in the preceding section, the following types of works may also be authorized:

a) Consolidation works in order to maintain the elements defining architectural or spatial structure, such as the hierarchization of the original volumes, main communication elements, façades and other inherent elements in such a way that the works are congruent with the catalogued values.

b) Demolition works for some of the elements referred to in the preceding paragraph when, in addition to not being subject to the specific protection under the Catalogue of Protected Spaces and Assets (CAT), their contribution to the definition of the property as a whole is scant and their conservation presents serious problems of any kind whatsoever for the proper conservation of the property.

c) Uses or activities other than those from which the original building was intended may only be implemented if they do not entail any risks for the conservation of the building.

Level 3: PA
This includes constructions and areas which, although not representing any special value individually or independently, may contribute to defining an environment deserving protection for its beauty, picturesqueness or traditional character.
For assets subject to this level of protection, in addition to the works indicated in the preceding sections, the following types of work may also be authorized:
Partial or total demolition of elements not visible from the roadway (structural and non-structural) concerning and restoring its inherent elements and/or undertaking the replacement of the pre-existing volume in a manner respectful with the context and with the original character of the building.
Demolition of the roof undertaking the works for the replacement of the pre-existing volume or conforming to the stipulations contained in article 3 of the Regulations to the present Special Plan.
Demolition or reform of the façade and elements are visible from the roadway, providing that the authorization, which must be reasoned, is also simultaneously an authorization for the faithful reconstruction, remodelling or alternative construction of the project, with a modern design of greater architectural interest insofar as it contributes to highlighting the elements defining the environment protected.

No protection: SP
On building land and other plots of land without specific value which are included within the scope of the PECHA, interventions of any kind will be allowed subject to the stipulations of article 3 of the Regulations. All works will conform to the building conditions applicable to the plot of land.

2.7 Permits for repair works, building works and installation works

2.7.1 Prior verification
Prior to the presentation of the application for the permit, the interested parties must state before the town council their intention to carry out building works, by means of a brief accompanied by the description of the works and indicating the corresponding intervention category.
The technical services of the town council will verify that they planned building works fit within one of the acceptable intervention categories in accordance with the protection regime applicable to the building, acting as follows:

1. If there is a discrepancy with the classification of the intervention, this will be notified to the interested parties so that the classification may be readjusted.
2. In those cases where the authorities agree with the classification:
    a. In the case of ordinary maintenance works, this will be notified to the interested parties so that they may proceed to apply for the permit.
    b. In the case of other works belonging to other intervention categories, the elements to be protected and the applicable protection regime will be indicated. Once this has been done, the interested parties may apply for the corresponding licence accompanying the documentation referred to in article 2.7.2.

2.7.2 Processing
Applications for permits will be processed and resolved in accordance with the provisions stipulated in the general planning regulations in force and applicable general legislation.

2.7.3 Documentation
Applications for permits referring to any type of work other than ordinary maintenance must be accompanied by the following documentation, in addition to any documentation required in general:

1. Identification of the plot on the corresponding plan.
2. Justification of the conformity of the planned works with the determinations contained in the Individual Specification Record.
3. Comparative drawings showing floors, elevations and cross sections, at a scale of 1/100, of the area affected by the building works in their current state and as planned, and their relation with the adjacent buildings in the case of works carried out within the historic area.
4. Undertaking not to demolish any element of the building without the prior approval of the Town Council for the corresponding project.

The Basic Design and the Execution Plans must justify the integration of the building intended to be built with its environment, depending on the analysis and design criteria specified below.
The technical services department may require with good reason additional documentation for the project if this is considered necessary for its correct interpretation.

3. Regulations

3.1 Conditions and definitions

The buildings within the scope of the PECHA will have to conform to the conditions indicated on the Individual Specification Record for the buildings and land suitable for building, complemented where necessary by those contained in the general town planning of the municipality and by the conditions stipulated in the PECHA approval dossier.
For the purposes of regulation, the terms used below in the conditions shall have the meaning expressed in the general town planning regulations in force. The terms used most frequently are defined below.

3.2 Conditions of the plot

3.2.1 External and internal alignments
External alignments are as set out in the drawings and plans of the present PECHA and define the spaces within the public domain: roadways, streets and squares or any other kind of space destined for use by the general public.
Internal alignments are those which may be established inside the plots in order to separate different parts thereof that are suitable for building from those that are not.
The alignment regime will conform to the existing situation unless otherwise indicated in the Individual Specification Record.

3.3 Conditions for placement on the plot

3.3.1 Offset
This is the distance comprised between the external alignments and the façade line of the building which may be authorized in each case.
In those areas where mandatory offsets are established, it will not be possible to occupy with buildings of any type the terrain comprised between the offset line and public land.

3.3.2 Reference levels
The reference level is the longitudinal profile of the roadways, streets or squares taken, unless otherwise indicated, at the axis of the same. These will be defined in the organizational plans of the present PECHA.

3.3.3 Plot suitable for building
This is a plot which has the required dimensions of surface area, frontage, depth and any other condition required in order to bear a building. This will have to be included within the area defined by the official alignments.
In urban land areas, plots are suitable for building if they are considered as building land.
For these purposes building land will be considered to be urban land suitable for building which complies with the following requirements.:

- Pedestrian and vehicle access on such conditions as to allow, at least, the movement of motor vehicles if feasible, in view of the conditions of the historic town centre, including road surfaces, pavement definition and public lighting on all roads surrounding the plot.
- Supply of drinking water and electricity with sufficient flow and power for the planned building or installation.
- Removal of waste water to the sewage network.
- Indications of alignments and reference levels.

3.3.4 Façades
For the purposes of the present regulations, these are the building planes defining the side or sides of the plot coinciding with the external or internal alignments.

3.3 .5 Grouping of plots
Exceptionally, permission shall be granted for individual actions affecting more than one plot when at least one of these has a façade frontage of less than 5 metres or a plot surface area of less than 100 square metres and it is necessary for the building plans to reflect the foregoing reality of the plot on the basis of the structural or composition elements. The width of the façade served by a single doorway shall be limited to one and a half times the mean width of the façades in the stretch of street were the main façade of the planned building is to be located, comprised between perpendicular streets.

3.4 Conditions for occupation of the plot

3.4.1 Occupation of the plot
This is the surface area comprised between the perimeter formed by the vertical projection of the external lines of all construction on the horizontal plane of the terrain.

3.5 Conditions for building capacity

3.5.1 Surface area built
The surface area built per floor is that comprised between the external limits of the planes of the façades on each floor.
For the purposes of the calculation of the surface area built per floor, passageways giving access to free space and internal courtyards that are not covered shall be excluded.
Basements and semi-basements shall not be considered as surface area built.
The surface area under the roof shall in all cases be included, regardless of the use for which the same is intended, in order to determine the total acceptable building capacity.
The formation of independent attics under the roof for residential use, separate from those immediately underneath them, is prohibited.
Terraces, drying areas, overhanging elements and porches shall be included in the total surface area regardless of whether or not they are covered and regardless of their position with respect to the façade.
The total surface area built is the sum of all the surface areas built on each of the floors comprised in the building.

3.5.2 Potential surface area built
This is the amount of surface area built that may be constructed on a plot or area of land suitable for building. This is determined by the planning instruments through one or other of the following methods:
a) By means of the building capacity coefficient.
b) By the determination of the dimensions of the floor and the maximum number of floors.

3.6 Conditions regarding volume and shape

3.6.1 Potential building volume
The maximum potential building volume shall be the result of applying the surface parameters indicated on the Individual Specification Record for buildings and building land, as well as those reflected on the alignment, volume and reference level plan, complemented where necessary by the organization of the spaces under the roof.

3.6.2 Maximum height

For the measurement of heights, two types of measurement unit shall be established:

- Measurement of the height by number of floors. This will indicate the number of floors above ground level and the reference level including the ground floor.
- Measurement of the height by metric units of length or the vertical distance from the building top to the reference level.

The height measured in metric units is the distance from the reference level to one of the following elements:

The intersection of the lower face of the floor slab forming the roof of the top floor with the façade of the building. This is referred to as the cornice height.

3.6.3 Determination of the height

The determination of the reference level or ground level for the measurement of the height will be different, depending on the following:

- In the case of buildings with a façade frontage equal to or less than fourteen (14) metres, the height will always be measured at the mid-point of the façade plane or planes.
- In the case of buildings with a façade frontage of more than fourteen (14) metres, they will be divided into the necessary stretches of at least 10 metres in length starting from the lowest point, and the building may be staggered. At no point may the eight exceed the amount stipulated by more than one (1) metre, except in the case of conservation, rehabilitation or restructuring works where there has already been a greater difference in height with regard to the existing building.
- In the case of building land with a difference in height between external and internal alignments, the application of the height will be referenced to the theoretical contact surface, defined by the reference levels. Starting from the same, the building must be staggered in such a way that, in the first ten (10) metres of depth, the height will be measured on the external reference level; after 10 metres the reference height will be calculated again with reference to the contact surface. The vertical originating due to a difference in height will be considered as a façade.
- In no case may the maximum potential building capacity authorized be exceeded. In existing buildings where the number of floors exceeds the number defined in the corresponding plan and the Individual Specification Record, these shall not be considered as non-regulated except where this is expressly indicated; however, in cases of collapse, regard must be had to the provisions of the present PERI.

3.6.4 Floor height

This is defined as the vertical distance between the upper faces of two consecutive slabs.

3.6.5 Free floor height

This is defined as the vertical distance between the two horizontal elements delimiting the floor.

3.6.6 Floor

A floor is considered to be all roofed accessible surface areas able to be prepared for the exercise of any activity therein.

The following types of floor are stipulated depending on their position in the building:

- **Basement**: a basement floor is deemed to be that in which more than 50 per cent of the surface area has its roof level below the reference level of the road giving access to the building.
- **Semi-basement:** a semi-basement floor is understood to be that in which more than fifty per cent (50%) of the surface area built has its floor level below the reference level of the road giving access to the building and its ceiling level above the same. If the upper face or the ceiling slab is located more than one hundred and twenty (120) centimetres from the reference level of the access route, then this floor will be considered for all purposes to be above ground level.
- **Ground floor:** this is a floor on which more than fifty per cent (50%) of the surface area coincides with the reference level or does not exceed by more than one hundred and twenty (120) centimetres the reference level of the route for accessing the building. The minimum free height shall be two hundred and seventy (270) centimetres and the maximum shall not exceed three hundred and fifty (350) centimetres. Exceptionally, in the case of amenities buildings, higher heights may be authorized on the ground floor, following the corresponding justification.

- **Standard floor:** this is the floor located above the ceiling slab of the ground floor. The minimum free height shall be two hundred and fifty (250) centimetres.

In the case of rehabilitation or restructuring works of catalogued buildings, the provisions of the foregoing paragraphs shall not be applicable.

- **Loft**: this is the floor located between the upper faces of this ceiling slab of the last standard floor and the lower face of the gables.

3.6.7 Use of roof space

The use of the roof space for the characteristic uses of the building and installations of all types is allowed, providing that this is not specifically prohibited in the individual specification record. The use of the rooftop space, if allowed, shall be limited by the following parameters:

By the conditions stipulated in an individual specification record.

Exceptionally, small terraces may be included, following technical and typological justification, with a surface area of no more than 10%.

Slopes will be angled towards the property itself or into public spaces and always by means of appropriate water collection and internal piping systems.

The maximum height of the roof will be 4 m, unless expressed otherwise on the individual record, or in the special specific conditions for each building.

The planes of the roof will start directly on top of the top slab, with a maximum angle of 25% from the horizontal plane. Exceptionally, steeper slopes may be authorized in order to resolve specific problems.

The sections of the roof will be interconnected at a single point or peak running always with the same slope. Changes of slope are prohibited on the gables, unless otherwise provided in the corresponding individual record.

The incorporation of extraneous material and all rooftop openings and mansards visible from an external perspective, whether near or far, is prohibited.

3.6.8 Use of basements and semi-basements

The use of basement and semi-basement is allowed, provided that this is not expressly prohibited in the individual specification record, for non-residential uses in accordance with the terms stipulated in the applicable safety regulations and such use may not be authorized independently of the uses of the ground floor or upper floors, except for parking areas when this is allowed.

3.6.9 Courtyards

Courtyards are the free spaces located between the internal alignments of the plots.

When there are no protected buildings, courtyard or gardens on the plot, building may take place on the whole of the plot at the basement level, providing that the individual specification record so allows and in such a way that the upper face of the ceiling slab of the basement is accessible with a hard or soft finishing, including soil with a minimum thickness of eighty (80) centimetres for gardening purposes.

On the ground floor, a maximum occupation of 25% of the area free of buildings will be allowed for ancillary constructions, garages and storage space up to a maximum of 50 m2.

In those cases where a larger part of the surface area of the plot is already occupied with such complementary buildings, such occupation will be respected unless otherwise indicated in the individual record.

For new constructions or in the case of restructuring existing buildings, whenever feasible without damaging the values of the building, the courtyards on the plot shall be distributed in such a way as to have a diameter of at least four (4) metres.

3.6.10 Yard houses

Yard houses correspond to a traditional type of residence in La Mancha and when these are being refurbished or preserved, they will not be considered to be in disconformity with the planning regulations if they do not conform to any of the regulations contained in the present special plan. However, any works carried out therein must respect the alignments existing on the ground floor and on the standard floors or in any case restore prior situations with a greater yard surface.

3.6.11 Inner courtyard
For new constructions or in the case of restructuring existing buildings, whenever feasible without damaging the values of the building, the inner courtyards shall be distributed in such a way as to have a diameter of at least four (4) metres.

3.6.12 Overhangs
Overhangs shall be defined as all those elements and volumes which may be occupied or inhabited and which exceed the line of the building's façade, such as balconies, belvederes or in general, any overhanging volume, that is to say without any sustaining element under it.

3.6.13 Complementary buildings
These are ancillary buildings added to the main volume and built for complementary uses (garages or similar). Unless prohibited, their use as family and craft workshops, social and cultural uses or a garage is authorized.

3.6.14 Closing of the plot
Building elements used to define and close properties.

3.6.15 party walls
It will be mandatory to treat all party walls which may arise by excess or defect of the inherent action in accordance with the following criteria:
When the party wall which is visible belongs to the property, it will be treated in the same way as the external façade of the building.
If the part of the party wall which becomes visible is part of the neighbouring building, the developer of the construction work will provide a treatment similar to the pre-existing part on the part uncovered; if the party wall is manifestly impaired, then the party developing the building works is obliged to upgrade the same to conditions which are analogous in quality to the work being carried out.

3.6.16 Pre-existing elements
These are elements or groups of elements in the same physical, natural and artificial setting, constituting together a historic landscape, the tangible trace of the "genius loci", determining the formal, functional and structural characteristics of the territory. These form part of the historic and cultural legacy available from the past.

3.6.17 Types of building
In this case the basic construction model is defined as that used to contain the possibilities for uses foreseen in the present regulations.
The buildings to which the present models may give rise are based on the existing types in the historic town centre of Almadén, as well as those which have already passed through the filter of experience in the use of new technologies and modern design contributions. Building types shall be defined by the following detailed organization parameters:
Those defined in the corresponding individual records for the plots, namely:
- -Arrangement of the building in connection with the plot on which it is located.
- -Number of floors
- -Cornice height
- -Minimum façade
- -Extent of plot occupied
- -Standard floor.

Those indicated in the heading for necessary works if appropriate and in the comments.
Other parameters defining the model or models in existence and proposed
External parameters
- -External walls of the building
- -Gaps
- -Overhanging elements

- External joinery
- Roofing
- Courtyards on the plot
- Pre-existing building elements
- Plot limitations

Internal parameters
- Height of floor
- Accesses
- Stairways
- Interior courtyards

3.7 Hygienic and health constraints

The hygienic and health constraints for new buildings and for extensions to catalogued buildings shall be as stipulated in the Technical Building Code (CTE) and its Basic Document on Health and Safety (HS).

3.8 Conditions for use

Existing uses may be maintained in their current location, except for those which are incompatible with the specifications given in the PECHA; in those cases where the current activity ceases to exist, the provisions of the present Special Plan shall be applied to the property in question.
In the case of properties which have been declared Cultural Interest Assets, any change of use must be authorized by the competent authority for the protection of Historic Heritage.
When the main use is accompanied by other uses, each of these must comply with the specific provisions applicable thereto.
The uses established in the present PECHA are as follows:

3.8.1 Residential (R)
- Category 1: Single Family Residence (Code RU)
- Category 2: Multi-family Residence (Code RP)
- Category 3: Community residence (Code RC)
- Category 4: Any of the above with public protection.

3.8.2 Industrial (I)
- Category 1: family or craft workshop compatible with accommodation in the same building
- Category 2: craft activities compatible with accommodation in an adjacent building.

3.8.3 Commercial services (TC)
- Category 1: commercial premises on the ground floor and in the basement and semi-basement compatible with the use of the building for accommodation (Code T-C1).
- Category 2: building devoted to commercial activities exclusively or occupying more than 60% of the total of the surface area built (Code T-C2).

3.8.4 Office services (TO)
- Category 1: general and professional offices adjacent to the owners' homes or on ground floors, upper floors or attics of buildings, without reaching 60% of the total of the surface area built therein (Code T-O1).
- Category 2: offices in buildings intended exclusively for this function, or with more than 60% of the total surface area built devoted to this purpose (Code T-O2).

3.8.5 Hotel services (TH)

- Sole category: activities intended to satisfy temporary accommodation to be provided in establishments subject to specific legislation, such as hotel installations including Apartment Hotel Suites, holiday centres and rural tourism accommodation (Code TH).

In an exclusive building or with more than 60% of the total surface area built devoted to this function.

3.8.6 Recreational services (TR)

- Category 1: cinemas, theatres, concert halls in buildings intended exclusively for this function or with more than 60% of the total surface area built devoted to this purpose (Code TR-EP).
- Category 2: bars, cafeterias, theatrical cafes, concert cafes, and restaurants adjacent to the homes of the owners, or on ground floors, upper floors or attics of buildings with partial or total occupation of the surface area built therein. (Code TR-H).
- Category 3: exhibition halls and conference rooms adjacent to the home of the registered owner or on ground floors, upper floors or attics of buildings with partial or total occupation of the surface area built therein. (Code TR-EX).

3.8.7 Communications services (DC)

- Category 1: garages for use by the occupiers (homes or businesses) of the building in which they are located and which therefore do not constitute a business as such, but are for private use. These will be located on the ground floor, basements or semi-basement of the building or in premises adjacent thereto (Code D-C1).
- Category 2: commercial garages for public use. Those expressly foreseen in the PECHA. These may be located in exclusive buildings or on the ground floors, basements and semi-basement of buildings (Code D-C2).

3.8.8 Educational amenities (DEDU)

- Sole category: this includes activities intended for the training of students of primary school, secondary school and university age and these institutions may be owned by public institutions or private individuals. In this latter case the potential building capacity will consume town planning usage allowance. They may be located in a shared building or in an exclusive building.

3.8.9 Cultural and sports amenities (D-CU-DE)

- Sole category: this includes activities intended for intellectual, cultural, religious training or recreational sports of individuals, and may be owned by public institutions or private individuals. In this latter case the potential building capacity will consume town planning usage allowance. They may be located in a shared building or in an exclusive building.

3.8.10 Administrative and institutional amenities (DAI)

- Sole category: this includes activities inherent to the official services of the public administrations, as well as independent organizations. It shall also include within this heading those intended for the safekeeping of property and individuals, such as the fire service, police and security services, civil protection or other analogous services. These may be located in a shared building or in an exclusive building.

3.8.11 Health care amenities (DSA)

- Sole category: this includes activities intended for the provision of medical or surgical services and health care including more general services such as residences for the elderly, geriatric day centres, drug addict drop-in centres and social welfare in general, whether under public or private ownership. In this latter case, the potential building capacity will consume town planning usage allowance. Primary health care and medical services and social welfare services may be located in a shared building, however the rest of health care and social assistance uses must be located in exclusive buildings.

3.8.12 Prohibited uses

Any and all industrial activities except craft activities and family workshops compatible with residential uses are prohibited.

Within the scope of the PECHA, those activities classified as a nuisance, unhealthy, harmful or dangerous shall be prohibited, except RECREATIONAL uses where such classification has been founded on reasons of noise, providing that the appropriate corrective measures are adopted in accordance with the specific regulations issued in due course by the Town Council.
Large shopping centres shall be prohibited. These shall be deemed to include establishments open under a single trade name where the surface area devoted to retail sales is greater than 500 square metres.

3.9 Aesthetic conditions

The following articles are complementary to the provisions of the individual specifications record.

3.9.1 Background to the building
The Basic Project and the Execution Project for any work to be carried out within the historic town centre must include an analysis of the building and the surroundings with the following contents:

1. Descriptive report of the existing buildings, considering the following aspects:
   a) Character of the said buildings, referring to their inclusion or exclusion from the Catalogue of Protected Buildings within the present PECHA.
   b) Characteristics of their façades with regard to the volumetric conditions, composition and construction elements: width of the façade, cornice line, proportion between openings and gaps, handling of gaps, overhanging elements and materials used.
2. The project must justify the integration of the building which it is intended to build with its setting, depending on the analysis and the design criteria specified below.

3.9.2 Composition of the façade: proportion of solid elements to gaps
In general, the criterion to be followed will respect the verticality of the façade's composition versus its horizontal distribution, and a predominance of solid elements over gaps,. Regard must also be had for the integration with protected buildings in the surroundings, either by similarity or contrast.

3.9.3 Cornice line
The cornice line will conform to the existing height or the height foreseen of the adjacent building if the same is affected by a binding protection regulation, in which case there may not be a difference of more than 1.2 m above or below, unless expressly authorized in the individual specifications record.
The resulting cornice line must be staggered in accordance with the foregoing section following the same rhythm of fragmentation of the façade if appropriate.

3.9.4 composition of the roof
Steps will be taken to make the provisions of article 3.6 .7 compatible with the characteristics of the adjacent buildings, adjusting the planned slopes were necessary to those already existing.

3.9.5 overhanging elements
1. Closed overhanging elements are prohibited from the vertical line of the façade.
2. The construction of balconies and any other traditional overhanging elements is allowed.
3. When not sufficiently defined in the organizational plans or in an individual specification record, the depths of the overhanging elements allowed shall be as follows:
   - For buildings located in a streets less than 3 m wide, overhanging elements will not be allowed.
   - For buildings located on streets greater than or equal to 4 metres in width, the overhanging elements shall not exceed 10% of the width of the street, with a maximum of 0.5 m in depth.
   - The width of the balconies will be 1.5 metres at the most.
4. The formation of overhanging elements as an extension of the slabs in all of their thickness is prohibited, as this gives rise to solutions which do not conform to the characteristics of the architecture in the Historic Town Centre of Almadén. The formation of permitted overhanging elements is recommended.

3.9.6 Eaves and cornices
The formation of eaves and cornices is allowed, where the overhanging distance does not exceed one third of the width of the street and 0.5 m at the most; this may be greater if the overhanging element was pre-existing and is being conserved in a process of rehabilitation.
The eaves may not be finished in concrete, providing that they are not the headpieces of beams or structural solutions and are resolved with regard to the criterion of thinness of traditional finishings. In addition, ceramic materials, wood and other solutions in accordance with traditional local uses will also be allowed.

3.9.7 Characteristics of the openings and gaps
The following are allowed:
Balcony windows on one of the floors in each building.
Openings with veranda: the gaps shall be clearly vertical in proportions and the veranda will be located on the plane of the façade or with an overhanging distance of 0.2 m at the most with respect to the said plane of the façade, as well 0.2 metres on either side of the gap.
Windows may be square or rectangular, in which case the proportion between verticality and horizontality must be the same as that established for the balcony windows, except that if the same area of the façade comprises both windows and openings with a veranda, these may be built without regard for this requirement.
Exceptionally, permission may be given for gaps which do not comply with the foregoing paragraph if the characteristics of the design justifies such a modification without ambiguity. In any case this exception shall be limited to isolated elements within the composition of the façade.
The lintels shall be consistent with the materials used in the façade and it is recommended to use the traditional building materials found in the town centre.

3.9.8 handling of ground floor and commercial premises

3.9.8.1 new construction work
The external finishing must be specified precisely in the design project.
The ground floor will be treated in a way similar to the rest of the building with a clear and precise expression of the solid elements and openings comprised in the same, and its handling will be defined in the building project.
Incomplete façades will not be allowed, that is to say, where only structural elements appear without a precise definition of the ground floor.
The design, composition and handling of the ground floors will be related to and consistent with the rest of the building with regard to:
- Solid element/gap relationship
- Vertical pace of the composition
- Size and proportion of the gaps
- Materials on the façade for construction purposes and also ornamental decorations.

On the ground floor, the use of metal grilles, verandas or shop windows exceeding the established alignment are prohibited up to a free height of 3.35 m.
Shop windows and openings on the ground floor shall tend to minimize their impact on the solid elements of the façade.
Accesses to parking areas must be resolved within the plane of the façade, avoiding offsets and ensuring that they are integrated into the general composition of the façade. It is recommended to use compositional solutions that are similar to traditional models.

3.9.8.2 Opening of new gaps
In catalogued buildings and in those forming part of their surroundings, the horizontal opening of new gaps on the façade to increase the number of those existing shall not be allowed, except in exceptional cases, perfectly justified by reasons of public health or improvement in the general composition of the building, and providing that the Individual Specifications Record foresees such a possibility.

3.9.9 Materials

3.9.9.1 Façade

Interventions for rehabilitation, reform or new construction must conform to traditional building systems for the formation of the façades, respecting the following rules with regard to the materials to be used:

1. Rubble work, stone work and cladding: stone façades will be allowed in the different varieties of rubble work, stone work or cladding, with the condition that natural stones of the types and characteristics seen in the area should be used.
2. Dressing: the use of whitewash or floating cement and whitewashing is allowed.
3. Capping bricks: facing bricks will be allowed when the brick belongs to pre-existing elements.
4. Mixed: combinations of the preceding elements will be allowed in accordance with traditional techniques.
5. Half-timbered façades: such designs will be allowed when the half-timbering belongs to pre-existing building.
6. The use of curtain walls or analogous systems, prefabricated cladding, gressite and glazing, imitations of building systems, metal cladding, fibreglass cement or similar products is prohibited.

3.9.9.2. External joinery

It is recommended that the material to be used on the main façade for the construction of frames and support for windows and doors should be wood of any type, which should be painted at least on its outside face. Exceptionally, other materials such as iron and aluminium or PVC you may be used, providing that these are painted, lacquered or coloured on the outside and inside.

The use of aluminium, whether anodized or in its natural colour, is prohibited, as are blinds with an external drum and roll-up metal closures, or closures inserted within the façade. The use of wooden blinds and doors is recommended.

Metalwork elements should be in iron or cast iron. The design shall avoid the incorporation of elements that are not in accordance with the surroundings, tending towards very simple, effective solutions in accordance with traditional solutions.

3.9.9.3 Roof

1. The structure may be of any material
2. The roof covering shall be with Arab style tiles (curved or mixed), according to the traditional tones and colours. In the case of the rehabilitation of buildings which have flat tiles or other types of material on the roof, such materials may continue to be used
3. Exceptionally, providing that the need to use other materials is justified and providing that these materials are always noble in character, as is the case of zinc or copper, they may be used.
4. Those elements which due to their technical or functional characteristics cannot have any other location than the roof must respect the harmony of the building as a whole to the maximum extent possible. In the case of aerials, so far as possible attempts must be made not to exceed the height of the maximum peak of the roof and their impact should be minimized by means of collective distribution systems. Chimney stacks shall be adapted to traditional types. Pre-existing catalogued elements will be excluded from this requirement (chimney stacks, ...).

3.9.9.4 Perimeter closures

For the closure of all perimeters on properties, the use of stone walls is authorized as is the use of blocks of concrete, brick or similar materials if they are dressed, painted or whitewashed.

Vertical closures may be opaque or translucent. In this latter case the maximum height of the solid part will be 1.2 m, and the use of painted metal mesh or fencing is authorized and it is recommended that

these should be covered with some type of plant to hide the wire fencing totally or partially and so help to integrate the closure in the surroundings.
In any case, the maximum height permitted for perimeter closure will be 2 metres, except in the case of pre-existing walls which are to be refurbished, in which case they may maintain their original height and composition.

3.9.10 Colour

3.9.10.1 Vertical walls
The parts of walls not made of stone shall be dressed and painted in appropriate colours: browns, ochres, off white or whitewashed, as well as warm colours in pastel or wood shades, as well as such other colours as may be accredited in the pre-existing buildings. New interventions must respect the characteristic colouring of the urban area. The determination of colour is extensive for all of the different elements of the façade.
The technical service of the Town Council may determine specifically the range of colours that must be used in each case.

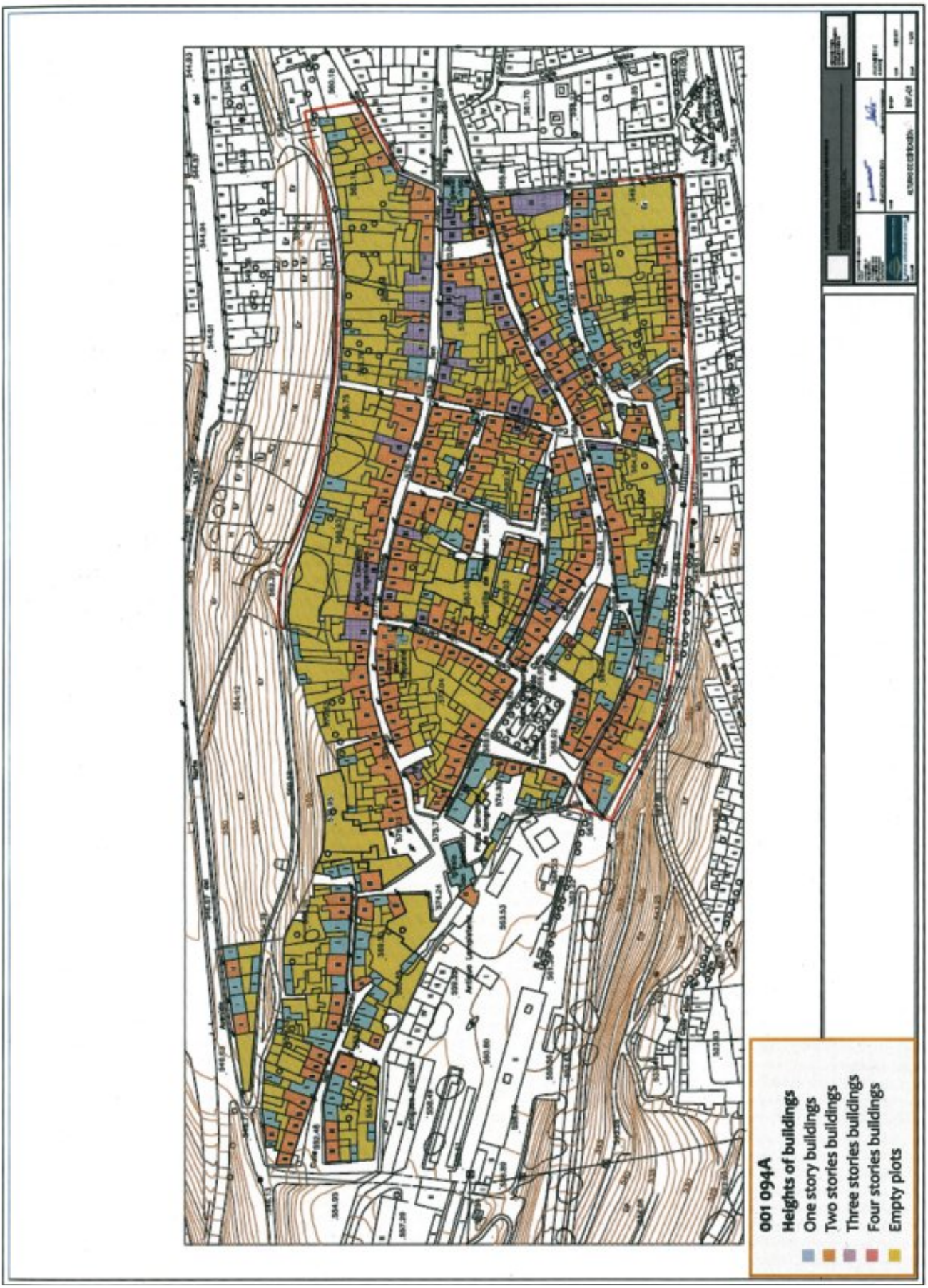
3.19.10.2 Roofs
The colour shall be those corresponding to traditional tones of the roofing material.

3.9.10.3 External joinery
External joinery may have a wide range of colours; it is recommended to use colours that are characteristic in the area: browns, ochres, greens, white, off-white, including different tones of the same.

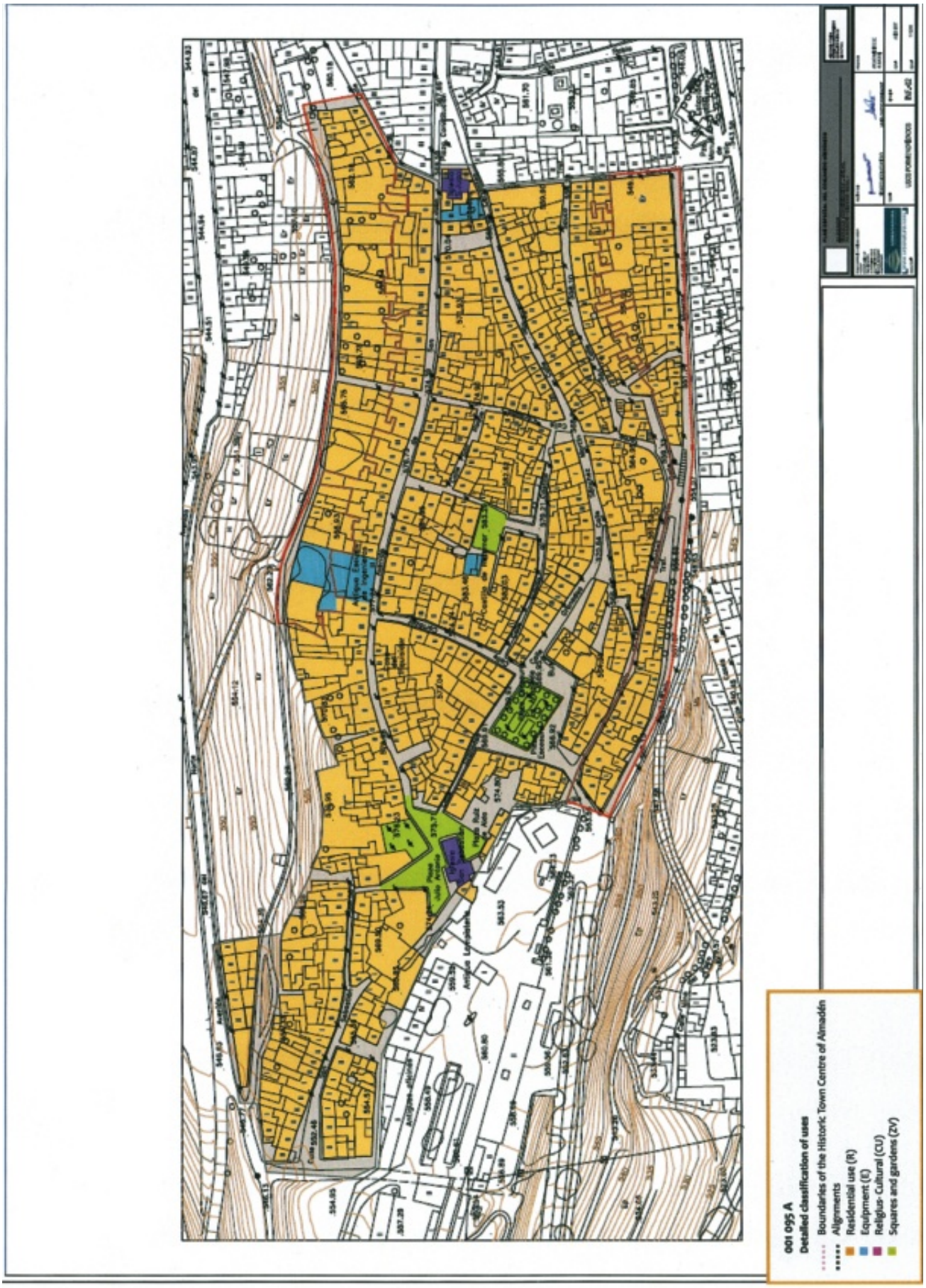
3.9.11 Banners and advertisements
Banners may be placed perpendicular to the plane of the façade providing that none of the points thereof is less than 2.50 m from the reference level. No part of the banner may exceed more than 0.60 m from the façade. The designing and handling must justify their integration with the characteristics of the building and the setting.
The use of commercial advertising systems and signs will not be allowed outside of the plane of the façade other than on the ground floor of the building, except where the integration in the building is foreseen in the original building plans.
On catalogued buildings, the incorporation of advertising signs will take place within the limits defined by the gaps, leaving the jambs between the same free as well as the corresponding lintels or frames.

3.10 Non-regulated works

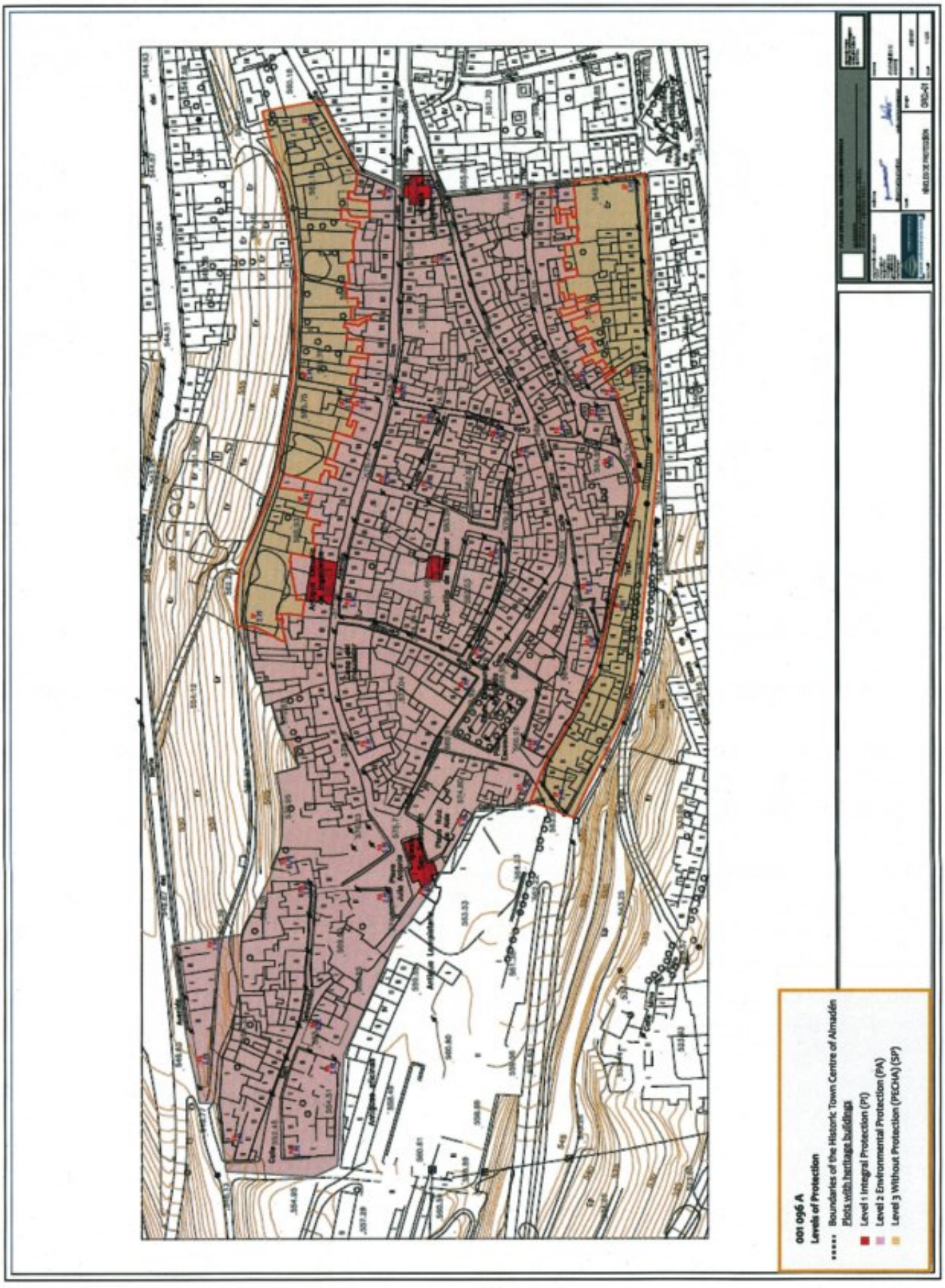
Buildings, parts of buildings or construction elements erected prior to the definitive approval of the present plan and which are not in conformity with the same shall be classified as non-regulated works.
Partial and circumstantial works for consolidation may be authorized in buildings to maintain such a situation and also small repairs required by the handling, decoration and conservation of the building.
In no case shall permission be given for any increase in the volume, modernization or structural alteration of any properties not complying with the regulations.
When the Individual Specification Record of the buildings which are declared non-regulated refers to regulatory works, these refer solely to the provisions of the foregoing sections of the present article.



001 094A HEIGHTS OF BUILDINGS



001 095A DETAILED CLASSIFICATION OF USES



001 096A LEVELS OF PROTECTION

EXCMO. AYUNTAMIENTO DE ALMADÉN (CIUDAD REAL)

Plaza Constitución, número 1
13400-ALMADÉN (Ciudad Real)
Tf.: 926710052 Fax.: 926712077
alcaldia@ayto-almaden.com

INFORME DE SITUACION ACTUAL DEL PLAN ORDENACION MUNICIPAL DE ALMADEN, PLAN ESPECIAL DE CASCO HISTORICO Y CATALOGO DE BIENES Y ESPACIOS PROTEGIDOS

El Plan de Ordenación Municipal de Almadén (POM) trata de regular las operaciones de ordenación del territorio para mejorar la localización y disposición de los hechos en el espacio geográfico propio. Las actuaciones de desarrollo que se pretendan llevar a cabo en Almadén, como pueden ser la mejora en las estructuras agrarias, el desarrollo industrial y la prosperidad en las condiciones de residencia, se debe de llevar a cabo de tal manera que no tengan una repercusión negativa sobre el patrimonio natural y cultural, puesto que estos son valores clave que pueden constituir los fundamentos de un renacimiento económico y social, que se basaría, entre otros aspectos, en el turismo sostenible y el ocio.

Como desarrollo paralelo al POM, se ha redactado el Plan Especial del Casco Histórico (PECHA) y el Catalogo de Bienes y Espacios Protegidos de Almadén, en Coordinación con la Consejería de Cultura de la Junta de Comunidades de Castilla-La Mancha, a fin de tratar de regular las operaciones de recuperación y rehabilitación, así como la revitalización socio-económica del patrimonio arquitectónico y urbano comprendido en el Casco Histórico.

El ámbito del PECHA y del Catálogo comprende las edificaciones y espacios situados dentro del recinto histórico. La delimitación del ámbito descrito y su protección mediante ambos planes tiene por objeto proteger los edificios y espacios de acuerdo con sus características y valores tradicionales e históricos.

La gran diferencia con respecto al año 2004, se encuentra en que junto al POM se han elaborando dos planes más como instrumento de protección del patrimonio histórico, que ondeando más en esa protección, coadyuva en gran medida a la tan deseada declaración de Almadén como Patrimonio de la Humanidad.

En la actualidad el Ayuntamiento de Almadén, va a iniciar las tareas necesarias para completar y corregir cada uno de los planes referidos, a fin de ser remitidos nuevamente al órgano competente en materia de Ordenación del territorio y vivienda en la Comunidad Autónoma de Castilla-La Mancha, al objeto de obtener la aprobación definitiva.

Almadén a 07 de Enero de 2011
El Alcalde-Presidente,

Fdo. Emilio García Guisado.

Translation of the above document signed by the mayor of Almadén on January 7th 2011:

(coat of arms) (ALMADEN TOWN COUNCIL (CIUDAD REAL)

(Plaza Constitución, número 1
13400 ALMADÉN (Ciudad Real)
Tel: 926710052 / Fax 926712077
alcaldía@ayto-almaden.com)

"PROGRESS REPORT ON THE ALMADEN MUNICIPAL GENERAL LAND REGULATIONS PLAN, SPECIAL PLAN FOR THE HISTORIC CENTRE AND CATALOGUE OF PROTECTED ASSETS AND AREAS"

The Almadén Municipal Development Plan (MDP) attempts to regulate territorial operations in order to optimize the location and layout of elements in the relevant geographic area. The development actions to be carried out in Almadén – which may include improvements in agricultural structures, industrial development and wealth-generating prospects for the locality – must be executed in such a way as to not have any negative repercussions on the natural and cultural heritage, since this is key to constructing the foundations of an economic and social renaissance to be based on aspects including sustainable tourism and leisure.

In parallel to the Almadén's Municipal GLRP (POM in Spanish acronym), the Special Plan for the Historic Centre of Almadén (known by its Spanish acronym, PECHA) and the Almadén Catalogue of Protected Assets and Areas were drafted in coordination with the Culture Department of the Regional Government of Castile-La Mancha ("Junta de Comunidades de Castilla-LA Mancha") in order to regulate the recovery and rehabilitation operations, as well as the socio-economic revitalization of the architectural and urban heritage, of said zone.

The scope of PECHA and the Catalogue covers the buildings and spaces in the historic centre. The boundaries set for the zone and its protection by both plans have the aim of protecting buildings and spaces according to their traditional and historic features and values.

In respect of 2004, the big difference is that two other plans have been drafted to complement the GUP (POM). Jointly they form an instrument for protection of the historical heritage, and, in enhancing said protection, strengthen the case for the highly desired declaration of Almadén as a World Heritage Site.

At the current time Almadén Town Council is due to initiate the tasks required to complete and correct each of the aforementioned plans prior to their re-submission for final approval to the competent authority for land-use, town planning and housing in the Autonomous Community of Castile-La Mancha.

Almadén, January 7th 2011

The Mayor-Chairperson

(Signature)

Signed: Emilio García Guisado"

F) Bilateral Agreement on the Comprehensive Restoration Zone of Almadén. First phase, year 2010.

AGREEMENT OF THE BILATERAL COMMITTEE HELD ON NOVEMBER 26TH 2010 ON THE 1ST PHASE OF THE COMPREHENSIVE REHABILITAION ZONE IN ALMADEN (CIUDAD REAL). AUTONOMOUS COMMUNITY OF CASTILE -LA MANCHA. NATIONAL HOUSING AND REHABILITATION PLAN 2009-2012. 2010 PERIOD.

PRESENT
Representing the Ministry of Public Works, the Secretary of State for Housing and Urban Actions:
Ms. Beatriz Corredor Sierra

Representing the Land-use Planning and Housing Department of the regional government of the Communities of Castilla-La Mancha:
Mr. Julián Sánchez Pingarrón

Representing Almadén Town Council, the Mayor:
Mr. Emilio García Guisado

Meeting in Toledo on November 26th 2010, the above persons, with the aim of agreeing the funding of the rehabilitation works for buildings, dwellings and the remaining specific aspects of the Almadén (Ciudad Real) Comprehensive Rehabilitation Zone, in the framework of R.D. 2066/2008, of December 12th, by which the National Housing and Rehabilitation Plan 2009-2012 is regulated (henceforth R.D. 2066/2008),

DECLARE
That the regional government of Castilla-La Mancha and Almadén Town Council have applied for funding for Phase 1, 2010 period, of the Almadén (Ciudad Real) Comprehensive Rehabilitation Zone given the gradual architectural, town-planning and social degradation affecting the area under consideration.
That within the Rehabilitation Zone it is planned to rehabilitate buildings and dwellings in the target area. A total of 415 dwellings have been identified for rehabilitation, although in the 2010 period 40 dwellings shall be rehabilitated, with works being executed for the recovery of structural elements of the buildings, accessibility, upgrading of common areas and habitability of the dwellings. The total cost of these actions is evaluated to be 848,000 €.
The signatory administrations consider that funding for actions in the zone is necessary in order to optimize residential use, whilst ensuring social diversity and re-housing of current residents, where required, within the terms of legislation on urban planning in force, and in application of the provisions on the elimination of architectural barriers and promotion of accessibility, as well to improve the energy efficiency of buildings.
Having analyzed the foregoing and in compliance with article 48.7 of R.D. 2066/2088, attendees adopted the following:

RESOLUTIONS
One. - Declaration of the Comprehensive Rehabilitation Zone.
Within a six-month period following signing of the present Agreement, the regional government of Castilla-La Mancha ("Junta de Castilla-La Mancha") shall declare the intervention to constitute the Almadén Comprehensive Rehabilitation Zone.
Two. - Funding
The Ministry of Public Works shall provide the sum of 242,400 € to finance the rehabilitation actions for buildings, dwellings, town-planning, as well as the technical management team, representing on initial estimate 25.99% of the total cost.
The Ministry of Public Works funding of the sum of 242,400 € to finance the rehabilitation actions for buildings, dwellings, town-planning, as well as the technical management team, shall be drawn on the

State Expenditure Budget, budgetary application 27.09.261N.752.
The regional government of Castilla-La Mancha ("Junta de Castilla-La Mancha") undertakes to provide funding of 172,100.00 € for the execution of rehabilitation actions on buildings and dwellings, as well as the technical management team. Said funding accounts for 18.45% of the total cost.
Furthermore, as proposed by The regional government of Castilla-La Mancha ("Junta de Castilla-La Mancha") in use of its powers granted by articles 48.3 and 46.1.c) of R.D. 2066/2008, it is hereby agreed to exonerate developers undertaking rehabilitation actions in said zone from limitations relating to computable square metres for the purposes of calculation of the ring-fenced budget, income levels of applicants and minimum building age, which shall not be taken into account in qualifying the actions as protected actions or in terms of access to established funding.
The beneficiaries shall contribute the sum of 518,300.00 € for the execution of the rehabilitation actions for buildings of dwellings, which shall account for 55.56€ of the total cost.
Participation of the agents intervening in accordance with the type of action shall be as follows:

ACTION	TOTAL COST	MINISTRY OF PUBLIC WORKS	AUTONOMOUS COMMUNITY	BENEFICIARIES
Rehabilitation of buildings and dwellings	848,000. 00 €	200,000.00 €	129,700.00 €	518,300.00 €
Infrastructures and town-planning	-	-	-	-
Technical team	84,800.00 €	42,400.00 €	42,400.00 €	-
TOTAL	932,800.00 €	242,400.00 €	172,100.00 €	518,300.00 €
% Funding	100.00%	25.99%	18.45%	55.56%

Investment agreed for each of the parties is distributed as follows:

YEAR	MINISTRY OF PUBLIC WORKS	AUTONOMOUS COMMUNITY	BENEFICIARIES	TOTAL
2010	181,800.00 €	129,075.00 €	388,725.00 €	699,600.00 €
2011	60,600.00 €	43,025.00 €	129,575.00 €	233,200.00 €
TOTAL	242,400.00 €	172,100.00 €	518,300.00 €	932,800.00 €

Three. - Other commitments
Almadén Town Council shall act as the managing body of the actions and, as such, hereby undertakes to make the relevant licence applications to the awarding administrations and companies, and to advise dwelling owners on technical, legal and financial-administrative questions. Likewise, it undertakes to process as municipal works all the re-urbanization works, and for these to be exempt from works licence fees. The rehabilitation licences for dwellings shall have the financial value specified in the relevant municipal by-law.
The technical management team shall have available all necessary material and human resources. These may be modified by a proposal providing full justification in accordance with specific requirements. The Ministry of Public Works funding for the technical team shall be justified in accordance with the following percentages: a maximum of 30% for spending on material resources and a minimum of 70% for staff.
The regional government of Castilla-La Mancha ("Junta de Castilla-La Mancha") hereby undertakes to communicate to the Ministry of Public Works, in accordance with the agreed reporting protocols, a list of the beneficiaries from the funding for its inclusion in the Register of Protected Actions ("Registro de Actuaciones Protegidas") in accordance with the agreed reporting protocols.
It shall be the competence of the regional government of Castilla-La Mancha ("Junta de Castilla-La Mancha") to supervise the designs and development of works, as well as the adequacy and compliance of the same with articles 46, 47 and 48 of R.D. 2066/2008.
The regional government of Castilla-La Mancha ("Junta de Castilla-La Mancha") shall determine a procedure for distribution of resources which shall ensure the principles of objectivity, fair competition and publicity and guarantee the transparency of the administrative actions.

Reporting and publicity:
In compliance with article 16.1.f) of R.D. 2066/2008, and taking into account the programme included in the agreement between the former Ministry of Housing, the regional government of Castilla-La Mancha ("Junta de Castilla-La Mancha") and Almadén Town Council, with the aim of ensuring transparency toward citizen-beneficiaries and of informing the general public, the administrations hereby undertake to provide information in the most appropriate way on the funding provided from each of the signatories, and especially with regard to:
Inclusion in a visible way of the corporate image of the National Housing Plan and the Ministry of Public Works, the regional government of Castilla-La Mancha ("Junta de Castilla-La Mancha") and Almadén Town Council on outside posters and on information posters inside the premises to be provided for the offices of the technical management team.
Joint participation and reporting on whatever public events are held in relation to commencement, management or termination of the CRZ shall be faithfully communicated in order to ensure the presence of representatives of the Ministry of Public Works.
The placement of information placards in the area of the actions in compliance with the manual for state-level and autonomous community display of the institutional image of the National Housing Plan ("Manual de Imagen Institucional del Plan Estatal de Viviendas y Rehabilitación 2009-2012").
The fitting of permanent commemorative plaques on the public-access infrastructures completed, in accordance with the aforementioned manual, and where agreed by the administrations involved.
The communication of actions focusing on the media (press, radio, television, web pages etc) should always involve participation by the Ministry of Public Works via the National Housing and Rehabilitation Plan 2009-2012.
Four. - Payment of the Ministry of Public Works subsidy
Payment of the Ministry of Public Works subsidy shall be made to the Autonomous Community of Castilla-La Mancha, with 100% of the set amount for 2011 being paid, once the annual budget is available and upon accreditation of the affixing of the relevant information poster, as per the institutional image manual. The remainder of the subsidy shall be paid against justification of cost, in accordance with the terms of the partnership agreement signed with the regional government of Castilla-La Mancha ("Junta de Castilla-La Mancha") for application of the National Housing and Rehabilitation Plan 2009-2012
Five. - Monitoring of the Rehabilitation Zone
The bilateral monitoring committee envisaged in the aforementioned partnership agreement for application of the National Housing and Rehabilitation Plan 2009-2012 shall verify compliance with the provisions contained in the present Agreement of the Bilateral Committee, undertaking any modifications and adjustments, in compliance with the contents of article 16.2) of R.D. 2066/2008, of December 12th, and adopting any decisions required in the case of eventualities occurring, so as to ensure the gradual completion of actions up to the time of their full execution.
Six. – Duration of the agreement
At the outset, the period of duration for the actions programmed in the present agreement shall be until December 31st 2013, from which time an extension may be made by the Bilateral Monitoring Committee if due reasons for the same exist.
The objectives resulting from actions in the aforementioned zone correspond to those for the 2010 period of the National Housing and Rehabilitation Plan 2009-2012.
In compliance with procedures already agreed, a copy of the present agreement shall be sent to the national government office in the autonomous community of Castilla-La Mancha.
Having dispatched all issues to hand and as proof of their agreement with the foregoing, the attendees duly signed it in the place and on the date given above.

THE SECRETARY OF STATE FOR HOUSING AND URBAN ACTIONS
(Signature)
BEATRIZ CORREDOR SIERRA
THE HEAD OF LAND-USE PLANNING AND HOUSING
(Signature)
JULIÁN SÁNCHEZ PINGARRÓ
THE MAYOR OF ALMADÉN
(Signature)
EMILIO GARCÍA GUISADO

7.b. 2 RISK PREPAREDNESS

ALMADEN MINING PARK RISK ANALYSIS

Risk is the situation of awareness in which each event or option leads to a specific outcome, with a known probability of occurrence. Likelihood that an event with an impact on the goals we have defined will occur. Measured in terms of probability and consequences.

Systematic application of the available information so as to determine the frequency with which certain specific events may occur and the magnitude of their consequences.

Design phase

Description of the goal
The goal of Risk Analysis is to detect potential risks at the Almadén Mining Park.

It is important to recall that, in the case of the Mining Park, the risk will be negligible; however, any and all anomalous situation musts be avoided and the safety and wellbeing of visitors must be ensured. It should also be pointed out that, in addition, the acceptable level of risk would be very low, as there is no economic nor strategic justification to leave risk at even a moderate level.
Once the critical points on the system have been detected, the idea is to determine the specific maintenance operations, inspections and specific checks that will need to be made to achieve the goals set.

Description of the system:
In the definition of the risk analysis, it is important to define time and space limits within which the study is carried out. The Analysis will be applied to the tour circuit inside the mine, located in the geographical context and scenarios described in chapter one.

- The Risk Analysis is conducted for the different stages of the project:
- Preparation of the tunnels
- Tours
- Eventual enlargements of the tour.
- Identification of Potential Hazards

The Identification of the Risk is the process of determining what may happen, why and how (AS/NZS 4360:1999). The first step in identifying the Risk is to identify the Potential Hazards, and from these identify the undesirable events and assess the specific risks.

Hazard:
Presence of material or condition that has the potential to cause harm or loss. The identification of the hazard involves identifying the existence and location of a potential source of harm or a threat to the goals of the system. On the tour circuit, a hazard might imply the falling of small stones which, even if it does not lead to any physical harm, would affect the wellbeing of visitors and would damage the Park's image.

Hazards are often associated with an uncontrolled release of energy or intrinsic conditions of certain substances, such as mercury.
In mining, there are energy sources that are inherent to a site's conditions. All energy sources with the potential to cause harm represent a hazard in the system.

Gravity. Energy which naturally causes stones to fall, makes people drop down heights or other kinds of phenomena.

Electrical energy: this includes all kinds of electrical voltages, induction and static electricity. Along the route through the Park, an electrical circuit has been installed for the lighting and operation of electrical equipment. Some hazards might be associated with coming into contact with parts of the electrical system.

Mechanical energy: this kind of energy refers to equipment in movement or moving parts of static equipment, for example the train, a hoist, ventilators. Some of the risks associated with these would be, for instance, being crushed by the train.

Chemical energy: energy in the form of gases, liquids and solids. This energy is associated with the presence of a chemical substance. The presence of low concentrations of mercury vapours is detected along the route, however there may be accumulations of this element in certain locations and its subsequent release if triggered by the environmental conditions.

Pressure: release of pressure due to changes in the equilibrium of the rock during digging.

Noise: mainly associated with electrical equipment, such as a ventilator.

Thermal energy: in extraordinary circumstances in which a fire occurs, there would be a sudden increase in the temperature of the tunnels.

Biological energy: possible release of gases from unsealed tunnels or lower levels due to processes of decomposition (for example, timber) or degasification.

The sources of a hazard alter as the design conditions change:

At the San Andrés shaft, the opening of a crack has required strengthening of the area. While this operation was being carried out, horizontal water displacement pumps were found. The current opening of the shaft causes vapours to rise from lower levels, impairing the air quality and it also presents the risk of falls to different heights.

Selection of the Evaluation Method

We distinguish between two types of Analysis:

1. Qualitative Risk Analysis.
   This analysis uses qualities to describe the magnitude or potential consequences, and the probability of it occurring. The risk is classified and priorities are assigned to the corrective actions. This method is based on opinions and individual or team expertise.

   For the assessment of the risk, two matrices have been defined:
   A table reflecting the range of probabilities of occurrence
   A table describing and classifying the severity of the consequences.

   The results are shown in the Risk Ranking Matrix.

2. Quantitative Risk Analysis.
   This involves the calculation of the probabilities and consequences using numerical data. The values are not ranges as in the previous case. It is more objective and analytical than qualitative analysis. An example of the quantitative analysis method would be Fault Tree Analysis (FTA).
   Fault tree analysis establishes the probabilities of undesirable events and the likelihood that a consequence of an undesirable event may occur. The probabilities of undesirable events are established and the likelihood that a consequence of an undesirable event may occur. FTA feeds off the information collected in the FMEA. Only risks with a significant probability of occurrence are of interest.

Other advantages of quantitative analysis are:

- Evaluation of a risk's acceptability
- Consideration of control measures
- Identification of new control measures

External influences

This attempts to consider external effects, outwith the scope of our study but that may have implications for the process that are beyond our control:
These include natural disasters and external agents:

- Landslides (vulnerability of the terrain)
- Fires
- Earthquakes
- Flooding
- Storms / interruption of the power supply
- Fault at the utility company.
- Legislation
- Social pressure

In the light of climatic conditions, the nature of the terrain, the variability in the channels of the closest rivers and the absence of any record of historic flooding, we can assume that a flood is extremely unlikely to happen. On the basis of the thermoresistant standard, we can infer that this area is not included in an area at risk for earthquakes.

Evaluation of the risk

The evaluation of the risk contains the joint Risk Analysis process by the chosen method and the Evaluation of the Risk.

Risk Analysis itself would comprise the calculation of the probabilities or frequencies with which these situations may arise. Using quantitative methods we determine the acceptability of the risk. There is no such thing as a zero risk situation. All situations, decisions and actions involve a level of risk, albeit very low in some cases. A very low or reasonable level of risk is considered acceptable.

The acceptable risk for fatalities among persons not exposed by their work occupation is < 1 per 1,000,000 fatalities per year. In the case of employees in the mining industry, it is in the range of 1 per 5,000 fatalities per year (data from between 1991 and 2001)

Risk management

Risk management is the ultimate goal of the Analysis. The purpose of risk management is to deal with the risk in such a way that actions are taken with a view to minimizing the likelihood of occurrence or reducing the severity of any event. The players in charge of Risk Management will be the Minas de Almadén y Arrayanes S.A. company which will be in charge of the tunnel preparation and maintenance operations to make them suitable for visitors and the Almadén Francisco Javier de Villegas Foundation which will be the institution managing the Mining Park.

Failure Mode Effects Analysis

The main purpose of applying the Failure Mode Effects Analysis to some sectors of the Almadén Mining Park is to undertake a Prevention and Continuous Improvement Policy.

The service to be offered comprises a tour of the former tunnels of the Almadén Mercury Mine. The potential client will be the visitors. The tour will be broken down into different elements and subsystems in which attempts will be made to detect the possible failures that, if they were to occur, would have effects with differing degrees of severity.

It should be pointed out that the activity presents few risks and these have been exhaustively analyzed, considering all of the aspects associated with the risks for subsequent assessment using the Failure Mode Effects Analysis methodology, giving priority to those that are significant and giving a series of recommendations

Definition of FMEA. Risk assessment parameters. Failure Mode Effects Analysis is a method aimed at ensuring the Quality of a process or product by means of a systematic analysis of its failure modes, their causes and effects. This method helps to identify and prevent failure modes, evaluating their seriousness (severity of their consequences), probability of occurrence and detectability (probability of detecting the reason for the failure before failure occurs).

On the basis of these assessment parameters (severity, occurrence and detectability), the Risk Priority Number will be calculated, a way of assigning priority to the significant causes or variables in the process, and it will be necessary to work on these in order to prevent the process's failure or to detect them.

The terms included in this definition are analyzed below:

- Failure Mode: The way in which the components of a process may fail. This refers to an element or system that does not meet a specification or does not operate correctly, or simply one that does not provide what is expected of it.
- e.g. stoppage of an elevator.
- An insufficient support will not withstand all of the stresses for which it was designed and this may lead to an overload on its load-bearing capacity and breakage with the subsequent generation of a point of structural instability.

- Effect: Adverse consequence derived from the failure mode. The effects may be severe or hard to detect.

For example: Visitors trapped in the lift, this may trigger a nervous crisis in some of the visitors.

A rockfall as a result of the inappropriate support of the rock in a gap, or of the loss of resistance in the support, makes the tunnel inoperative.

The ventilator fan makes a noise due to the vibration of its motor, the tunnels have rocks with sharp angles and parts jutting out due to poor finishing, the release of gases in lower levels or shafts may cause an unpleasant smell.

- Cause: The reason why the failure happens (or may happen). A cause always happens with a certain probability or frequency.
For example an overload in an area of the electrical circuits may lead to an outage in the power supply and then the stoppage of the elevator.

The poor quality of the material, the effect of chemicals on the metal in the support or on the rock itself may lead to the loss of its load-bearing capacity.
- Detectability: the ability to discover the cause that may lead to the failure before it actually happens.

For example, routine check-ups allow detection of areas where the rock is splitting or there are sharp or jutting edges; protective maintenance eliminates these problems.

- Safety measures:
Preventive safety measures adopted (e.g. earthing connections, differentials preventing overloads on the mains system)
Safety measures aimed at protection (e.g. placement of fire extinguishers for use in the event of a fire)

Risk Assessment Parameters:
The parameters used to assess Risk are: Degree of Severity, Probability of Occurrence and Probability of Non-Detection, as described below.
- Severity. Various criteria are used to grade the severity of the effects of a failure on the system:

Customer dissatisfaction: Visitors may feel dissatisfied or unhappy. The consequence would be bad publicity for the Mining Park.

Health and Safety: If a customer suffers any kind of physical injury (by falling, slipping) or mental harm (perhaps a panic attack following an outage in the power system), this may lead to an economic impact in the form of Social Security expenses for time off work and any medical assistance required.
Material costs: The cost of the repair (for example, installing a new support, changing the design of the tunnels: bating and repair operations)

In short, severity can be translated into economic terms by defining the costs of having accepted the risk. The severity of the failure has nothing to do with its frequency or detection. It is only possible to improve this by design-based actions as it is not affected by current mechanisms in place.

- Probability of Occurrence
The likelihood of occurrence for each failure mode is directly related to the probability of occurrence of the cause leading to the failure.

For example, the breakage of a bolt could come about as a consequence of poor quality material in the bolt. However, if this material has already been used in the manufacture of bolts that have had to withstand similar stresses in similar settings (presence of dampness, salts, ...) and its reliability has been demonstrated in the past, then the probability of occurrence will be low.

- Probability of Non-Detection: this index determines the likelihood of a customer perceiving the cause and/or failure mode, assuming one occurs.

The concentrations of mercury vapours at a particular point exceed advisable levels. This is difficult to detect as measurements are only taken once a month.

- Risk Priority Number or Priority Index (RPN): this is calculated by means of the following equation for all the causes of failure and its function is to set their priorities as potential causes of failure and let us act on them.

The range of values for the RPN is 1 to 100. A value of more than 100 indicates the need to take action on the causes of the risk.

Goals of the FMEA:

To satisfy customers or visitors at the Mining Park
To introduce a prevention-based mindset
To identify the failure modes that have significant consequences with respect to different criteria: Health and Safety, economics, …
To specify for each failure mode the means and procedures for its detection.
To eliminate the causes of potential failure mode and/or reduce the severity of the failure.
To ensure that no damage is inflicted on the Park or its surroundings and no injuries on users or operators.

The Park has to operate as expected throughout a long working life while allowing the maintenance operations to be carried out without difficulty.

Description and Application of the Method. Stages:

Step 1. Identification of the elements on the system
This stage involves identifying the elements of the system or the route of the tour to which the FMEA is going to be applied.

Emergency lighting circuit. This comprises 15 emergency lighting lamps with 8W fluorescent bulbs and including electronics and a rechargeable Ni-Cd power supply.

Ventilation circuit. Single-step axial fan. The ventilator comprises a steel rotor, separate housings for the fan and the rotor, and an electric motor. Other elements in the ventilation circuit would include the grilles placed at the mine entrance and the plugs located in the shafts

Step 2. Function of the elements on the system.
This stage describes the functions performed by each of the components considered in the tour visit and the interconnections between them.
The emergency lighting is permanently connected and allows for the illumination of the tunnel if there is a failure in the main system. It comprises: lamps, bulbs, batteries. The ventilation circuit installed allows appropriate air quality to be maintained for visitors and workers by diluting any mercury vapours that may gather in particular areas as well as any other gases resulting from the degasification processes.

Elements:
- Motor, rotor and vanes
- Housing: protection
- Frequency modulator
- Grilles at the mine entrance
- Plugs in shafts
- Sealing of tunnels

Step 3. Failure Mode
The emergency lighting fails when a lamp blows (for instance, due to overheating) and, as a result, part of the route is left in darkness.

Some of the failures that might arise in the ventilation system are: stoppage of the ventilator due to an outage in the power supply, generation of noise due to vibration in the motor, design failures, ETC.
In order to determine these possible failures, reports from similar scenarios (Mining Parks and mines of the same type) are reviewed.

Step 4. Effect(s) of the failure
In this stage, we imagine that the potential failure has in fact occurred and we describe the effects of this failure as perceived by the customer (visitor) or by the company managing the Park.

We always choose the most serious from among the effects of the failure mode.

A failure in the emergency lighting leaves an area in darkness, may trigger anxiety attacks in some of the visitors, bumps, falls and other kinds of minor accidents. If it occurs in an emergency, such a failure might hinder evacuation. The noise generated by the vibration of the ventilator is troublesome. If the ventilation fails in the tunnel, there could be build-ups of gas or vapour that create a harmful atmosphere.

Step 5. Severity or Failure Severity.
The severity is linked to the effects or consequences of the failure. We have already seen that if there is a failure in the emergency lighting system and an area is left in darkness, this could lead to a panic attack or a fall, in which case we are referring to health-related impacts.
The severity of the effect can be classified into the following categories:
Health-related impacts, material costs, time off work and dissatisfaction of the customer, all of which can be translated into monetary units.

Economic costs affecting individuals / material damage

Each impact on health can be translated into economic costs by means of statistical data from the Spanish Statistics Institute (INE) and the Social Security.

How much do the lost working hours cost as a consequence of an injury?
How much does the health-care cost depending on the type of injury? Material damage can be translated into the costs implied by its maintenance, the placement of new supports (labour costs, resin, mesh, …), the installation of new control systems.
In short, the severity of a failure in economic terms is the cost implied by having assumed the risk.

Criteria for degree of severity
The severity of the consequences is assessed on a scale from 1 to 10.

Imaginary scenarios are defined below in terms of the severity of their effects: mild, moderate, harmful and catastrophic. The intermediate valuations can be assigned gradually.

1) Mild effect
Visitors feel some discomfort due to the conditions of the mine itself to which they are not accustomed. We are referring here to dampness, absence of natural light, lack of space (in the case of a largish group). The ventilator is turned on and the noise makes it difficult to hear the guide well.

2) Mild or moderate effect
The tour proceeds without interruptions except for a small slip or stumble which in some cases may lead to a fall without any significant injury. The worst thing is the fright people get and in the case of a moderate effect the need for medical attention (the first-aid kit in the tunnels would be sufficient).
We would include in this category the case of a visitor who distractedly goes off in the wrong direction and momentarily gets lost (fright, nervousness). Another example would be a small rockfall causing a situation of alarm for visitors, even though the situation is completely safe.

3) Significant or harmful effect
Due to a power failure, the tunnel is plunged into darkness. Simultaneously, the emergency lighting fails and one person gets lost. As a consequence of this situation, he or she panics and suffers a bout of hysterics that could lead to a fall or a fainting fit.
A similar situation would arise in the case of a stoppage in the lift due to a power outage if one of the people suffers from claustrophobia.

4) Harmful or very harmful effect
A harmful effect would be that corresponding to the fall of a keystone or large blocks, caused by having underestimated the support needed, and the lack of lighting in an area that prevents detection of this hazardous situation before the incident occurs. Another example would be a if sensitive individuals were exposed to mercury vapours over an 8-hour working day (tour guides) (the levels can be high during the summer months).

During maintenance and fitting-out operations, a workman comes into contact with live parts of the electrical circuit and suffers electrocution.

5) Extremely harmful or catastrophic effect
A power failure has caused a fire and, due to the increased temperature, toxic gases and mercury vapours are given off. The evacuation plan doesn't work and several visitors are trapped, with some suffering asphyxia, intoxication and burns.

A catastrophic situation could be a chain of several events, each with the worst possible outcome. This is the previous example in which the fire spreads quickly due to the amount of timber in the mine supports, leading to the loss of resistance and collapse of the props, with the consequential collapse and cave-in of part of the mine.

- Degree of Severity

Step 6. Critical characteristics
Situations with critical characteristics are those in which the severity is very high (9 or 10) and the probability of occurrence and non-detection is low (albeit greater than 1). It is necessary to act on these situations.

Step 7. Cause of the failure
This section describes all the potential causes of failure on which it is necessary to take corrective or preventive measures.
In our example, some of the causes would be:
Overheating of the bulbs
Damage while being handled, clamped
Failure in the power supply
Use of incorrect materials
Using the "Fault Tree" methodology, we can detect the original causes of a failure.

8. Probability of Occurrence
The probability that the potential cause of failure may occur. All of the control mechanisms put in place to avoid the failure occurring must be assessed.
The probability that, once the cause of failure has occurred, it may cause the harmful effect (mode) indicated. The detection control mechanisms are included.

In the Risk Analysis method we are using, the index of the occurrence is a value on a scale of 1 to 10.
To determine the intervals for the probabilities of occurrence in which our failures or risks are moving, we start from the following premises:

-The risks have been grouped into categories depending on their shared characteristics
- Electricity/Elevator/Train
- Chemical/Fire
- Structural/Falling Stones
- Personnel
- Minor accidents

-We determined, grosso modo, the mean or extreme probabilities of occurrence of the failures, so that we could identify a point on the interval and defined the rest by means of a logarithmic scale.

-Due to the difficulty in determining the probability of occurrence of the causes leading to failure, we will determine the probability of the failure in some cases or that the effect may arise as a result of the failure.

Probability of Occurrence:

Probability of electrical failure

Due to the information defect, we determine the probability of occurrence according to the conditions of an electricity tariff allowing interruptibility, and within this, we choose the frequency of interruptions

above which the company is obliged to compensate its customers in some way (the lower part of the tariff). We calculate the probability of an outage in the mains power supply corresponding to the interruptibility tariff. In this case, the probability would be in the order of 10-4. The electrical risk is at a range of probability of occurrence with a very low order of magnitude, as can be explained by the demanding control mechanisms obligatory in any electrical installation.

Falling stones:
The probability of a person possibly affected being at a specific point and that this point is a slate area in poor condition is analyzed. We assume the Mina del Pozo, Santa Teresa and Workface B areas as the most delicate points.

Visitors will be passing through these three points during approximately 14 minutes of the 152 that the tour lasts underground. The maximum probability is calculated as follows:
Probability = 14 /152.23 = 0.091 (depending on the frequency of groups passing)

Chemical Risk:
Probability that 0.1 mg/m3 will be exceeded at any point. A real-time monitoring of the mercury concentrations was carried out in the tunnel. The experimental procedure is explained elsewhere.

A statistical study of the values is carried out at random, calculating the lower and upper quantiles. From this analysis, it turns out that there is a 97.5% certainty that the probability of finding a concentration greater than 0.1 mg/m3 is 7.4·10-3.

Probability of a panic attack

We assume that 1% of the population suffers from panic attacks. In the worst case, with 200 visitors a day, 2 would suffer a crisis. Probability of structural failure: in view of the control mechanisms and resources used to prevent cave-ins, the probabilities of occurrence are at very low orders of magnitude as in the case of personal or chemical risk. Probability of minor accidents. Depending on the obstacles and duration of the stay in the mine, it is common for these to occur. We would be at the same interval as for falling stones.

In the subsequent analysis using the Fault Tree Analysis methodology, the probabilities will be determined quantitatively, starting from records of logged failures and the reliability of the components of the system.

Step 9. Current control mechanisms
We bear in mind the control mechanisms aimed at protection and prevention by detecting the failure modes when they occur or by preventing the occurrence of the causes.
- For the example of the lamps we have the quality certificate of the supplier.

Step 10. Probability of non-detection (DET)
The probability of non-detection is the likelihood of the client perceiving the cause and/or the failure mode if it arises. The probability of non-detection is linked to the control mechanisms for detection and the cause.

To improve this index it will be necessary to invest in detection control systems, even though it should be noted that it is preferable to make changes in the design.

For example, Measuring mercury vapour concentrations in real time.

Step 11. Risk Priority Number (RPN)
The Risk Priority Number (or Risk Priority Index) is calculated for each effect. It is calculated for all the causes and determines the priority of the corrective actions.

Step 12. Corrective action
This section will describe briefly the corrective action recommended when the RPN exceeds 100.

The corrective action is intended to eliminate the failure mode or reduce its severity.

Some examples:
1. Change of design. Example: add more lamps, closer together.
2. Change in the process. Modifications in the tunnels to reduce resistance to the air's passage.
3. Increase in the monitoring or inspection activity. Continuous measurements of mercury vapours.

Step 13. Recalculate the Risk Priority Number to see the effect of reducing or eliminating failures

Reviews of the FMEA

The FMEA is a dynamic process requiring reviews in the following cases:
- When modifications are made in the process or design. For example, extension of the tour visit.
- When there are major complaints from visitors.
- When a specified period of time has elapsed since the first analysis.

Benefits of applying FMEA
The main benefits obtained by applying this method are as follows:
- Attention to visitors is enhanced.
- The systematic structure of the FMEA allows a large amount of information to be collected and this is useful to determine clearly and concisely what must be done and why.

The risk of the occurrence of inefficiencies is lowered, which is translated into savings of time and money. Compliance with legislation and quality standards. Obtention of certificates.

The Failure Mode Effects Analysis has been carried out by assessing each scenario and each component. This analysis allows us to prioritize the risks that need to be handled as a high priority because they have a significant probability of occurrence or else because they have consequences with a high degree of severity. These are the risks with an estimated Risk Priority Number (RPN) higher than 100.

This might happen in three cases:
High probability of occurrence, even though its severity is limited
Consequence of high severity, even though the probability of occurrence is very low

- Risks difficult to detect
These derivative risks will be analyzed using the Fault Tree Analysis methodology that will be described in the next section.

Fault Tree Analysis (Fta)

Definition
Fault Tree Analysis is a deductive method in which logical combinations of various events are represented and possible causes that might contribute to the undesired effect are analyzed.

The risk of each situation originates in a series of chained failures or errors (when we refer to human failings) that may lead to an accident or undesirable event.

By means of this methodology we attempt to estimate the probabilities of occurrence of the most significant failures in quantitative terms and the consequences derived from them, in order to define ultimately Risk Management Strategies.

The main components of the tree are defined below:
Undesired event or "event to be avoided" This is placed in the main trunk of the tree. Intermediate event: one whose consequence is the undesirable event. Logical gates: relationships existing between the triggering events that underlie the event in question.

We distinguish between two types of logical gate:
"AND": The events must occur together for the undesired event to take place. The probability of the undesired event is given by the product of the probabilities of the basic events.

"OR": The undesired event will occur if at least one of the underlying events happens. In this case the probabilities of the triggering events are added together.

Basic events: events not requiring others in order to be explained.

Undeveloped events: events whose causes are of little interest or where we do not have sufficient information available to determine them. "Basic or undeveloped" events are located on the lower part of the tree's branches and are characterized by being independent of each other and because the probabilities of their happening can be calculated or estimated.

Between the basic events and other intermediate events chains of situations are generated to lead to the "event to be avoided".

Goals
To obtain a realistic probability of occurrence for the undesirable event, determine the factors contributing to increase the risk and identify the best area in which to implement control mechanisms.

Methodology
Selection of the undesired event or event to be avoided.
Starting from the selection of an undesired event that may involve a serious accident (breakage of the elevator cable) or one of lesser importance. Events developed through the failure tree correspond to those situations in which, due to the severity of their consequences or by having a significant probability of occurrence, are involved in the achievement of the goals set.

The process is fed with the risks assigned the highest RPN (Risk Priority Number) obtained in the FMEA and are the ones on which it is necessary to act first.

We describe each of these points below:

Small falling stones.

These are known as chinateo or small pebbles coming off in areas that are environmentally altered. These pebbles do not imply a risk in themselves, due to the scant severity of their consequences, but they do represent a warning of situations of instability that may arise in the future. For this reason, we consider the falling of stones as an event of relative importance. It must be noted that the falling of slabs or unstable blocks is highly since quite conservative criteria have been adopted in the installation of supporting props.

Nonetheless, consideration must be given to factors such as:
- Modification of the conditions in the tunnels due to visitor footfall
- Decompression processes
- Opening of gaps
- Fast and imperceptible alteration in the rock
- The tunnels are in volcanic tuffs, slate and pyrites, with areas of instability in the tunnel, in general associated with:
- Pyritized area, sulphatation of volcanic tuffs
- Faults presenting associated mylonitic strips.
- Hollow areas left by former workfaces

Formation of puddings and small tectonic wedges limited by fine strips of mylonitized slates favouring the formation of smooth segments that may fall away

Tectonic foliation of shales
Alternances affected by fragile structures (faults) and ductile structures (such as pudding rock and mylonitic foliations).

Panic attack
It has been estimated that 1% of the population suffers from anxiety crises, claustrophobia or panic attacks when subjected to situations of confined spaces, underground locations, darkness, oxygen shortage, … We have assumed three of the most frequent scenarios that might trigger a panic attack, with merely accessing the mine being considered as the main cause.

- Trapped in the elevator
- Incident, fall
- Darkness
- Poor breathing conditions, the nervous system

Poor breathing conditions
Due to the very nature of the mine, there is a release of mercury vapours to which may be added other gases in extraordinary circumstances (fires). Most of the year, the mine is ventilated naturally due to the chimney effect produced between its entrance tunnels and shafts. However, there are times in the year when this ventilation is insufficient, as the temperatures on the outside and inside of the mine are very similar, which means that the push of the air is not strong enough. In one of the shafts, a small electric ventilator (11 kW) has been installed to provide secondary ventilation.

Falling, slipping, stumbling

Falling, slipping and stumbling are frequent in mines. We shall define each of these incidents below.

Slipping and stumbling may end in falls, causing injuries of different types: bruising, sprains, fractures, … We are referring in general to falls on the same level, although in some cases there may be falls down to a different level.

Slipping occurs when there is reduced friction between the sole of the shoe and the contact with the surface. The causes of slipping in the tunnels area:

- Slippery surface
- Material and condition of footwear (for example, shoes with worn soles)
- Factors related to the organization of tours: sudden stops and starts, fast and frequent changes of direction (Caña Gitana),
- Vulnerability of the visitor: gait, pace with respect to the group, problems with motor co-ordination
- Presence of water, pebbles, mud, oil

The other kind of incident that may lead to a fall is stumbling. People stumble when the forward movement of a foot is suddenly interrupted, but the body continues moving; the centre of gravity moves forward from its point of support (the foot) creating a loss of balance. In some cases, balance can be regained, in other cases the body keeps moving until it collapses onto the surface on which they are walking (fall on the same level) or down to a lower level, or until there is a collision an object.

Causes:

- Untidiness
- Presence of areas in which it is necessary to bend over due to lack of space
- Irregularly spaces steps (ladders at Torno de Castro)
- Cleanliness (presence of spills, mud, tools, … on the ground)
- Presence of obstacles or essential elements in the installation (cables, bolts)

Fall may be caused by slipping or stumbling. They may also be caused by secondary triggers (loss of footing, missing your step). A fall occurs when a person's centre of gravity moves away from the point

of support. Even if balance is recovered, the force of gravity may pull the person and cause a fall onto a lower surface.

There are two categories of falls:
- Fall on the same level
- Falls to a different level

In most cases, falls to a different level have more serious consequences, as the distance of the fall determine the acceleration that the body attains during the descent, thus determining the force of the impact. The higher the speed, the greater the force experienced by a body when colliding with another object.

Areas in which falls may arise:
- The Pozo de San Andrés shaft, stages of recovery of the horizontal pumps
- Ladders at the Torno de Castro or the breast and stope workfaces, due to the unevenness of the steps.

Searching for causes. Definition of events and logical operations between them.

Intermediate and basic events.
Causes can be sought among the hazard sources detected on the system. For example, in the case above of slipping and falling:
Contributing factors. Causes
- Workers/ visitors
- Machines/ equipment
- Working atmosphere
- Management
- Personal factors

Personal factors (workers / visitors)
- Failure to follow instructions or indications for a safe visit
- Improper use of equipment (helmet)
- Inadequate training
- Inadequate supervision
- Fatigue
- Lack of motor co-ordination
- Risky behaviour

Design factor, others
- Inappropriate design: ladders, scaffolding, handrails
- Missing components
- Inadequate maintenance (wear and tear)
- Environmental conditions (wind, snow, dust, vapours, lack of lighting, etc.)
- Organization of tours, protective measures

Representation
Logical and systematic representation of the combinations of situations or causes of the event to be avoided, so as to define the intermediate events in turn generated by events at a lower level, until the last level of the tree is reached, the one containing the basic or undeveloped events. The levels are linked to each other by means of operators or logical gates, standardized logical symbols.

Estimation of probabilities
The probabilities of the basic events are determined and are propagated throughout the model to define the probability of the undesirable event.

For the estimation of the probabilities, we use the following methods:
- We use measured data. Analytically, it is based on the physics of the scenario and statistical processing.

- Transfer to a similar scenario
- Published data tables (reliability)
- Consultations with experts and statistical processing
- Register of Historic Incidents.
- Subjectively, we base opinions on experience or professional assessments
- Probabilistic, using analytical operations (FTA)

Using current data. These are empiric data, measured or estimated at the scenario itself. E.g. we have measured the concentrations of mercury vapours throughout the tunnel. Adjusting the measures to a distribution curve, we can calculate the statistical parameters and the probability that we may find in a particular area with a pre-set confidence level.

Transfer to a similar scenario. Using data from similar scenarios (a mine of the same type). For example, circumstances in which a fire occurs in a mine. This method has major limitations:
Generally speaking, it is complicated to extrapolate data from one mine to another, for two reasons: the difficulty in finding a mine with the same characteristics and, on the other hand, the changes in the operating conditions, much more severe when the mine was operational.

Published data tables (Reliability or Probability of Failure)
Reliability is the ability of the products or services to behave as required under certain conditions and a stipulated time. It can also be defined as the probability that a product will behave adequately during a specified time.
In the Reliability study, it is necessary to apply Statistics. This is based on the observation of the pattern of the products' failure times (lifetimes).

The failure rate ($l = f(t)$) varies with respect to time and its typical representation is in the form of a bathtub. The life of the devices has a behaviour that follows the following stages:

1.A decreasing rate corresponds to initial or childhood failures. These are associated with the existence of defective devices or devices incorrectly installed with a higher than normal failure rate. The failure rate is high at the beginning and diminishes over time, until it reaches an almost constant value.
2.A constant rate corresponds to normal or random failures. These are mainly due to operations at higher levels of stress than those designed for and appear at random and unexpectedly. The behaviour of the rate is constant during this stage and the failures are due to the normal working conditions of the devices themselves, or else to occasional subjection to higher than normal levels of stress.
3.A growing rate corresponds to the stage at which the useful working life foreseen for the component has been reached and degradation failures begin to appear as a consequence of wear and tear. These are characterized by a rapid increase in the failure rate.

In our study, we assume that we are at the constant failure rate stage. If we are in or close to the third stage, the components of the device or equipment must be replaced before its working life is exhausted using preventive maintenance plans in order to postpone almost indefinitely the incidence of wear and tear.

Most systems have constant failure rate speeds for long periods in their useful life. During these periods, failures occur at random. The probability of failure can be acceptably modelled as an exponential function with an exposure period of T.

Almost all equipment with rotating elements show similar "bathcurves". In general, they fail after their expected lifetime is exceeded, but they can fail at random in prior intervals.

Various sources can provide probabilities of failure:
- Manufacturer's data
- Industry standards

- Quality Standards of the US Army
- Historic evidence from similar systems
- Simulations / tests
- Delphi estimation

Engineers' Opinion. Delphi Method. Assessment Committee

A survey is carried out with a previously designated Assessment Committee and by applying statistics to their answers we can approximate the probability of occurrence. The questions are aimed at assigning a probability of occurrence within the values shown on the table for the events mentioned above.

Human error :

Human error is inevitable. There are factors that influence the probability of human failure:
- Experience
- Stress
- Training
- Fatigue
- Perception of the consequences of an error
- Use of guidelines and checklists
- Nature of the action: repetitive, complex.
- Realization of the failure at the first attempt
- Self-discipline / conscientiousness

We are mainly facing errors of omission as the process is one of great simplicity and routine. Some of these errors would be failing to detect failures during routine inspections (a blown light bulb, an area with altered rock) or not performing a function (cleaning, repair, etc.).

For these cases, the probability of error is 3·10-3.

Estimation of the probability of occurrence of the event:

The estimation of the probabilities of occurrence of the events is effected using Boolean Operations. We consider sets of probabilities that are independent of each other, so that there are no redundancies in the estimation of the probability of the event to be avoided.

Example. Poor Breathing Conditions in the Mine. Chemical Risk

Selection of the undesired event or event to be avoided
The undesired event or event to be avoided is the presence of an poor breathing conditions in the tunnels. By poor breathing conditions we mean that there are areas in the surroundings with significant concentrations of mercury vapours or other gases or else areas with a lack of oxygen.

Searching for causes. Definition of events and logical operations between them. Intermediate and basic events.

Event to be avoided: Poor breathing conditions
Primary intermediate events
- Release of mercury vapours or other choking, hazardous or toxic gases
- Lack of air

Secondary intermediate events.
In the tunnel there is a lack of air due to the failure or absence of the forced ventilation system and total dependence on natural ventilation. There may be situations in which natural ventilation is not enough.

Third-level intermediate events:

Failure of the ventilator. This is defined as the main cause of the failure of the forced ventilation system. Another cause would be the opposition of forced ventilation to natural ventilation by creating a draught of air that is less than that foreseen in terms of flow and direction.

Undeveloped events:
We distinguish between: Poor closing of abandoned tunnels, whereby gases from a de-gasification process may be released.

Natural ventilation is opposed to forced ventilation by creating a draught of air that is less than that foreseen in terms of flow and direction. Resistance to the passage of air through the tunnels. This implies an over-estimation of the air flow through the tunnels.

Basic events. For these we will determine the probabilities of occurrence.
- Fire
- Mechanical failure of the ventilator
- Electrical failure
- Seasonal variation in temperature

Estimation of the probabilities

The probabilities of the basic events are defined. The basis used for the calculation is a one-year period.

Probability that natural ventilation is not enough. A value of 0.1 is obtained from the consultations with the Assessment Committee. The difference in temperatures inside and outside of the tunnel do not exceed 4ºC for 50% of the year.

Probability that a fire will occur.
There are no self-combusting gases, nor any compounds that could self-ignite
The protective measures specified in the legislation have been applied to the electrical circuit: earthing points, differentials, insulation, etc.
Presence of combustible material inside the mine (timber)

The main causes of fires would be:

Short-circuits, overloads.
Human error, lack of maintenance in the installations. Other causes of less importance at our installation:
Inflammable liquids or vapours
Untidiness
Sparks fly due to the friction between metallic elements and rock.

The method used to estimate the probability is by consulting the Assessment Committee, obtaining a value of 10-3.

Probability that a mechanical failure will occur in the ventilator
Causes of the failure of a ventilator:
1. Mechanical causes (rotor, axle, motor)
2. Electrical causes (these influence the operation of the motors, there could be overheating of electrical origin)
3. Causes of failure before the working life period is completed:
4. Starting up and stopping diminish the expected life of the ventilator.
5. Overheating
6. The existence of friction between elements …

The duration of a ventilator in hours follows an exponential pattern.

The mean life has been taken from a reliability study carried out with 100 axial ventilators:
where:

- T is the mean life
- ? is the failure rate

The reliability function after a period of operation T has been reached (in this case, it is given by the time the ventilator is active, 300 x 8 hours) is defined by the following function:
We obtain a Reliability of 97% and a probability of failure of 0.03.
It is difficult to extrapolate these failure frequencies for a ventilator, due to the differences between one motor and another. (Breakdown into components)

Using this same method, the probability of failure has been estimated for the alarm on the elevator (0.001) and the detector on the elevator ordering the doors to open or close (0.001).

-Probability of an electrical failure in the ventilator
Using equipment reliability sources, we find that a rotating electric motor will have 5/106 failures per hour. Assuming that it will be operating for 2,400 hours (300 days at 8 hours a day), the probability of failure is 0.012.
This same figure is used for the case of the elevator motor (it works with electricity and is also a rotating motor).

Probability of natural release
Measurements of mercury vapour have been taken throughout the tunnel under natural ventilation conditions (the procedure is described Chapter IV).
Using the random distribution of these values and the calculation of the quantiles, it is found that, at 97.5% certainty, there is a probability of 0.0074 that the concentration of 0.1 mg/m3 will be exceeded at some point in the tunnel.

Probability of electrical failure

Through the approximation of the interruptibility tariff, we have a probability of occurrence of 10-3.

Probability of failure in the emergency lighting system
The failure tree has been developed on the basis of the reliability data from the manufacturers of the these systems, published in the National Minerals Industry Safety and Health Risk Assessment Guideline, Version 4, January 2005.

Results and Comments
Chapter V develops the failure trees related to the other events with significant probabilities.
The final result of the tree is the probability of the event to be avoided. We will compare this value with that estimated by the experts and on the basis of our professional judgement. On the other hand, the estimation of the probabilities of each intermediate and basic event allows us to detect critical areas on which actions must be taken.

Ventilation and atmosphere in the mine

This section analyzes the ventilation conditions in the mine, considering the conditions in which natural ventilation will be sufficient and when it would be recommended to use forced ventilation.

It should be pointed out that the nature of the installations diverge from those of a fully-operational mine: there are no internal combustion powered vehicles travelling through the tunnels nor any fireproof materials so it can be classified as a mine with a low fire risk as they can only be started by failures in the electrical system.

Nonetheless, we must point out that the mine does present one risk element inherent to its nature: mercury. Some space is devoted to summarizing the Regulatory Prescriptions applicable in this sense.

A later section describes the ventilation circuit through the calculation of the resistances that the air has to overcome when passing through the tunnels presenting uniquely winding and narrow characteristics. Stress is placed on the areas where the passage of the air is hindered (dead ends) and there may be a greater accumulation of vapours, or a lack of air.

The calculation of the ventilation circuit includes the estimation of the airflows that must necessarily be circulating to facilitate the breathing of humans and to dilute negative agents.

Some of the characteristics typical of mercury are reviewed below, together with the programme for the measurement of mercury vapours carried out in the tunnels, with a description of the methodology and techniques used.
This study was included within a Chemical Risk Analysis. This type of risk includes two factors apart from the hazardousness and frequency, namely the exposure time and individual vulnerability to mercury vapour.

Regulatory Prescriptions. Legislative Framework.
Mines, in general, can be ventilated using natural means but "artificial ventilation means will be provided in order to regulate air flow when this is incapable of fulfilling the conditions required" (ITC 04.7.01, section 1 referred to in the General Regulations on Basic Mining Safety Standards).
The type of ventilation means to be used is not specified nor does it state if it is obligatory for this to be installed permanently, however ITC 04. 7. 03 section 1 referring to Main Ventilators says "whenever Natural Ventilation is insufficient to meet the general ventilation requirements, main ventilators will be installed".

Atmosphere in the Mine:
"The volumetric concentrations for the different hazardous gases in the course of a working day are specified in the Complementary Technical Instructions" (ITC 04.7.82)
"In no activity will the proportion of oxygen be less than 19 per 100 by volume.
If necessary the pertinent correction will be made by altitude"

Natural Ventilation
The only natural force that can create and maintain an appreciable airflow is thermal energy, due to a difference in temperature. This difference in temperature generates a difference in specific weight between the incoming and the outgoing air.
Natural ventilation depends on two factors:

- The difference in elevation between the surface and the mine works.
- The difference in temperature between the inside and outside of the mine. The larger the difference, the greater the air flow.

It is not possible to depend on natural ventilation due to its variability. In the event of a fire, there are large thermal gradients and natural ventilation goes out of control, generating an extremely dangerous situation.

Forced ventilation
Ventilator.
A ventilator is a machine that produces an increase in pressure in the circuit equal to the loss of force experienced by the airflow as it travels through the mine. In general, three types of commonly-used fans need to be differentiated: helical, axial and centrifuge ventilators.

Axial ventilators
These have a cylindrical duct, a propeller comprised by a certain number of vanes fixed on a cube or formed out of the same. The air enters and leaves in parallel to the machine.

Description of the ventilator installed
Single-step axial ventilator, with a rotor diameter of 500 mm, operated by an 11 kW electrical motor at 3,000 rpm, located in the Pozo de San Miguel shaft.

Components:
Cast aluminium rotor, statically and dynamically balanced, placed directly on the axle of the drive motor
Housing for the rotor in rolled steel reinforced with flanges and cores
Housing for the ventilator in rolled steel with a drive wheel welded inside and a counterflange to allow connection of the motor
Asynchronous electric motor, triple phase, with an 11 kW short-circuit rotor, at 3,000 rpm, operating voltage of 380 V at 50 Hz and IP-55 protection
Protective grilles depending on the pressure and flow diagram

Axial ventilators can adapt to a wide range of "characteristic curves" using one of two methods:
- Regulation of the rotation velocity
- Regulation by modification of the angle of the vanes

The ventilation installation includes a frequency variator. A variation in frequency translates into a reduction in the velocity that in some cases is associated with a reduction in noise levels.

The goal of reducing the frequency is to achieve maximum performance in the ventilator, but in the case of ventilators with such low power there is not much sense in doing this.

Characteristic curve of the ventilator
This is the relationship between the flow of air passing through the ventilator and the increase in pressure between aspiration and impulsion.
In the first part of the curve, the ventilator works in a stable fashion. The point at which this curve intersects the characteristic curve of the mine is known as the equilibrium point.

Once this equilibrium point has been passed, there is a point B or pumping point at which the fan enters an unstable regime, causing severe vibration that ends up destroying the rotor (failure of bearings, breakage of vanes, ...). The characteristic curve of the mine must intersect that of the ventilator with a margin of at least 20 mm AC to avoid it entering that area if an anomaly were to arise, or if conditions in the mine were to change, etc.

Combined operation of the ventilator and natural ventilation
Ventilation due to the combined action of the ventilator and natural draughts is equivalent to the ventilation of the mine by several ventilators placed one after the other. Natural ventilation corresponds to a constant value that will be added to or subtracted from the correlate of the ventilator's characteristic curve depending on whether the direction of the natural ventilation is going in the same sense as the depression of the ventilator or inverse to it. It is important to consider this value as ventilation is favoured on the first level of the mine due to the large number of entranceways and shafts.
Consideration must also be given to those cases in which natural ventilation is opposed to forced ventilation. In those cases, we must find alternatives to the ventilator already installed, or else depend solely on natural ventilation. In order to resolve the case of natural ventilation with several outlets on the surface, fictional ventilators are assumed to be at the entrances to the mine.
Choice of ventilator. Small-sized mines.

In this case we do not choose a fan as it is pre-set. It is intended to ventilate a level of a small-sized mine. Initially, it would be enough with a catalogue ventilator with an impulsion capacity of up to 10 m3/second. Some of the characteristics of these ventilators are:

They work in a very low area of their characteristic curve.
They work very far from the pumping point, which is an advantage
They allow wide variations in the resistance of the mine without producing notable changes in the air flow

Low performance
These ventilators are usually built to be attached to resistant pipelines with a small equivalent opening compared with that of the mine.

We must point out that a ventilator of this type is typical of secondary ventilation.

Due to the fact that we do not have any manufacturer's data for the ventilator installed, we have adopted criteria based on similarity with a secondary ventilator with the following characteristics:

These ventilators are installed in pipelines with a cross-section of up to 16 m2, the amount of air flow they suck in or blow out is in the order of 3 m3/second, for a rotor diameter of 600 mm and a power consumption of around 15 kW.

After estimating the flow rate that the ventilator has to suck in to overcome the resistance of the tunnel and dilute possible harmful substances, we determined whether this ventilator is sufficient for our installation.

Chemical Risk Assessment

Failure of the ventilator
In the Chemical Risk Assessment, the main failures considered are those causing situations of insufficient ventilation.

This may be due to a choice made: for example, maintaining natural ventilation with the ventilator turned off, or to an electrical or mechanical failure in the ventilator, assuming that natural and forced ventilation are acting simultaneously. In the light of this, we considered the need to inspect the ventilators so as to be able to detect an accidental stoppage. In our case, it would be simple, as it is installed in a visible and audible location, so we assume that it is subject to round-the-clock monitoring, and any failure will be detected. We must consider the implications of a stoppage: this is equivalent to risking the absence of forced ventilation and it can, nonetheless, be assumed if we go to extreme situations, as in the case of a fire, where we must adopt the necessary measures to ensure that the natural draught continues circulating once the ventilator has been stopped and keeps flowing in the same sense as the artificial ventilation, avoiding its inversion.
Ventilation Project

Atmosphere in the mine. Mercury and other gases.

The composition of the atmospheric air at sea level in terms of volumetric percentage is:

The conditions in mines and the changes made are such that the concentration of Oxygen diminishes and the concentration of CO2 increases.
Gases present in mines

As our starting point, we shall define the nature of the mine.
We have taken into account the following considerations:
- There is no presence of any flammable gas (CH4 or H2), therefore there is no risk of explosion in the mine.
- There are no diesel-powered engines to act as sources of combustion gases.

The only sources of gases would be:
- Fire
- Natural release (mercury vapour, CO, CH4, …)

The generation of poor breathing conditions or Chemical Risk is associated with the following phenomena:

Reduction in the concentration of Oxygen:
This comes about through silent oxidation in areas (such as tunnels, shafts, …) that have not been ventilated for a long time, generating a shortage of oxygen and an increase in the concentration of CO2

- Fires
- Areas of extinguished fires: due to interruption of the provision of air to the focus of the fire
- Breathing of humans (depending on the effort made by the body, a miner consumes between 0.4 and 4 L of oxygen per minute, breathing in between 10 and 100 litres of air per minute to do so)
- Combustion processes: fires

Increased concentration of CO2 (suffocating gas):

- Fires in mines
- Breathing

Toxic chemical gases. Carbon Monoxide.

- Fires

Generation of other gases
H2S
82
SO2
Other hazardous gases: from resins, …
Mercury vapours
Well-being in underground mines.
Well-being in mines is related to the conditions underground. Whether working in the mine or visiting the tunnels, it is important to maintain certain minimal conditions of well-being, with the goal of allowing the activities or visits to be carried out satisfactorily.

Some of the factors influencing well-being are as follows:

- Influence of the ambient temperature.
- Velocity of the air in contact with the body
- Presence of dust
- Darkness
- Narrowness
- Noise
- Dampness

The conditions measured in the mine with a compound anemometer are as follows:
Dry temperature 12-14ºC
Dampness 50% (low)
Air velocity 0-1.7 m/s

The temperature measured (12-14ºC) may vary in the summer months, reaching higher values. In any case, it is within a very acceptable range.

Generally speaking, there are problems in mines when extreme temperatures are reached due to working at great depths.

The velocity of the air in contact with the body may lead to a sensation whereby the body feels colder than it should according to the objective temperature. For temperatures below 15ºC, it is recommended not to be exposed to more than 0.5 m/s of airspeed. We only have a record of this value at one point at which the sum of the natural chimney effect and the forced ventilation push the airspeed up to more than 1.5 m/s. We are referring to the point at which the entranceway from the Mina del Pozo cuts across the San Aquilino tunnel.

In the Pozo de San Miguel shaft, where the suction ventilator has been placed, there is some dust in suspension, otherwise imperceptible overall.

Other factors influencing visitor's well-being are the darkness and the noise generated by the ventilator. Nonetheless, it must not be forgotten that this is a visit to a mining context.

Mercury. Toxicity. Toxicological profile of elemental mercury. Effects on health.

A toxic element or chemical is that which is capable, when absorbed and introduced into the body and metabolized, of producing lesions in the body's systems and even causing the death of individuals. Toxic Effect: This is the adverse or undesirable effect caused by a chemical substance on a biological system. Chemical Risk is defined as the likelihood of a substance producing toxic effects.
Chemical risk depends on the intrinsic toxicity of the substance and the possibilities of coming into contact with it.

The following are some of the factors influencing the Chemical Risk:

- exposure time
- specific circumstances of the exposure,
- location and concentration of the substance in the environment,
- temperature,
- duration and frequency of the exposure
- the protection systems used,
- the physical and chemical properties of the substance itself, such as volatility (the greater the volatility, the greater the possibility of being inhaled), solubility (possibility of passing into drinking water) or lipophily or solubility in fat (possibility of being absorbed through the skin).

Due to the huge amount of information regarding the different types of mercury, its effects and toxicity, we will focus on the form of the mercury that is present in the tunnels:

Entrance route: air due to inhalation

Type: elementary mercury in the form of vapour or else mercury associated with the particulate matter eliminated quickly through wet or dry deposition with a time that depends on the particulate size. We are not at any time referring to organic mercury.

Sources: solely natural (ore deposits, volcanism, associated with mineralizations in faults), anthropogenic sources are discarded. Mercury evaporates from the minerals or comes from the de-gasification of lower levels in the mine.

Exposure time: between 15 min (visitor) and 7 hours (guide)
Persons exposed: Individuals with differing sensitivity profiles.

- The physical and chemical properties of mercury and the Standardized Toxicity Indexes are included in APPENDIX C.
- A mercury measurement programme has been drawn up (Chapter IV)
- Mercury may be involved in the following reactions:
- Adsorption on oxide surfaces
- Ion exchange in silicate layers
- Precipitation reactions
- Forming complexes with the organic matter present in soils

Mercury forms strong bonds when adsorbed onto other species (for example, shales). Due to the reductive nature of the carbon in shales, it is retained on the surface in its elementary form. Because of its high volatility it passes easily into vapour and this is the main source of mercury in the mine. In the natural setting, mercury presents toxicity in all biological systems except plants.

EXPERIMENTAL PROCEDURE. MERCURY MEASUREMENTS

As seen in the preceding chapter dealing with ventilation, we can come to the conclusion that, if we do without forced ventilation, we will find ourselves in situations in which air flow speeds are low or even zero. This facilitates the concentration and accumulation of mercury in certain areas. Given the toxic characteristics of mercury vapours, it is necessary to keep a check on their concentration at all times.

The recognition of mercury vapours is based on measurement and the location of those points where they concentrate. The concentration of mercury vapours will be inversely proportional to the ventilation air flow.

Basis of the analytical method

A known volume of air is passed through a glass tube containing hopcalite granules (solid adsorbent) and, starting from the contents of the filter, a sample is prepared for analysis using Cold Vapour Atomic Absorption.

Equipment and sampling material:
The sampling equipment comprises an aspiration pump and a tube of hopcalite or uptake material. The pump must be calibrated so as to maintain an air flow at a certain value, with a precision of ± 5%. It is calibrated with the uptake material (the tube of hopcalite) that is going to be used so that the loss of load is similar to that of the sampling conditions.

The uptake material comprises a tube of hopcalite. It is a glass tube, approximately 6 mm in diameter and 70 mm long containing 0.2 g of hopcalite granules.

Experimental procedure
The main stages are as follows:

- Aspiration pumps are placed at the significant points of the tour, depending on the works being carried out.
- In the course of an hour, they suck in air, equivalent to the passage of an air flow of 20 litres per hour.
- The hopcalite filter is removed and will be stored in adequate conditions
- Analysis of the samples by Cold Vapour Atomic Absorption.

Sample collection. Analysis of Samples:
The hopcalite granules contained in the glass test tube are digested with a mixture of acids (HNO3-HCl) in a bain marie at 80-100ºC.
A measured proportion of this acid solution is inserted into a mercury generation and analysis system, and its concentration is read at 253.7 nm by Atomic Absorption Spectrophotometry using the cold vapour system.

Field of application. Limitations:
- It allows determination of concentrations of Hg between 0.005 and 0.050 mg Hg/m3 for a sampling volume of 20 litres.
- This method does not differentiate between the mercury compounds that may have been adsorbed.

Hopcalite normally contains a certain amount of mercury, which may affect the results. Its contents varies greatly depending on its origin. Hopcalites have been detected with mercury contents ranging from 0.05 to 1.3 g Hg/g of hopcalite.

Real-time Mercury Analyzer

The Lumex Analyzer is a Differential Atomic Absorption Spectrometer based on the Zeeman effect.

A radiation source (a mercury lamp) is located in a permanent magnetic field. The resonance line of mercury is ? = 254 nm is divided into three polarized components.

When the radiation is propagated towards the direction of the magnetic field, a photodetector detects only the radiation of the components that are circularly polarized in opposite directions.

After passing through the polarization modulator, which operates at a frequency of 50 kHz, the radiation passes through a multi-channel cell with an equivalent optical length of 10 m.

The cell equipped with a system of mirrors only isolates the 254 nm resonance line and eliminates all of the other lines. The intensity of the radiation is translated into mercury concentration and appears on the microprocessor by analogical-digital conversion of its electrical signal.

In this measurement technique, the signal depends only on the concentration of mercury, and is independent of the presence of dust, aerosols, and other pollutants in the analytical cell.
Advantages:

- It measures in real time with a response time of 1 second.
- Detection limit in air, 2 ng/m3
- It does not require atomization of the samples

Sampling equipment and material
The equipment used is an RA- 915+ Zeeman Mercury Spectrometer connected to a laptop computer.

Experimental procedure
The lamp is connected 30 minutes prior to the start of measurement in order to start tracing the base line used as a reference for all measurements.
A route through the tunnel is followed, taking measurements in real time with a response time of one second.

Field of Application. Limitations
The upper detection limit is 25,000 mg/m3. Above these values, the curve translates the signal quantitatively, bends and the values do not conform to reality.

It would be applicable to the case where mercury is found as a trace element, as it presents a very good and selective level of detection for low concentrations.

Another limitation is due to the contamination of the filter by passing through areas with very high concentrations.

Results and Comments

Variation in the Mercury concentration with temperature / natural chimney

In order to observe the variation in the mercury concentration with temperature, we use the measurements obtained from the aspiration pump during 2005 provided by MAYASA:

The following considerations are made:

- Points have been selected for being located close to work being carried out or else through having detected a mercury source that it is important to monitor.
- The parameters that remain constant are as follows: exposure time (1 h), air flow, environmental concentration (small variation in an hour), barometric pressure, dampness and temperature on the inside of the tunnels.

The variations in mercury vapour concentrations recorded throughout the year at the same point are mainly due to the variation in the outside temperature which directly influences the variation in the

temperature on the inside and on the lack of a natural chimney. The temperature therefore directly influences the natural ventilation of the mine. Other causes of the variation in concentration would be: conditions of dampness, wind regime, work carried out in the tunnels.

We assume the temperature on the inside of the mine to be practically constant and equal to 12ºC. The temperatures on the outside vary in the course of the months according to the annual temperature record.

When the internal and external temperatures are practically the same, the flow of air in the tunnels is almost nil. The criterion adopted is that we cannot depend solely on the natural chimney effect for differences in temperature of less than 6ºC.

There are three scenarios (San Teodoro, Caña Gitana and Testeros areas) for which there are time records for the mercury concentrations.

Sampling point
Figure 13 – Variation in mercury concentration with temperature

Testeros area

In the preceding graphs it can be seen that, except for some deviation from the trend, the concentration of mercury vapour generally increases as the outside temperature rises. This can be explained logically: the increase in temperature fosters the vaporization of the mercury that is fixed on the rocks, or favours the ascent of the mercury vapours from lower levels.

Reference was made above to the inter-relationship that exists between the external temperature and natural ventilation. In this case, it can be seen that the temperature has a more of an influence than natural ventilation.

It is noted that in the month of September natural ventilation is favoured which would guarantee the dilution of vapours, on the other hand, the temperature increases with respect to the preceding months so mercury continues to evaporate from its sources, thus increasing the concentration.

Variation in the Mercury concentration with the mining work carried out
Some of the mining works carried out, such as the placement of plugs in shafts, the opening of new shafts, recovery of side tunnels …, may trigger an interruption in the balance of mercury in the atmosphere. This is due to the inclusion of new sources onto the balance sheet.

The graph below represents the measurements of the concentration in a complete tour through the tunnels.

At the time when the sampling was undertaken, the Pozo de San Andrés shaft was open, due to some recovery work on old drainage pumps.

On the other hand, a side tunnel is being excavated right beside the main mercury source detected in the mine. As we come closer to that point a rapid increase can be seen in the mercury concentrations. In conclusion, the opening of tunnels or shafts allows the passage of mercury vapours coming from degasification processes on other levels.

On the basis of these results, we come to the conclusion that it is possible to act on the sources. In the case represented negatively, opening up the passage of mercury vapours. But it would be possible to establish a strategy intended to isolate all of the sources and close off the preferred routes of the mercury vapour.

San Andrés:
With ventilation / opening of the shaft: On the outward journey it is located at point 4077 s and corresponds to 0.005 mg/m3 with respect to the ventilation-free situation of 0.002 mg/m3.

These values continue to be very low.

Caña Gitana:

An important difference can be seen between the outward and the return journey, when we have come close to the source. It must be noted that in this case the geometric factors of the tunnels have a great influence on the accumulation of mercury.

The symmetry of the curve is noteworthy.
It must be remembered that the detection limit is at 200,000 ng/m3, above this value, the measurement recorded may be higher than that indicated.

The maximum valued located correspond to the following points:
1594 s 70192,7 Santa Teresa
2821s 144188 Pozo San Andrés
2931s 95316,5
Caña Gitana (pump 2)

Variation in the Mercury concentration with ventilation

This section revises each scenario and compares the peak concentrations of mercury obtained with and without forced ventilation.

Entrance way to Mina del Pozo
The flat stretch corresponds to a stop at the niche for the Virgin. An increase can be seen in concentrations as we approach San Teodoro. This relates with possible sources of mercury and worse ventilation. The peak value reached in this stretch is 0.002 mg/m3.

With ventilation, even lower concentrations of mercury are seen. Once more the peak is obtained when approaching the Pozo de San Teodoro shaft.

San Aquilino Tunnel

Specific peaks are located in association with the Pozo de San Teodoro shaft, at the intersection of the San Aquilino tunnel with side tunnels containing mineralization, and at Contramina, at the end of San Aquilino, due to the lack of air in this tunnel which ends in a cave-in. In any case, these maximum values are in the order of 0.015 mg/m3. A drop can be seen in the concentrations when returning with a new and sudden increase in the vicinity of the Pozo de San Teodoro shaft.

In the case with ventilation, the results are quite similar, which leads to the inference, on the one hand, that there is no danger of high concentrations of mercury in this area and, on the other hand, that the forced ventilation has not great influence. In the journey made with the ventilator on, we access Workface A, not accessible for visitors, in which the greatest peak was observed, associated with a lack of air.
The peaks are 0.01 ng / m3 and are associated with Workface B (mineralization) and
Workface A ascent (lack of air).
The highest value is associated with Workface A (980 s is 15187 ng/m3 Hg)

Returning to the ventilation-free case:

In the breast and stope workings (testeros), the concentrations detected are in excess of 0.12 mg/m3 which are beyond the device's detection limit.

Caña Gitana

In the case with natural ventilation in the tunnels, the peaks achieved are 0.14 mg/m3. This is a much higher value than is advisable according to health organizations.
When the ventilator fan is turned on, the peak values are halved, in the order of 0.7 mg/m3. These values continue to be high and are probably related to the opening of the side tunnel and with the geometric factors that cause the draught of air to hit the walls, when the tunnels narrow, and the mercury in vapour phase to condense on the rock again.

Levant Tunnel

The values are a little higher in the case with ventilation. This has a two-fold explanation: on the other hand, the direction of the natural chimney draught and on the other the works started in the Pozo de San Andrés shaft. Nonetheless, the values in both cases need not be taken into account (in the order of 0.01 mg/m3).

Forced Labour Tunnel
The values have come down with ventilation and are still at very low orders of magnitude.

Conclusion

If no forced ventilation is used, peak values are obtained in the Caña Gitana and in the Testeros workfaces.

With ventilation, a peak value is once more obtained in Caña Gitana. This leads us to suppose that several factors converge at this point:
- Mercury sources
- Tunnel geometry

As it is difficult to act on the sources, the option that remains is to alter the ventilation circuit using doors and walls so that there is good air flow in those problematic areas.

With respect to the breast and stope workfaces (testeros), artificial ventilation has no influence as it is a dead end. It is recommended to give a series of warnings before entering this area, or else to place a secondary ventilator allowing good breathing conditions.

Variation in the concentration of mercury in blood with the environmental concentration and exposure time.

Based on the data supplied by MAYASA about the environmental and biological monitoring carried out on its workforce during the period from 1986 to 2001, we can draw some correlations between the concentration of mercury in blood (ug Hg/L blood) and the environmental concentration (mg/m3).

Jobs

The trend is similar to that of a Langmuir isotherm, which may indicate similarities in the process for adsorption of mercury on a solid substrate to that of the mercury in blood cells.

The exposure time of the worker to the mercury sources is considered to be constant.

All of the points have been considered in the representation (mean of annual concentrations).

Further adjustments are made for the values obtained from:
- All of the workers at MAYASA
- Single-shift workers in the Primary Metalworking section
- Dayshift workers in the Primary Metalworking section
- General workers in the Primary Metalworking section.

Metalworking shift hours
In the next step, the blood concentrations in workers doing the same job (metallurgy) but with half the exposure time were analyzed. We maintain the environmental concentration constant, and the relationship would be only dependent on the exposure time.

The results are logical, the longer the exposure to mercury vapour, the greater the concentration in blood.

Exposure time was considered variable, and the environmental mercury concentration was constant.

The points corresponding to the jobs have been eliminated (no relationship was found between them).

Concentrations of mercury in blood over time
We set an environmental concentration of 0.1 mg/m3. On the basis of the foregoing expressions, this is translated into mercury concentrations in blood.
We obtain the function for the mercury concentrations in blood over time and calculate what concentration in blood a persons would have after an exposure of 15 minutes (a stop during the tour) at that concentration.
The range of environmental concentrations in metallurgy is much greater, so it is difficult to extrapolate the date at those levels.

[Hg] blood versus exposure time
Limitations:
The curve has been drawn with only two points
From the shape of the curve, we find ourselves facing a system with two solutions, and in which the blood concentration would be between 0 and 1.
We cannot rely on these results, due to the source of the information.
At Almadén, there is a background level of between 20 and 30 ng/m3.
Some data of interest:
Dose-effect (WHO). First effect for sensitive adults and long-term exposures.
· Non-specific symptoms: 35 mg/L in blood
150 mg/L in urine
0.05 mg/m3 in air
· Trembling: 70 -140 mg/L in blood
300 – 600 mg/L in urine
0.1 – 0.2 mg/m3 in air

Results and conclusions

Viewing the results obtained, we consider that the risk in most cases is negligible.

Poor breathing conditions.
We must consider the probability that the breathing conditions in the mine may be poor to be high. In this case, a chemical risk, we are not considering the exposure time, which would be low in any case (around 15 minutes at each scenario). This value coincides with the time estimated by the assessment committee and is based on the characteristics of the ventilator (secondary ventilation). It should be pointed out that, even though the mercury vapour concentrations may temporarily be high from time to time, this will never imply a risk for human health. Only in cases where an individual were retained in an area with high concentrations for a long period. Or a person with particular vulnerability.
Some recommendations will be given in this regard in the next section.

Falling stones. The probability is minimal and far less than informed opinion. Nonetheless, ignorance of the surroundings leads to inaccurate estimations being made. Falling stones have been described in the tree analysis, without stressing the size of these stones. It is very unlikely that small keystones or rock

fragments would fall. However, the falling of small pebbles, as referred to by those surveyed, is more frequent (the frequency assigned has been once every ten years). In any case, this falling of small stones does not imply any risk for health as all visitors are wearing helmets, although it is a warning sign for visitors.

Panic attack
According to studies carried out, 1% of the population suffers from anxiety crises. These persons are vulnerable to a panic attack inside the mine, in view of the conditions of darkness, confinement, atmosphere, underground space, … inherent to the visit. The estimation by the failure tree method conforms to this premise.

Falling persons
Relative frequency. The estimation states that it is quite unlikely, although it is not taking into account the most important agent, namely the vulnerability of the person.

Emergency lighting
This system has scant probability of failure, as it is, in principle, designed to come into service in the event of a failure in the general lighting.

In most failures, there is a considerable human factor (cleanliness, lack of inspection, maintenance).

Measurements of mercury vapour in the tunnels

The factors with the greatest influence on the variability of the mercury concentration from one area to another are:

- Temperature
- Ventilation
- Works carried out
- Sources
- Geometric factors

Temperature.

In the summer months, when the outside temperature is highest, there is a natural draught. This implies that the tunnels are better ventilated, however the higher the temperature, the larger the amount of mercury sublimated into vapour, that is to say the heat encourages the vaporization process.

Ventilation

Measurements have been taken of the mercury vapour with and without forced ventilation, and it was noted that the concentrations diminish with efficient ventilation in the tunnels. However, it must be stressed that there are areas, such as the testeros workface, which are affected very little by the ventilation; here the lack of air and the accumulation of vapour in a dead end generate poor breathing conditions.

Geometric factors:

In some cases these are responsible for the accumulation of mercury in a particular area. This is the case of the Testeros (dead end) or the wide area followed by narrowing in Caña Gitana.

Sources

The sources of mercury are associated with faults containing mineralization parallel to the Caña Gitana and Caña de Santa Teresa pits. Other sources are located at lower levels or in blocked and closed tunnels.

Work carried out

The work done to open up side tunnels or shafts affects the provision of mercury into the tunnel. It is necessary to detect these locations vis-à-vis the safety of the workforce carrying out these works.

Corrective actions. Risk management

Falling stones

- Attention during repair operations
- Monitoring of the meteorized areas and the opening up of cracks and gaps

Poor breathing conditions in the mine

The measures taken are aimed at acting on the factors generating an accumulation or increase in the concentration of mercury in certain areas. The sources cannot be eliminated (the mine itself is a source of mercury), although it is possible to block off the route of the mercury vapour by detecting the cracks and faults through which it emanates. In the event of leaks through tunnels and shafts, this would require first of all the detection (as in the case of the Caña Gitana), and then the sealing of this area. We can influence the geometric factors causing the collisions of air and wall, with the subsequent condensation and accumulation of mercury in certain areas. This would be done by modifying the ventilation circuit by means of walls and doors, so that better ventilation is achieved by directing the air flow.

Should the main ventilator be stopped, the levels of vapour must be monitored closely and the dead ends must be cleared of people.

If the ventilator is buried, in this case in a shaft, the noise is avoided.

Panic attack
Preparation to cope with this kind of incident. Possibility of interrupting the tour or waiting for the rest of the visitors at some intermediate point.
Before the tour begins, clear instructions must be given to ensure a safe visit.

- Routine maintenance and inspection. Revision of the lighting system.

Falling persons
Several factors are involves in the case of falling persons:
Tour organization. Number of visitors, planning of the route so that two groups never coincide in the same area (the tunnels are very narrow).
Surroundings: clean and tidy, so that there are no obstacles in the way.
Frequent repair operations (elimination of sharp-edged rocks).
Instructions for a safe visit.

7.b.3. PROPERTY MANAGEMENT PLANS OR DOCUMENTED MANAGEMENT SYSTEMS.

As explained in chapter 5 and also in 6.b, the elemets included on the protected area delimited by the above Agreement of the Autonomous Government of Castile-La Mancha benefit from the high degree of co-operation existing among the different institutions involved on the protection, conservation and adequate management of cultural properties at a national, regional, local and private level. As regards the inclusion of Almaden in this serial nomination, this cooperation extends to the common agreement among the governments of Spain and Slovenia for ensuring the coordinated management of the separate components included on this nomination (see above)

Almaden Mines Management Plan[1]

The origins of the present master plan for the mine at Almadén is the restricted tender process organized by Minas de Almadén y Arrayanes S.A., the company currently owning the Almadén mining and industrial complex and awarded to Quality System España S.A., which has developed the master plan by means of a multidisciplinary team of specialists in a range of disciplines specifically referred to as the Quality Group.

The mine at Almadén has been operated since Roman times practically to the present day. Nonetheless, the depletion of the deposit together with the decline in mercury consumption and the fall in its price over the last few decades have made its operation no longer profitable.

In order to deal with this situation, the mine's owner, Minas de Almadén y Arrayanes S.A., a publicly-funded company belonging to the Spanish State, has made a considerable effort in industrial diversification, with mining currently representing only one fifth of the company's total turnover. In this search for alternatives for the social and economic development of an area which has lived from mining for centuries, an activity that has now come to an end, the company has decided to make a major wager for the recovery of Almadén's assets by encouraging the social economy in Almadén and its surroundings through the development of social and cultural activities derived from the exploitation of its mining and industrial heritage.

One of its first actions in this direction has been the establishment of the Minas de Almadén Francisco Javier de Villegas Foundation with the goals of recovering the historic heritage of Almadén, fostering and promoting historic and scientific knowledge, and procuring the means to ensure that this heritage is known, visited and enjoyed by the largest possible number of people.

Another of the actions stems from the inclusion of the Mine at Almadén in the National Industrial Heritage Plan through a collaboration agreement between the Minas de Almadén y Arrayanes , S.A. company and the Directorate General for Fine Art and Cultural Assets at the Ministry of Education, Culture and Sports.

In order to make society aware of the value of the huge historic and industrial content of its traditional operations, the drafting of a Master Plan is required in order to reflect the main concepts for the transformation of the area into a social and cultural space, as well as the necessary work and documentation to carry out this transformation.

General Criteria

The museological discourse on which the intervention proposal has been built up and which has represented the guiding line for this project is based on the following thoughts:

1. First of all, the creation of cultural heritage and identity, in this case, a heritage associated with mercury unique in the world, its history and the importance of its applications over time.

[1] MAYASA/QUALITY GRUPO: "Plan Director de las Minas de Almadén".- Madrid, 2003. (Fragments)

2. A second line of thought involves the establishment of a precise guiding line within the Master Plan in order to allow the gradual incorporation of this institution into the cultural consumption market with certain specificities distinguishing it from other similar settings.
3. The third axis is the need to make the various functions that must necessarily exist in a museum compatible from the point of view of continuous innovation.
4. A fourth axis requires ensuring the quality of the cultural products generated, both for the specialist visitor and for the general public, achieving from the outset a competitive position that allows it to guarantee its feasibility over time.
5. A fifth line involves understanding and incorporating the transformations undergone by museums, which have gone from being based on "captive" exhibition spaces towards the concept of a museum as a new means of communication by regularly reinventing programmes which alter that captive nature of their exhibition spaces and functions.
6. A sixth line of thought is the incorporation of new information and communication technologies, both to the productive aspects of the museum and to the transmission of information.

Open museum model:

The model of "open museum" is the most integrating and well-tried formula for giving a museographic format to the contents of the different programmes, projects and direct action, management and development units in the Almadén Mining Park, since, apart from exercising the functions inherent to a museum, its characteristics:

1. Make it an ideal space in which to apply Sustainable Development strategies starting from the current activities in this area.
2. Allow the settlement and interpretation of endogenous cultural values.
3. Develop it as a space for technological innovation that enhances a change in the types, systems and working methods of the museum itself, as well as the emergence of new professional profiles.
4. Finally, it is a space with sufficient entity and capacity to take on different de-centralized action and development policies as well as the implementation of new infrastructures, amenities and fittings.

To ensure that the Almadén Mining Park contains all the aspects mentioned, it is necessary to ensure, through the process for the implementation of the Master Plan, both the political involvement of the regional and local contexts and also the social-local cohesion between the various stakeholders in the area, as the starting point for their active participation at different levels of activity in the development of the MP.

This means that the ultimate goals of the Mining Park must pursue a common strategy, on the one hand, to optimize the endogenous resources that already exist and, on the other, to develop levels of innovation in the different activities undertaken.

Goals of the Master Plan

1. Recover the historical memory of the Mines at Almadén.
2. Preserve, conserve and disseminate the mining and metallurgical heritage of Almadén.
3. Transform the industrial installations of MAYASA as a whole into a social and cultural space.
4. Encourage tourism interested in the culture of mining.
5. Boost the whole area as a centre of excellence for research into mercury.
6. Turn the project into an element providing new dynamics for local development.
7. Foster the necessary protection and defence of the great value represented by Almadén's mining heritage as part of the world's heritage.

5. e. 1. Museography

Visit routes in the different stages

Type of Route

The museological proposal contemplates the combination of a free, variable route with a part that is fixed and guided, namely inside the mine. The idea is for the "Almadén Mining Park" to follow the model of other industrial archaeology parks, where visitors can roam the park and access the various installations previously mapped out for their visit, in a freely chosen route and administering for themselves the duration of their visit.

However, the access and safety constraints for the visit to the mine require a pre-set guided route that is limited in time and size of groups, with pre-assigned start and end times.

Stage one: 2004

At the end of the first stage in the implementation of the Master Plan, the Almadén Mining Park will be able to offer visitors the following itinerary combining several independent resources:

-Museum of the Mining Hospital

The strategy proposed is that, while the preparatory work continues for the Cerco area, the Hospital will have to bear the weight of the museum offer and must convey the values, contents and development formats for the future Almadén Mining Park. The exhibition items at the Hospital will also fulfil a second key function for the development of the overall project for the Almadén Mining Park, namely: that of attracting funding and collaboration from the local population in the overall project for the Mining Park, at the same time as it contributes to the awareness campaign for local and regional participation in the project.

The various temporary exhibitions organized in the Museum, once their goal has been achieved in Almadén, will become temporary travelling exhibits that will act as advertising for the Almadén Mining Park in a number of Spanish cities.

As well as housing the Mining Hospital Museum, the Saint Raphael Royal Mining Hospital will also be the headquarters of the Almadén-Francisco José de Villegas Foundation and the Historic Archive of the Mines at Almadén.

Other elements available for visiting in 2004.

June, 2004:

1. Reception point with an audio-visual presentation at the Visitor Centre.
2. All of the surface elements at the Cerco de San Teodoro.
3. The Bustamante furnaces, accessed through the King Charles IV Gate.
4. Entryway to the Mina del Castillo, the winch in the San Andrés shaft and connection to the Forced Labour Tunnel. Access to the inside of the mine through the Mina del Castillo entrance way.
5. Metallurgy Interpretation Centre, in the building of the current museum.

December, 2004:

1. Visitor Centre, including the teaching resource centre.
2. Access to the inside of the mine and exit through the San Teodoro shaft:
    a. Inside of the Mine. The elements in the area of the San Aquilino shaft (first floor loading area, shrine to the Virgin of the Mine, Workshop and Magazine) and the San Teodoro shaft (Breast and stope operation, connection with the entrance to the Mina del Pozo), from where it is possible to access the area of the San Andrés winch and the Forced Labour Tunnel.

b. The entrance way through the Mina del Castillo, from this point on, provides a service entrance and emergency exit, as does the Entry of the Mina del Pozo.

3. Mercury Museum, located in the mercury warehouse.

Phase two: 2005

Elements available for visiting in June, 2005.
Those in phase one plus:
1. The elements located in the Buitrones Metallurgy Area.
2. The connection between the inside of the mine and the Cerco de Buitrones will be effected through the tunnel for transporting the ore to the furnaces, using a convoy of hutches converted for the transportation of passengers. This train emerges into the surface next to the Pacific furnaces and will take visitors to the Puerta de Carlos IV, where they can continue their visit to the Metallurgy area freely.

Museography Action Programme. Phase I

Visitor Centre

Goal: Contain the Park's administrative services. Use as a reception point, guidance for visitors and distribution of the public.
Reception hall
Action: Design, supply and assembly of museographic amenities for reception point.
Goal: Welcome, guidance, admission control and distribution of the flow of visitors.
Content: General presentation of the Park.
Museographic resources: Banners, graphic panels, direction signs, Directory Panel with Information on the visit.
Collection: source of mercury.

Audio-visual multimedia presentation of the visit.
Action: Design, supply and assembly of museographic amenities for multimedia audio-visual projection.
Goal: Provide the public with a conceptual overview prior to the tour of the park.
Contents: Historic introduction and location of the elements in the Mining Park.
Resources: video projectors, model, system for raising the model, amphitheatre and auxiliary furnishings for multimedia projection room with capacity for 50 people.

Teaching Resource Centre.
Action: Design and supply of museographic amenities, computer material, educational materials and auxiliary furniture for classrooms at the Teaching Resource Centre.
Goal: Provide spaces for educational activities for groups. Classroom for organized visits. Interactive classrooms. Workshop rooms. Library of resources. Exhibition area with educational materials generated at the park: models, etc.

Cerco de San Teodoro (Mining)

Tower and winch of the San Aquilino shaft
Action: Design, supply and assembly of museographic amenities for in situ interpretation.
Goal: In situ explanation of vertical transport systems.
Content: Operation of the shaft: motor, tower, cage. History of the shaft.
Resources: Graphic panels and interpretation signage.
Collection: Industrial heritage in situ.

Former office of the Mine Management
Action: Design, supply and assembly of museographic amenities for the recreation of the former offices.
Goal: Display the spaces and furnishings of the former management office.

Contents: Administration office. Geology and topography office. Aspects of the history of the Mines at Almadén in the first half of the 20th century.
Resources: Recreation of the atmosphere, graphic panels and interpretation signage.
Collection: Furniture, office equipment, calculators, clerical material, engravings and plans, archive material, old photographs, compass, safe.

Mining machinery interpretation area
Action: Design, supply and assembly of museographic amenities for in situ interpretation.
Location: Current workshops and vehicle hangars.
Goal: Explain the operation of the mine maintenance workshops, display the mining machinery and explain their operation and purpose.
Content: Woodworking workshop. Vehicle maintenance workshop. Machine-tool workshop (smithy, adjustment, etc.).
Resources: Graphic panels and interpretation signage on the buildings, the function of the spaces and each of the machines. Demonstrations of their use by specialized personnel.
Collection: Industrial heritage in situ. Fleet of surface and mining vehicles.

Former Hostel and Magazine
Action: Design, supply and assembly of museographic amenities for in situ interpretation and recreation of the atmosphere.
Goal: Explain the remains of the former Hostal. Show the magazine.
Content: Use of explosives to open up tunnels.
Resources: Interpretation signage. Recreation of the atmosphere of the former magazine.
Collection: Triggering devices.

Mine interpretation centre (compression rooms)
Action: Design, supply and assembly of museographic amenities: displays, graphic panels, layouts, dioramas. Restoration and preparation of the old models of the mine at Almadén.
Goal: Explain the mine at Almadén. Explain the original function of the building.
Content: Introduction to the mine's geology. Drilling systems. Transportation of the ore, drainage, ventilation and communication. Changes in the way the mine was worked. Changes and evolution of the mine's operation.
Resources: interactive wall mounted graphic panel showing the stages of the mining operations.
Three-dimensional scale models showing the arrangement of the mine. Three-dimensional model with the location of the mine in connection with the town of Almadén. Interpretation units with interactive scale dioramas showing the operation with the transport and drainage systems, etc. Functional installation of the voice communication systems.
Full scale representation of the work face with the (manual) methods used at the time.
Interpretation graphic panels associated with the different assemblies.
Collection: models about the Larrañaga system (North and South sides). Voice communication systems.
Drilling hammer and drive system.

Lamp shop
Action: Design, supply and assembly of museographic amenities for the recreation of the atmosphere and auxiliary material for the tour of the mine. Restoration and preparation of the battery charging panels.
Distribution of personal safety equipment for the tour of the mine: helmet, waterproof clothing, lamp.
Design, supply and assembly of furniture.
Goal: Provide the visitor with the necessary equipment for the tour of the mine.
Content: Personal equipment for miners. Systems for monitoring presence in mine.
Collection: Lamp chargers. Lamps. Helmets de ovas.
Resources: Recreation of the original lamp shop.
Outside of the San Teodoro shaft
Action: Design, supply and assembly of museographic amenities for in situ interpretation.
Goal: Explain the above-ground ore-transport system using hutches. Explain the crushing of the ore prior to being sent to the crusher at the metal processing area.

Content: Operation of the transport system. Operation of the crusher.
Resources: outdoor graphic panels.

Area inside the Mine (I)

Partial route with provisional access from the Mina del Castillo entrance.
General goal: Explain the mining activities in 18th century.

Belvedere at the entrance way to the Mina del Castillo
Action: Design and supply of museographic amenities: displays, graphic panels.
Goal: Explain the access to the mine by means of entrance ways (horizontal tunnels).
Content: Situation of the entrance way with respect to Almadén and the ruins of Retamar Castle. Function of the sunken entrance ways in traditional mining.
Transfer of ore from the entrance ways to the nearby distillation furnaces.
Resources: Outdoor graphic interpretation panels.
San Andrés shaft
Actuations: Design, supply and assembly of museographic amenities for in situ interpretation, recreation of the original atmosphere.
Goals: Explain the systems for extracting ore in the traditional period.
Explain access by mine personnel to the workface through vertical shafts.
Contents: Explanation of the reinforcement system using brick arches between the side faces. Elements for the extraction of ore: flooring. Access by ladders.
Geological peculiarities: fossilized sea bed.
Resources: Recreation of the ladder system inside the shaft.
Recreation of the flooring. Interpretation signage. Museographic lighting.

San Andrés winch
Action: Design, supply and assembly of museographic amenities for in situ interpretation and recreation of the original atmosphere.
Goal: Explain the mule-driven traction system of the winches.
Contents: Historic mining. Explanation of the vertical transport system by means of winches.
Resources: Reconstruction of the winch. Atmospheric sound equipment.
Museographic lighting for the installation. Interpretation signage.

Connection to the Forced Labour Tunnel
Action: Design, supply and assembly of museographic amenities for in situ interpretation and recreation of the original atmosphere.
Goal: Explain how the forced labour accessed the mine from the prison.
Content: Connection to the prison. Forced labour in the mine. Remains of the prison in what is now the Polytechnic School.
Resources: Audio-visual projection. Installation of atmospheric sound. Interpretation signage.

Recreation of historic mine working
Action: Design, supply and assembly of museographic amenities for in situ interpretation and recreation of the original atmosphere.
Location: Side entrances in the connection to the Forced Labour Tunnel.
Goal: Explain how the rock was removed using picks and explosions with gunpowder in traditional mining.
Content: Systems for extracting and transporting ore.
Resources: Atmospheric sound installation. Recreation of mine working in the rock tunnels on either side.
Recreation of a transport hutch. Installation of hand-powered drill in the Castro area.
Collection: Drill bits, picks. Historical heritage of the Cerco de Buitrones area.

Area inside the Mine (II)

Entrance to the mine through the San Teodoro shaft.
Action: Design, supply and assembly of museographic amenities for in situ interpretation.
Goal: Explain the characteristics of the tour inside the mine.
Content: Situation of the level to be visited in the mine as a whole. Duration and route of the tour. Rules to be observed.
Resources: Sound installation in the lift.

Mina del Pozo
Action: Design and supply of museographic amenities: displays, graphic panels, layouts.
Goal: Explain the old way to access the mine through the sunken entrance ways.
Content: Age of the remains preserved. Systems for transporting the ore to the surface through the sunken entrance ways.
Resources: Recreation of the systems for transporting the ore using contemporary hutches. Interpretation signage.
Location: Connection to the Mina del Pozo entrance way in the area around the San Teodoro shaft.

San Aquilino area
Action: Design and supply of museographic amenities: displays, graphic panels, layouts, dioramas.
Goal: Explain the characteristics of the transport systems in this shaft and the adjacent elements.
Contents: Old wooden system for guidance and getting out of the shaft lift.
Shrine with the Virgin of the Mine. Workshop and magazine.
Resources: Recreation of atmospheric sound. Interpretation signage. Simulation of the cage's descent through the heart of the shaft. Placement of an image in the Shrine to the Virgin of the Mine. Old workshop and magazine: Recreation of the original atmosphere.

Rock tunnels in the area of San Teodoro
Action: Design, supply and assembly of museographic amenities for in situ interpretation and recreation of the original atmosphere.
Goal: Explain the drilling and gunpowder explosion methods in traditional mining.
Content: Ore extraction systems. Geology of the cinnabar lodes
Resources: Installation of atmospheric sound. Recreation of mining operations in rock tunnels to either side. Recreation of a transport hutch.
Collection: Drill bits, picks.
Breast and stope operations
Action: Design, supply and assembly of museographic amenities for in situ interpretation and recreation of the original atmosphere.
Goal: Display and explain the breast and stope operating system
Content: Geology of the lodes. Breast and stope operating technique.
Resources: Recreation of this way of working.

Historic Heritage of the Cerco De Buitrones
King Charles IV Gate
Action: Design, supply and assembly of museographic amenities for in situ interpretation.
Goal: Explain in situ this element of the historic heritage.
Content: Neoclassical architecture.
Resources: Outdoor graphic interpretation panels.

Cart Gate
Action: Design and supply of museographic amenities.
Goal: Explain in situ this element of the historic heritage.
Content: Traditional access to the Cerco de Buitrones area (carts drawn by oxen and horses or mules).
Resources: Outdoor graphic interpretation panels.

Buried tile kiln
Action: Design and supply of museographic amenities.

Goal: Explain in situ this element of the historic heritage.
Content: Processes for manufacturing building materials for the traditional mining and metal working techniques.
Resources: Outdoor graphic interpretation panels.

Bustamante Furnace
Action: Design and supply of museographic amenities.
Goal: Explain in situ this element of the historic heritage.
Content: Traditional technology for the working of mercury.
Resources: Outdoor graphic interpretation panels.

San Miguel Shaft
Action: Design, supply and assembly of museographic amenities for in situ interpretation and recreation of the original atmosphere.
Goal: Explain the function of the shaft's ventilation elements.
Content: History and evolution of the shaft. Ventilation system.
Resources: Outdoor graphic interpretation panels.

Chimney for The Old Spirek Furnaces
Action: Design, supply and assembly of museographic amenities for in situ interpretation.
Goal: Explain the location of the different elements in the contemporary metal working process.
Content: Spirek furnaces' distillation system.
Resources: Outdoor graphic interpretation panels.

Mercury Museum

The Mine at Almadén History Room
Action: Design, supply and assembly of museographic amenities.
Depending on the final distribution of the contents, it is proposed to effect a small intervention in the building so as to create four large equivalent spaces. The structure of this building allows this intervention except in the area of the old courtyard so the interior walls can be adjusted. The building does not require any services and the other amenities building is nearby.
Location: The current museum.
Goal: Exhibition of objects and explanation of contents regarding the working of the Mine at Almadén throughout history.

- Contents: The aim would be to create a historical museum on a chronological theme, focusing on four main periods, in order to provide both understanding and a connection to the educational programmes. The idea is to convey not only the two thousand years of history of the mines at Almadén, but also the history of mining. The four large periods would be as follows:
- From Sisapo to quicksilver, mining in Rome and the Arab world. This would cover surface mining and picking, but stressing awareness of the history of mercury's metallurgy. This first area would contain a generic reference to mining in the ancient and classical eras.
- A second area would focus on mining in the mediaeval era and the renaissance. This would reflect the era of the Order of Calatrava and the Függer family in Almadén.
- The third large phase would focus on the Golden Age period and the progress made in the 17th and 18th centuries insofar as these represent a greater understanding and refinement in mining and metalworking procedures.
- The last large period refers to the age of the industrial revolution and modern developments, since 1805, the date of the commissioning of the first steam machine until the present, and would cover the emergence of more complex mechanical and industrial procedures in mining.

Collection: There is a great deal of associated graphic cultural material, and also a considerable amount of secondary cultural material. There are also items and collections that could be displayed. But overall, the treatment proposed is that of a graphic and virtual tour using communicative supports with texts and occasional audio-visual displays.

Mercury room
Action: Design, supply and assembly of museographic amenities.
Goal: Creation of an area focussing on the manipulation of mercury. Understanding of the Physics and Chemistry of mercury. Reflections on the use and application of mercury.
Content:
This room would focus on reviewing actively and "hands-on" the scientific contents regarding the physics and chemistry of mercury. States of mercury and its properties. The dynamics of mercury vapours. Density. Specific heat. Compressibility. Tensionability. Conductivity. Heating power. Steam power. Amalgamation. Solubility. Antisepsis. Organic compounds with mercury. Other compounds with mercury.
Each of these content areas would be developed in hands-on modules allowing a comparison of their different aspects. For example, pools of mercury and other substances and elements allowing comparison of the physical and chemical properties such as conductivity, density, tensionability, compressibility, amalgamation, etc. Always with a reference to educational curricula and also to the dissemination of science to the general public.
- A final display will develop the uses of mercury and mercury-containing compounds.
Resources: Exhibition showcases, displays, pedestals, graphic interpretation panels, audio-visual resources, computing media, models.
Collection: Source of mercury and iron in Arab times. Laboratory instruments.

Signage in Public Areas

Action: Design, supply and assembly of direction signs and interpretation signage for outdoor areas.
Goals: Direct visitors in their tour of the Cerco area. Understand the open areas.
Content: Historic evolution of the spaces in the Cerco de San Teodoro-Buitrones.
Functionality of the different areas.
Resources: Outdoor graphic panels.

Museography Action Programme. Phase II

Exit from the Mine in the Metallurgy Area.
Action: Design, supply and assembly of museographic amenities for in situ interpretation and recreation of the original atmosphere.
- Location: Lift in the San Teodoro shaft. Elevation from level 48 up to level 15. Internal communication between the mine and the metalworking area using a convoy of ore hutches.
Goal: Explain the system for transporting the ore to the distillation furnaces.
Contents: Transport of ore on conveyor belts and convoys of hutches.
Processing of ore in the crusher (San Teodoro) and grinder (Metallurgy area).
Resources: Simulation of movement on a conveyor belt. Atmospheric sound system.
Collection: Recreation of a convoy of hutches. Ore transport conveyor belt.

Metallurgy Area (Cerco de Buitrones)
Goal: Display and explain contemporary metalworking processes.

Pacific Furnaces
Action: Design, supply and assembly of museographic amenities for in situ interpretation.
Goal: Explanation of the current distillation method. Simulation of activity.
Content: Process for mercury distillation. Operation of the furnace
Resources: Outdoor graphic interpretation panels.

San Joaquín Shaft
Action: Design, supply and assembly of museographic amenities for in situ interpretation.
Goal: Explain the current methods for extracting ore. Explain the location of the different elements in the contemporary metal working process.
Content: Access to modern operations. Transport by means of chutes. Distribution of the metal working elements in the area.

Resources: Outdoor graphic interpretation panels.

Signage of Public Areas
Action: Design, supply and assembly of direction and interpretation signs for outdoor spaces.
Goals: Direct visitors in their tour of the Cerco area. Interpreting general spaces.
Contents: Historic evolution of the spaces in the Cerco de San Teodoro-Buitrones. Functionality of the different areas.
Resources: Outdoor graphic panels.

5. e. 2 Feasibility Study

Tourism and Economic Feasibility Study

The purpose of the present study is to determine the possibilities of tourism and economic development available in the future Almadén Mining Park, taking into account not only the tourist resources of the Park itself but also the tourism resources in the Surroundings which may complement the attractions for potential visitors.

Based as it is on processes for the mining, transformation and marketing of mercury, Almadén Mining Park constitutes a unique area as, although there are other similar successful mining experiences in Europe, none of them is based on a mercury mine of such importance and age, giving Almadén a uniqueness that can be put to good advantage.

The Park is located in the Montesur area located to the southwest of the Castilla-La Mancha region, close to the region's limits with Andalusia and Extremadura. The surroundings include the towns of Agudo, Valdemanco del Esteras and Saceruela to the North, Almadén, Chillón and Almadenejos in the centre and Guadalmez and Alamillo to the South. It has available a lot of cultural heritage elements (mining, cave paintings, Roman roads and bridges, medieval castles, a unique hexagonal bullring and countless churches and shrines), as well as natural (grazing landscapes, Special Protection Area for Birdlife, autochthonous flora and fauna) and ethnographic attractions.

Since the tourism activities in the surroundings have not been developed very much and are limited to sporadic visits to the resources at Almadén, the goal is to achieve a synergy between the different tourist attractions in order to offer potential visitors an overall package including, as well as the industrial heritage of the Park, the cultural and ethnographic heritage available in Almadén and its surroundings.

One of the goals of the Almadén Mining Park is to turn tourism into an incentive for local development in this area, as a boom in tourism would allow traditional economic activities to progress and add value to local cultural peculiarities, at the same kind offering employment opportunities to young people in rural alias and so reducing their exodus from the countryside.

Another of the priority aims of the Almadén Mining Park is to achieve self-sufficiency in economic terms over time and so act as a driving force for the development of the local economy.

Feasibility as a tourist attraction
Using all the information collected in the previous stages, other actions will be established in order to be undertaken in the different scopes to make the location feasible from the point of view of tourism.

Tourism Feasibility Study

Socio-Economic Study

The Montesur district has a population of 15,057 inhabitants, 3.16% of the population of the province, 70% of whom are concentred in the towns of Almadén, Chillón and Guadalmez.

The population is mainly devoted to agriculture and stock farming. Industrial and/or commercial activity is practically nil. In the last few years, the district has undergone progressive ageing of the population, with negative growth rates being recorded in all towns, therefore more than approximately 60% of the population is currently over 45 years of age.

Another aspect to be considered together with the ageing of the population in the district is the unemployment rate, which mainly affects the population aged between 20 and 44, particularly in the services sector with the result that these high rates, more than three percentage points above the national average, are leading to the departure of the younger population of working age.

As for the mean level of income available per inhabitant we can see that in all cases this is less than the national average and sometimes less than the provincial average.

Nowadays activities in Almadén and its district are beginning to be developed in other sectors, taking advantage of the resources in the surroundings: hunting, fishing, timber, tourism and food production. In recent years, they food production sector has begun to take on great importance in Almadén with some companies outstanding in the manufacture of Iberian pork or hunting products, cheese produced from Merino sheep's milk, as well as the packaging of pickled aubergine is typical of the district of Almadén. These companies may be very important for the area by making people aware of the products and taking its name all over Spain with considerable opportunities for exports abroad.

In the current situation of the district, the development of tourism may not only provide inhabitants in the surroundings with an improvement in their level of income but also have beneficial effects on rural society by helping to avoid its isolation and the abandonment of the villages, thus making it possible for them to be recovered and for alternative activities to be maintained.

Inventory of Tourism Resources

The Montesur district is located to the South West of Castilla-La Mancha, close to the region's limits with Andalusia and Extremadura, less than one hour away from the high-speed train service thanks to the considerable improvement in road communications. The district extends over eight townships making up the "Mancomunidad de los Ríos Esteras, Valdeazogues and Alcudia": Agudo, Alamillo, Almadén, Almadenejos and its adjacent suburb Gargantiel, Chillón, Guadalmez, Saceruela and Valdemanco del Esteras.

Part of the district includes the Special Protection Area for Birdlife, so it is easy to see birds of prey and storks flying in its cloudless skies. It is also an area that is ideal for trekking, cycling or horse riding thanks to the peaceful paths crisscrossing it.

Along with these overflowing natural merits, Montesur surprises travellers with cave paintings, Roman roads and bridges, medieval castles, the only walled area in Ciudad Real province, the world's only hexagonal bullring, churches and shrines, not to mention its rich mining heritage (winches, aludel furnaces, ...) as well as its centuries-old traditions and festivities.

Tourist resources in Almadén

Almadén is the chief town of the district, and speaking of Almadén is to speak of mercury as its history has revolved around this metal. Its name, of Arabic origin, means mine and the ground beneath the town holds the world's largest mercury deposit, well known to the Phoenicians and Celts, although it was the Romans who were the first to exploit it.

Apart from the Arab design of its town centre, dominated by the tower of Retamar Castle, Almadén has magnificent baroque and neoclassical buildings such as the Bullring, a National Monument and the only hexagonal building of its kind in the world, now home to the Bullfighting Museum, or its former Mining Academy.

The School of Mining and Industrail Engineers of Almadén houses an interesting historic mining museum with over 1,000 minerals, including the beautiful cinnabar that is typical of the location and a central element of its handicrafts together with items of clay and stuffed animals.

The resources available to Almadén at the moment, regardless of the opening of the Mining Park, are as follows:

Cultural Heritage

Retamar Castle and Tower (12th century).
This is the oldest building in the town, and is located in the centre of Almadén, at the town's highest point. The ruins of this medieval castle, originally built in the 12th century, have lasted since Arab domination. It was remodelled and enlarged in 1467 by the Keyholder of the Calatrava Order.

In the 18th-century it was repaired on the outside, at which time the tower that remains today was built, complete with its bell tower and clock on which a roof has recently been installed. This castle formed part of an extensive network of fortifications that spread across all the nearby mountains, acting as a lookout and defensive position.

Almadén Bullring (18th century)
The Bullring at Almadén, the "new bullring" as it was known, was built between 1752 and 1754 to house one of the first installations ever designed for bullfights in Spain or the world, in order to obtain money to build a Miners' Hospital. The bullring has capacity for 4,000 people and includes 24 homes; its unique hexagonal design, with its entire perimeter surrounded by a double gallery above the bullring, gives it an outstanding spectacular appearance and has earned it recognition as a "National Monument".

In 1999, restoration work began in order to convert the area into a multipurpose cultural space and to refurbish the housing area. The facilities, which were inaugurated in May 2003, include a three-star hotel, the tourist information office, a traditional inn, and two museums, one on bullfighting and the other on ethnology.

The Inquisitor's House (15th century).
A 15th century building located in Calle Mayor de San Juan in the old town centre. It belonged to the Inquisition and was also used as the residence of the Függer family during the time when they held a lease on the mine. The house has been greatly restored, but the stone entrance has been preserved with a lintel finished in a cornice with a small upper window and three more windows with wrought ironwork.

King Charles IV Gate (18th century)
This gate providing access to the Cerco de Buitrones area was built in 1795, as shown on its inscription; in brick with a reduced arch, a double column atop a double pilaster, a triangular frontispiece with a limestone crest. Through this gate it was possible to reach the Cerco are housing the metalworking installations since ancient times. Through this gate departed the ox-drawn carts and mule trains that transported the mercury from Almadén to Seville for use in the silver mines of Mexico.

Mining Academy (18th century).
Built in 1782 and located on Calle Mayor de San Juan in the old town centre, this building was used until 1973, when it responsibilities were transferred to the new University Polytechnic School, for the teaching of the old Mine Foremen to the modern graduates in Mining Engineering.

Because of the slope at the back at the building, it has two floors above ground and two below; the most striking feature of the building is the entrance way with columns and a balcony above; crowning the façade is a small balcony and a crest all carved in stone; the rest of the façade is rendered in plaster and painted with hash lines.

Saint Raphael Royal Hospital for Miners.
Superintendent Villegas was in charge of building this hospital, the first in the world to treat the ills of mercury poisoning, in order to combat the very serious epidemics that decimated the workforce at the mines. Construction work began in 1752, but it took 24 years to complete due mainly to financial problems and was only concluded in 1774.

Built in the shape of an "L" with corridors, courtyards and other areas inside, its noteworthy features include the central balcony above the sober façade; atop this, a belfry and an image of the Archangel Saint Raphael (patron saint of physicians) in a niche, a characteristic that could easily be found in a public building in any town of Spanish America.

The entrance is flanked by two slim pilasters and inside it has wonderful domed rooms intended for patients. It is currently being used as the administrative archive for the Minas de Almadén y Arrayanes , S.A. company.

The Aludel or Bustamante Furnaces (17th century, declared of Cultural Interest).
These furnaces were invented in 1633 by Lope Saavedra Barba, a physician in Huancavélica (Peru) who had the idea of transforming a procedure used in the laboratory into an industrial furnace.

It comprises a series of aludeles, baked clay channels similar to bottomless pots which, each one placed against another in a row, were used in the furnaces at Almadén to condense the mercury vapours produced in the calcination of the quicksilver ore.

The "Francisco Pablo Holgado" Historic Mining Museum
Located in the School of Mining and Industrial Engineers of Almadén, this museum created in 1988 has two quite distinct areas. Inside, it is possible to visit the sections on mineralogy and palaeontology with collections of minerals and fossils and part of the historic mining section with a sample of the equipment and instruments related with mining, plans and models. On the outside, it is possible to visit the tower structure corresponding to the Diogenes mine at Valle de Alcudia and other mining complements, as well as the punishment cells from the former Forced Labour Prison (18th century).

Forced Labour Tunnel
Built around 1754 at the same time as the Forced Labour Prison, its job was to allow convicts to reach the Mine without any possibility of escape along the way. The tunnel now leaves from the Polytechnic University School in Almadén (on the site of the former Forced Labour Prison) to reach the Torno de Castro (the easternmost shaft of the Mines at Almadén), thus passing underneath a large part of the town.

Natural Heritage

Almadén is located very close to the Valley of Alcudia that forms part of the northernmost mountains of the Sierra Morena range, with east-west alignments. The river network is highly developed and some noteworthy stretches include the Valdeazogues, or the Castilseras Reservoir. To the north is the Reservoir of Quejigo Gordo, on the Gargantiel river, and to the east, the Entredicho Reservoir. The town is surrounded by various mountain ranges: the Osa, the Canalizos, the Duranes, the Cerrata, the Alcudia and the Hoyuelas. To the north lie the Cerro del Ciervo (Deer Hill) and the Dehesa de Almadén (Almadén Common) and the elevations of Lobera and Confieso are worth a mention. In the centre of the municipality is the pass known as Puerto Grande.

Sierra de los Canalizos
Special Protection Area for Birdlife.

Valle de Alcudia
The district of the Alcudia Valley is closed to the north by the Sierra de la Solana de Alcudia and to the south by the Sierra de Alcudia, both of which form part of the Sierra Morena range. It runs from East to

West between San Carlos de Calatrava and Alamillo, following the axis of the river Alcudia, and its heart lies in the triangle comprising Veredas, Venta de la Inés and Bienvenida.

The excellences of this Valley have long been appreciated and in ancient days the Romans established here one of the oldest and most important colonies in Oretania close to the village of Bienvenida. During the Arab domination of Spain, this valley was known as "Fehs al Balout" or Acorn Plain. It then fell under the control of the Order of Calatrava and later to the Spanish Crown, except for a brief period in which it was given to Godoy as a lordship.

Close to the source of the Magaña river, Cervantes placed the amorous penitence of Cardeño and the Knight of the Sad Countenance, and close to Brazatortas, he set the amusing adventure with the clothbeaters.

The end of the valley leading towards Andalusia leads through the passes of Niefla and Valderrepisa. The summit of the first of these gives a splendid view over the whole valley on one side and Sierra Morena on the other.

The climate in this area could be described as arid in the dry seasons and sub-humid in the rainy seasons. The mean annual temperature is generally around 14ºC, with mean temperatures of 24 to 26ºC in the hottest months and the mean of the coldest months between 6 and 7ºC. Mean rainfall varies between 400 and 700 mm per annum, mostly in the western areas and the mountains and massifs, particularly, with the low-lying sectors and those located in the western part of the valley being considerably drier.

The plant life in the area of Alcudia Valley and its adjoining mountains is distributed around the space according to some evident natural factors. Although an incredibly wide variety of plant species can be found, mainly due to the steep gradient of altitudes, those most easily observable and most representative of the whole plant community in the valley are the holm oaks (Quercus rotundifolia), which form extensive grazing plains in those areas where the weather conditions are driest; groves of cork oaks (Quercus suber) occur on the sunny slopes while Pyrenean oaks (Quercus pyrenaica) populate the wetter shadier hillsides. Although these are the most abundant plant landscapes to be seen, it is also possible to view important collections of riverbank vegetation, such as stands of willow (Salix sp.) and alder (Almus glutinosa), very valuable and infrequent formations as they require watercourses that never dry up.

As for animal life, the Alcudia Valley is home to some very significant species in danger of extinction such as the Spanish Imperial eagle (*Aquila adalberti*), the Black Stork (*Ciconia nigra*), Bonelli's Eagle (*Hieraetus fasciatus*), wolves (*Canis lupus signatus*) or the Iberian Lynx (*Linx pardinus*). Apart from these species, it is also common to spot communities of stags (*Cervus elaphus*), roe deer (*Capreolus capreolus*) and boar (*Sus scofra*), although the last two named are considerably more difficult to find.

Cultural Manifestations

Virgin of the Mine (September 8th)
On September 8th, the local communities celebrate the feast day of the Virgin of the Mine, the patroness of miners. There are currently three images of this virgin in existence. One is taken out in procession late in the evening of the Virgin's Day. During this procession the platform bearing the Virgin of the Mine is escorted by miners wearing their working clothes and with lamps fitted to their helmets. Following this procession, which concludes in the Cerco de San Teodoro, there are various performances by local choirs and dance groups before finishing with a session of fireworks.

Christ of the Cross (September 14th)
Local festivity in honour of the Holy Cross. The night before, red carnations are offered at the door of the Church of Jesus the Nazarene. On the morning of the feast day, an auction is held for items donated by the townspeople and a religious service is held in honour of Jesus the Nazarene in the evening, during which a figure is carried in procession through the streets of the town, accompanied by the Municipal Band and the Drums and Trumpets of "Nuestro Padre Jesús Nazareno".

Carnival
In Almadén, carnival is celebrated in a somewhat peculiar way, as it has maintained over time the most authentic traditional aspects of masks, music, student bands, etc. there is even a competition for the best "Murgas y Comparsas" (satirical carnival groups). On Carnival Sunday, all of the groups parade together through the town. There is also a traditional "Entierro de la Sardina" (Burial of the Sardine) at the end of the festivities.

Almadén Local Holiday and Fair (July 23rd-27th)
These are organized around the feast day of the town's patron saint, Saint Pantaleon (July 27th). A fairground is set up in Julián Lozano Park with all kinds of attractions, stalls, tombolas, etc. A large number of bars are installed throughout the area for locals and visitors alike to enjoy traditional food and drink. In the central arena of the park, there is a Popular Dance organized with renowned orchestras and performances by famous soloists or groups from Spain and abroad. Sports competitions are also held during this time at the Sports Centre, while other venues provide drama and variety shows, circus performances, bullfights, etc.

Feast of the Immigrant (August 15th)
Organized in honour of all those individuals obliged for one reason or another to emigrate.

Easter
During Easter Week in Almadén, a large number of religious events and processions take place with the participation of the confraternities of the "Fiel Congregación de Nuestro Padre Jesús Nazareno", "Nuestra Señora de los Dolores y Santo Sepulcro" and "Santísimo Cristo de los Mineros", with their members wearing their classical garb of tunics, hoods and capes. All of the processions are accompanied by the Municipal Band and some, such as the one held in the early hours of Good Friday, inspire greater religious fervour.

The Crosses of May
The neighbours in the different parts of town make their own crosses out of floral arrangements and the Town Hall Square is bedecked with a cross made with the participation of all the associations.

Conclusions
As a result of this inventory of tourist attractions, it can be seen that there is a great wealth of cultural and natural heritage on tap in the surroundings, all of outstanding quality and uniqueness.

The main problem seen is the lack of any extraction of value from a large number of the heritage elements available. In fact, tourism management, both in Almadén and its Surroundings, has so far been conducted in a spontaneous or little organized manner, with many tourism-related activities or practices being undertaken without realizing that they can be classified as such, for example hunting and fishing, with a notable lack of good planning, training, and, above all, teams to promote tourism in the area. The possibilities of Almadén as a tourist attraction are however beyond doubt. This uniqueness based on the interest of mercury mining, followed by the high environmental and landscape quality of the District and its good accessibility by road and particularly through the high-speed AVE rail link, provide overall an enviable suite of comparative advantages for this district versus many others in the hinterland.

Communications Network
Railway station in Almadenejos, on the Madrid-Badajoz line.
AVE high-speed stations in Puertollano, Ciudad Real and Córdoba.
By rail, there is a line from Ciudad Real to Badajoz that stops at the station of Almadenejos-Almadén to allow the area's communication with the province of Badajoz and Ciudad Real.
AISA bus company
Cabeza del Buey-Almadén-Puertollano-Ciudad Real-Madrid. Several journeys in both directions throughout the day.
Ureña bus company

Almadén-Santa Eufemia-El Viso-Dos Torres-Añora-Pozoblanco-Alcaracejos-Villaharta-El Vacar-Cerro Muriano-Córdoba. One bus in each direction per day.
Journey times by road
Almadén-Ciudad Real (1h)
Almadén-Puertollano (1h)
Almadén-Pozoblanco (Córdoba) (0h 40m)
Almadén-Córdoba (1h 30m)
Almadén-Badajoz (2h 30m)
Almadén-Madrid (3h 15m).
By bus there are also direct services to Albacete, Valencia, Barcelona, etc.

Conclusions
In general, we can detect serious deficiencies in the tourism infrastructures available in the district in comparison with the wealth of its tourist attractions in terms of culture and nature. These infrastructures are capable of absorbing the limited number of visitors currently attracted. However, any future development of the tourism activities requires an improvement in the provisions in various areas, but particularly in hotel capacity. The beds currently on offer are limited to 50 in different hotel categories, 12 places in hostels and 72 places at the University Residence.

The opening of the Hotel at the Almadén Bullring, with a little over twenty rooms, will probably help to overcome the existing limitations with current visitors, but in no case will it be sufficient to cover the foreseeable demand generated by the inauguration of the Almadén Mining Park.

In short, the elements characterizing the tourist infrastructure in the district are:
- Insufficient volume of accommodation on offer and complementary leisure activities.
- Scant number of companies devoted to tourism or to leisure and free time.
- Good accessibility from Madrid, the main focus for weekend tourists.
- It is relatively close to other medium-sized cities: Toledo, Ciudad Real, Mérida, Badajoz and Córdoba.
- Boom in activities related to the conservation of the environment: trekking, bird watching.
- Practice of controlled hunting and fishing activities as leisure pastimes.
- Boom in rural and cultural tourism.

Assessment of the Demand
In order to design a Plan proposing specific actions, it would seem to be necessary to start from an exhaustive awareness of the existing tourism activities in the surroundings first of all, but also from the potential demand that exists for the cultural tourism products in its areas of influence.

To determine the potential demand, we will start from the identification of the characteristics of the tourists interested in this kind of tourism.

Current tourism activities
- Tourism in Castilla La Mancha
Many people seek other tourism destinations and products apart from sun, snow or sand, as these do not satisfy their needs or their expectations, and they seek out other kinds of tourism. Excluding coastal areas, the greatest tourism potential is concentrated in rural areas and in this regard the area of La Mancha has great potential.

Of the tourists who come to Castilla-La Mancha, according to figures for 2000 obtained from the Castilla-La Mancha Regional Government, 82% come from other parts of Spain, whereas the remaining 18% are foreigners. Specifically, Castilla-La Mancha received in 2000 a total of 1,852,133 tourists, of which 1,521,261 were Spanish and 330,872 foreigners.

In domestic tourism, taking the regional network of tourist information offices as the source of the data, the first region of Spain sending tourists and visitors to Castilla-La Mancha is the Region of Madrid (33.5% of the total of Spanish visitors), followed by other areas of Castilla-La Mancha (21.4%), a figure reflecting

the importance of internal tourism by residents in Castilla-La Mancha. Lagging further behind are Valencia (9.61%), Andalusia (6.7%) and Catalonia (6.6%).

As for the date chosen for their visits to Castilla-La Mancha, during 2000, the month with the largest influx of tourists was August, followed by October, September, April (Easter) and July.

Tourism in the Montesur district
Tourism activities in the surroundings of Almadén is practically non-existent. Although there is no statistical information about visitors in the different townships of the district, the qualitative opinion obtained from these sources and the various accommodation providers interviewed indicate that the movements of visitors in the region tends to be for professional purposes, first of all, and secondly due to visits to relatives. The only tourism-related activity currently organized is that carried out under the auspices of the "Recorre tu Provincia" (Know your Province) programme run by Ciudad Real Provincial Council.

Through this programme, Almadén received 34 coach trips (approximately 1,800 tourists) in 2001 and 24 coaches (approximately 1.300 tourists in 2002).

These were all day trips, in which the tourists basically visit the cultural heritage of Almadén and tour the outside of the Cerco. It should be noted that the demand for Almadén as a destination on this programme is the highest in the province of Ciudad Real, greater even than requests to visit Almagro.

Cultural tourism

We take cultural tourism to mean trips and stays during which the tourists and travellers may use of or enjoy the cultural resources of a location.
The products comprising the cultural tourism resources on offer include:

- Archaeological heritage.
- Artistic and monumental heritage in all of its diverse manifestations.
- Town centres and historic cities.
- Sites related to religious tourism.
- Museums
- Historic sites
- Accommodation with charm.
- Recreation parks with a cultural theme
- All forms of heritage associated with water.
- Buildings and sites related to industry and mining.
- The homes of famous people.
- Anthropological heritage
- Rural heritage.
- Protected areas and natural curiosities.
- Scheduled cultural events.

The characteristics of this kind of tourism is notably different from mass tourism:

	Mass tourism	**Cultural tourism**
Type of tourist	Passive, static, distant, low educational level	Active, dynamic, participatory, imaginative, learned.
Reasons for travelling	Sun and beach, snow. Single type of holiday. Low prices	Close contact with the land (nature, culture, local cuisine). Different motivations in the course of a journey.
Type of demand	Organized by tour operators	Individual. Aimed at highly specific groups. Exclusiveness and privacy.
Type of participation	On a massive scale. Seasonal	Distributed throughout the year. Controlled by capacity.
Type of accommodation	Standardized. Large sophisticated hotels, apartments, holiday homes	Simple but comfortable and hygienic. Small individualized hotels. Alternative accommodation (rural houses, eco-camp sites, …)
Activities engaged in at the tourism destination	Visits to bars and night clubs, theme parks, … Group excursions. Rest on the beach. Mountain skiing, …	Trekking, sailing, cultural cycling trips, cross-country skiing, … visits to museums, natural parks, …
Behaviour and impact on the environment	Offensive and aggressive. Uncontrolled exploitation of resources. Expansive growth. Short-term benefits.	Defensive and respectful. Controlled valuation and conservation of resources. Development. Medium- and long-term benefits.

Profile of a Cultural Tourist

In the cultural segment, the dominant range is between 30 and 44 years of age, with 37.6%. As many as 71.5% are in gainful employment and, in addition, their employment category is higher, with 58.4% having the status of university graduates, liberal professionals or civil servants.

	CULTURAL TOURIST
Age	
Under 18 years of age	7.7%
18-29	24.7%
30-44	37.6%
45-65	24.3%
Over 65	5.7%
Employment status	
Gainfully employed	71.5%
Unemployed	1.2%
Student	11.3%
Retired/Pensioner	10.0%
Homemaker	0.2%
Profession	
Company Director, Manager	8.9%
Honours or university graduate	23.7%
Liberal professional	17.2%
Civil servant	17.4%
Clerk	12.3%
Employee	14.7%
Labourer	2.7%

Individual organization of trips is the option preferred by consumers of cultural tourism products (61.2%). However, when they make use of an intermediary, they generally contract any kind of service, with a notable number of partly organized trips, only accommodation (15.7%) or only transportation (27%).

An apartment or house in any of their various forms of enjoyment (rental, owned, etc.) are less important for this segment, in favour of hotel accommodation (hotels and boarding rooms).

In conclusion, the profile of tourists in the cultural segment is, on average, middle-aged (30-44 years of age) with a medium-high lifestyle (in employment and with a high status), who opt to travel on their own account and prefer to stay at hotel accommodation.

Study of the Demand

The various tourism-related products that can be offered by Almadén based on mining and complementary activities, all of them related to cultural tourism and nature, depending on the attractions and uniqueness of the region, are aimed at different segments of the demand and to a range of "target" markets:

- Individual cultural tourists coming for one of the attractions considered above.
- School students of ESO and FP in Castilla-La Mancha.
- University students reading for degrees in Mining or Geology.
- Groups of the elderly coming for one of the attractions considered above.

We shall analyze below the potential demand for each of the segments.
- Individual cultural tourists
After analyzing the profile of cultural tourists established above and the distribution of the population in Madrid, we find that approximately 6% of the region's population fulfils the basic characteristics of cultural tourists. This same percentage will be used for the rest of the origins of tourists that are most representative by size and proximity to the area.

In this way, the potential demand for cultural tourism at Almadén Mining Park and its surroundings is:

	Total Population	**Potential Cultural Tourists**
Madrid	2,881,504	182,602
Toledo	66,989	4,020
Ciudad Real	61,138	3,668
Seville	700,716	42,043
Mérida	50,471	3,028
Badajoz	134,710	8,083
Córdoba	309,961	18,597
	TOTAL	262,041

Students of compulsory secondary education (ESO) and vocational training (FP) in Castilla-La Mancha	
Lower grade ESO	47,065
Upper grade ESO	42,852
FP	4,721
TOTAL	94,638
Technical Universities	
Honours Degrees in Mining	3
Ordinary Degrees in Mining	10
Degrees in Geology	7
TOTAL Centres	20

Groups of the elderly

	60-64	65-69	70-74	75-79	80-84	Total 65-79
Ciudad Real	2,417	2,639	2,275	1,941	1,048	
Toledo	2,715	2,721	2,371	1,929	1,209	
Madrid	158,319	175,092	148,657	112,993	69,409	
Córdoba	13,890	14,542	12,225	8,980	5,198	
Badajoz	5,479	5,387	4,513	3,521	2,085	
Mérida	2,092	2,253	1,774	1,425	731	
Seville	32,139	32,688	26,197	19,328	11,135	
TOTAL	217,051	235,322	198,012	150,117	90,815	583,451

Feasibility in terms of Tourism

The initial hypotheses for the present estimate refer to the moment when the Park is almost entirely open to the public, that is to say in 2005.

To determine the feasibility of Almadén Mining Park in tourism terms it is necessary to define the tourism products that can be offered to the different targets. The segments under consideration, on the basis of the experiences with other industrial parks, whether in Spain or elsewhere in Europe, are as follows:

- Individual cultural tourists

Within this segment, there are two possibilities:

- Day trip. The goal is to devote all of the time available to the tour of the Mining Park.

- Two- or three-day visit. The goal is to devote one day to visiting the Mining Park and the rest of the time complementing this with other types of tourism activities available in the area. At the moment the complementary offer might include visits to other elements of the cultural and natural heritage in the surroundings, as well as activities such as trekking and active tourism, although the latter has a major limitation as the region has only one company devoted to active tourism. Therefore, this kind of visit would be constrained by the emergence of activities that complement those of the park.

In view of the profile of this segment, we can assume that the availability to travel would be limited to weekends and holiday periods, so the estimates we can make for this kind of tourist are:

- Potential demand is estimated at 262,041 visitors. Given the uniqueness of this Park's characteristics and its proximity to the sources of these visitors, even a conservative estimate would give a large number of tourists coming every year.

If we estimate the holiday period as being between the months of July and September, this means that, given the amount of accommodation available (50 hotel beds), the maximum number that could be absorbed in two- or three-day visits would be 1,500 visitors in the holiday period and another 2,000 during the rest of the weekends in the year.

- Visits by ESO and FP school students

Visits by school pupils, one of the most active segments for this kind of resource, according to the experience garnered at other similar parks, will be of two kinds:

- Day trips. The "Recorre tu Provincia" programme that has so far only included associations is going to be extended to schools too. In addition, an active communication policy by the Mining Park might easily lead to agreements with the Regional Government to facilitate visits to the Park by school pupils.

- Five-day visits. The new education act in force in Spain requires school students to obtain what are known as "Synthesis Credits" involving the gathering of pupils outside their classrooms on certain days in order to carry out a project involving the different subjects studied. In this sense, the Mining Park and its educational resource centre could be an ideal place in which to conduct these activities, as it is possible to combine many aspects such as environmental issues, nature, technology, etc.

Once more this kind of visit also suffers from the limitations of accommodation, so it would be necessary to establish agreements with the University Residence and/or families in the town able and willing to accommodate these young students. The potential demand for this segment is equal to the number of pupils enrolled in the Vocational Training (FP) schools and Compulsory Secondary Education Centres in the Province of Ciudad Real.

If we take into account the accommodation limitations, 84 places including the hostels and the University Residence, the number of pupils that could be absorbed for a five-day visit is quite limited unless the supply of hotel accommodation improves.

- Visits by the Elderly.

In this case, we can assume that all of the tours will be as day-trips.

- Technical visits by university students.

This kind of visit will begin as one-day tours and may be extended over time if the appropriate content is provided.

Summary Table of Visitors

Segment	Duration	N° of Visitors/Year
Cultural tourism	1 Day	22,500
Cultural tourism	3 Days	3,500
ESO/FP pupils	1 Day	17,500
ESO/FP pupils	5 Days	1,500
Elderly	1 Day	29,200
University Students	1 Day	1,000
TOTAL		75,200

Conclusions:

As a result of the analyses carried out, there is an evident tourist attraction in the Mining Park and in the Montesur area as well as a clear ability to attract visitors. Nonetheless, its ultimate success can only be ensured if certain actions are taken to improve the tourism-related infrastructure in the surroundings, particularly:

- Development of the most appropriate tourism product, not only with respect to the Mining Park, but also the complementary offers.
- Development of plans encouraging investment in hotel infrastructure. Essential for the future development and growth of the tourism-related offers in the region and to avoid bottle necks that may deter other tourism initiatives.
- Development of plans to encourage the creation of active tourism companies for the diversification tourism-related offers in the region.
- Exploitation of the rich cultural heritage in the surroundings. A speedy response is necessary in this sense to allow the transformation of the rich heritage of the region into easily marketed tourist and recreational resources.
- Active communication and marketing policy aimed at both institutions and the private market, the publication of tourist guides, informative leaflets to be distributed in the accommodation centres, tourist information offices, town halls and bars and restaurants.
- Improvement in the tourist infrastructures and signage, establishing informative posters and tourist information at strategic point providing access to the District.
- Marketing of tourism. Policies need to be encouraged to enhance the marketing of services, letting people in other regions of Spain know about what we can offer, and also in our own Region or at State level, through participation in trade fairs, exhibitions, tourism seminars, where it is possible, apart from spreading the word about offers available for visitors, to contact the various agents who can help bridge the gap in tourism promotion (Travel Agencies, Associations, Tourism Operators).
- Create information desks, tourist packages and make use of new technologies to help people learn about the products outside Spain, thanks to the historic significance of the mercury mines at Almadén.
- Incorporate the Almadén Mining Park into the industrial heritage itineraries that already exist, both in Spain and in Europe.
- Support for and management of the tourism resources, whether in Almadén itself or in the Surroundings, must be done through good experts and multidisciplinary teams duly trained in the field of tourism, through the establishment of training plans within the District in connection with tourism, so as to have properly trained professionals available and ready to deal with the demands that might arise and equipping the Area with high-quality teams.

Estimation of visits

Distribution of visits

The visits to and contacts made with other similar museums and parks has led us to understand that visits are not distributed linearly throughout the year. This means that most of the visits are going to be concentrate in a certain number of months. In the same way, other months would have a moderate number of visitors and a few other months would attract only a very small part of the demand.

In order to find out better how the visits are distributed, we have studied the data on the different parks that have provided us with the breakdown of their visitors. We could say that a park such as that at Almadén may have its visits distributed in the following manner throughout the year:

January	1.7%
February	4.8%
March	6.9%
April	10.3%
May	7.2%
June	7.8%
July	7.9%
August	15.6%
September	9.1%
October	12.0%
November	11.2%
December	5.4%
TOTAL	100.0%

At first sight, we can see that August is the month with most visitors followed by October, November and April. A number of months are not outstanding for the percentage of visitors they contain. At the opposite extreme, we find that the months of January, February and December, taken together, receive as many visitors as one of the busiest months.

We might therefore think that the month receiving the most visitors is August, coinciding with the summer holidays of most of the population and therefore with individual visitors. The months of October and November, however, which are the runners-up in terms of the number of visitors, coincide with the start of the school year and it is likely, then, that they are mainly group visits.

As April tends to coincide with the Easter holidays, it is likely to receive a lot of individual visits on some days and many group visits on the rest of the month. The remaining months will mainly reflect group visits, with those by private individuals being concentrated on weekends and in the hottest months.

After this analysis, we could divide the months of the year into three different groups depending on the number of visits received. Within this division, we are going to estimate the percentage of visits in those months that were by groups and how many by individuals.

High Frequency Months: August, October, November and April
These four months represent practically 50% of all visits. In August and in one of the weeks of April, they will mostly be individuals and in the rest of April, October and November they will be mainly groups. Hence, we have estimated that in this period we will have the following visitor segmentation:
- 49.1% of visits, of which:
  65% groups
  35% individuals

Medium Frequency Months: March, May, June, July and September
These five months group together around 40% of all visits. They will mostly be group visits, but with a notable number of individual visitors at weekends and in the months of July and September when some people have their summer holidays. In this group the distribution would therefore be:
- 39% of visits, of which:
  75% groups
  25% individuals

Low Frequency Months: January, February and December
These three together account for 11.9% of visits. These are basically group visits with some by individuals during the weekends and the holiday periods in December. We estimate the following distribution for this group of months:
- 11.9% of visits, of which
  90% groups
  10% individuals

Estimation of daily visits in 2005
High frequency months
Total: 15,100
- 6,040 individual visits on 58 days. This is equivalent to 104 people per day
- 9,060 group visits on 62 days. This is equivalent to 146 people per day (3 groups)
3.2.2 Medium frequency months
Total: 12,018
- 3,005 individual visits on 40 days. This is equivalent to 75 people per day
- 9,014 group visits on 110 days. This is equivalent to 81 people per day (almost 2 groups)
3.2.3 Low frequency months
Total: 3,667
- 367 individual visits on 24 days. This is equivalent to 15 people per day
- 3,300 group visits on 66 days. This is equivalent to 50 people per day (1 group)

Estimation of daily visits in 2006
High frequency months
Total: 17,184
- 6,837 visits by individuals on 58 days (31 days in August, 7 in April, 20 at weekends). This is equivalent to 118 people per day
- 10,310 group visits on 62 days. This is equivalent to 166 people per day (about 4 groups)
3.3.2 Medium frequency months
Total: 13,621
- 3,405 individual visits on 40 days (8 weekend days times 5 months). This is equivalent to 85 people per day
- 10,216 group visits on 110 days (working days in 5 months). This is equivalent to 93 people per day (2 groups)
Low frequency months
Total: 4,156
- 416 individuals on 24 days (8 weekend days times 3 months). This is equivalent to 17 people per day
- 3,741 group visits on 66 days (working days in 3 months). This is equivalent to 57 people per day (1 group)

Estimation of daily visits in 2007
High frequency months
Total: 29,338
- 11,735 visits by individuals on 58 days (31 days in August, 7 in April, 20 at weekends). This is equivalent to 202 people per day
- 17,603 group visits on 62 days. This is equivalent to 284 people per day (6 groups)
Medium frequency months
Total: 23,350
- 5,838 individual visits on 40 days (8 weekend days times 5 months).
This is equivalent to 146 people per day
- 17,513 group visits on 110 days (working days in 5 months). This is equivalent to 159 people per day (3 groups)
Low frequency months
Total: 7,125
- 712 individual visitors on 24 days (8 weekend days times 3 months). This is equivalent to 30 people per day
- 6,412 group visits on 66 days (working days in 3 months). This is equivalent to 97 people per day (2 groups)

Estimation of daily visits in 2008
High frequency months
Total: 35,349
- 14,140 individual visits on 58 days (31 days in August, 7 in April, 20 at weekends). This is equivalent to 244 people per day
- 21,209 group visits on 62 days. This is equivalent to 342 people per day (7 groups)
3.5.2 Medium frequency months
Total: 28,020
- 7,005 individuals on 40 days (8 weekend days times 5 months). This is equivalent to 175 people per day
- 21,015 group visits on 110 days (working days in 5 months). This is equivalent to 191 people per day (about 4 groups)
3.5.3 Low frequency months
Total: 8,550
- 855 individuals on 24 days (8 weekend days times 3 months). This is equivalent to 36 people per day
- 7,695 group visits on 66 days (working days in 3 months). This is equivalent to 117 people per day (more than 2 groups)

Estimation of daily visits in 2009
High frequency months
Total: 42,222
- 16,889 visits by individuals on 58 days (31 days in August, 7 in April, 20 at weekends). This is equivalent to 291 people per day
- 25,333 group visits on 62 days. This is equivalent to 409 people per day (8 groups)
Medium frequency months
Total: 33,469
- 8,367 individuals on 40 days (8 weekend days times 5 months). This is equivalent to 209 people per day
- 25,102 group visits on 110 days (working days in 5 months). This is equivalent to 228 people per day (5 groups)

Low frequency months
Total: 10,212
- 1,021 individuals on 24 days (8 weekend days times 3 months). This is equivalent to 43 people per day
- 9,191 group visits on 66 days (working days in 3 months). This is equivalent to 139 people per day (3 groups)

Economic feasibility
Maximum capacity of the mine

- 60 people per hour
- 480 people per day
- 48,800 a year (opening 310 days/year)
- 172,800 a year (opening 360 days/year)

Operating revenue streams

The operating revenues are basically going to come from the following sources:

- Admission tickets
- Store receipts
- Vending machine and photos
- Bar-Cafeteria
- Meeting Room hires

Revenue from admission tickets

Admission tickets for the Park-Museum will represent the main source of income. There will be different types of admission, depending on:

a) Visitor type (individual, specialist or group)

b) Combined visits (Cerco area, cerco + hospital, cerco + mine, cerco + hospital + mine)

c) Duration of the visit (1 or 2 days), school groups engaged in synthesis projects.

As a reference to estimate the price of admission tickets, we have collected information from other similar parks.

Price per visitor type

In general, the other parks generally only differentiate between the price for individual adults and the rest of the possible visitors (groups, schools, elderly, children), all of which usually have a discount of around 25% off the normal admission price. There are parks that offer an even better price for children. Although some of the parks have occasionally organized specialist visits, they have not stipulated special prices.

For Almadén, we propose to set the price of the discounted admission tickets by reference to the price for an individual adult ticket.

Therefore, the proposed price list for admission to Almadén is:

Visitor type	Price
Individual adult	100%
Elderly, schools, children and groups	75%
Specialists	125%

Price for combined tours

Most parks do not discriminate for this concept (mostly because they have no combinations to offer) but there are some that differentiate between as many as 13 types of admission (Río Tinto Mining Park).

Our proposal for Almadén in this regard is to assign a price to each distinctive visit and, in turn, to offer combinations of 2 or more of these tours at a price that is always less than the sum of the individual admissions in question.

The different admission tickets that can be proposed in this section are:

- Tour of the Cerco area (C)
- Tour of the Miners' Hospital (H)
- Complete Tour (E) (Cheaper than the sum of both separately)

These tours are going to increase in terms of contents and duration as the project advances through its various stages, so the price will also have to evolve. As a result, the tables we propose for the different stages at Almadén are as follows:

Stage 1

Ticket	Contents	Price	Duration
C	Cerco	€ 5	2 h
H	Miners' Hospital	€ 3	1 h 15 min.
C+H	Both of the above	€ 6	3 h 15 min.

Stage 2

Ticket	Contents	Price	Duration
C	Cerco	€ 7	3 h 30 min.
H	Miners' Hospital	€ 3	1 h 15 min.
C+H	Both of the above	€ 8	4 h 45 min.

Stage 3

Ticket	Contents	Price	Duration
C	Cerco	€ 10	5 h 30 min.
H	Miners' Hospital	€ 3	1 h 15 min.
C+H	Both of the above	€ 11	6 h 45 min.

Price for specialist visits
This kind of tour is not yet offered at any park. In the first stage of the park, this option will not be available, but it is of interest to take this option into account to be able to retain visitors at Almadén for longer in future, as well as attracting other visitor segments.

Revenue from sales at the shop
The shop will be the other major source of revenue for these parks. The various parks we have contacted place different importance on the shop, but the conclusion we reach is that tourists like to take a souvenir home with them and have a sensation of acquiring culture (the more original the products, the better). If well managed, this kind of shop can represent over 30% of the turnover in gate receipts. Prices (and therefore the margin that can be obtained) must be set carefully:

- On the one hand, some objects bearing the name of the park (t-shirts, sweatshirts, pens, lighters, etc.) will be made available at low cost and with a small margin so as to increase sales and spread the name of the park as much as possible.
- On the other hand, a different series of objects allow greater manipulation of the margin, and there are even some that have to be sold at a higher price to prevent visitors from associating a low price with low quality.

Most of the prices of the souvenirs at the parks visited varied between € 2 and € 30, with many of the lower-priced products being repeated at different parks as well as others at around € 10.
Some examples of the articles that could be sold at Almadén:

- Samples of unpolished cinnabar
- Samples of polished cinnabar
- Jars of mercury
- Other minerals
- Items in methyl acrylate with cinnabar and/or mercury
- Objects used in the mine (hammers, helmets, carbide lamps, oil-filled candles, ...)
- Reproductions of artistic drawings of sites in the Park and around Almadén

- Caps and t-shirts with mine-related drawings (pens, key-rings, lighters, …)
- Collection of postcards with drawings of miners at work
- Colour photocopies of original maps
- Ceramic figures of miners and other forge workers, etc.
- History books
- Items referring to historic aspects
- Images and figures of the Virgin of the Mine
- Rolls of film
- Disposable cameras
- Batteries
- Cassettes and records with songs connected to the mines or the region

Revenue from Vending Machines and Photos
Vending machines
The placement of vending machines at strategic locations offering drinks, snacks, sweets, may represent a complementary source of revenue basically for the shop and the bar.

Where we have found this kind of machines, the parks were satisfied with their operation, although there are also cases of parks where they have been eliminated so as not to offer "unfair competition" to the bar. In this case, we think that this kind of machine may take away some of the bar's revenue, but it will also generate additional income.

Photos
We found one park that took photos of the tourists in the mine so as to offer them for sale later in the form of a postcard. In this case, it was a service that was being tested so we do not know yet if it was profitable, although bearing in mind the use of digital photography at very low cost it is likely to be profitable, so we recommend to try it out at least.

Other related products with photographic souvenirs that we think may work well at Almadén are:
- Photo montages of people "at work in the mine"
- Group photos dressed as miners
- Photos delivered by e-mail

Revenues at the Bar-Cafeteria
The bar-cafeteria is going to play an important role during the tour. Practically all the parks we have consulted have a bar-cafeteria and those that do not are planning to introduce it in future, as the characteristics of these parks require such a facility.

The bar-cafeteria is used by visitors to have a break and a short rest in the middle of a visit in a pleasant setting with the possibility of having something to eat or drink.
It also allows those visitors who do not have time to visit the town to have lunch and continue on their journey. Experience has shown that school trips are major customers of the bar, as the pupils usually have money with them for the trip and tend to spend it all before going home.

The bar-cafeteria can be operated by a local company by means of a concession arrangement. This company will be required to pay a monthly fee and provide a series of minimum services and conditions such as remaining open for at least the hours when the park is open to the public, offering a hot meal at lunch times and conforming to the park's policies and philosophy.

Revenue for meeting room hire
The use of the meeting room for organizing conferences, presentations, congresses and other public events will represent an additional source of direct and indirect revenue.
The number of events of this type that can be held will depend to a large extent on the agreements reached with universities in the area and the ability to "sell" the Mines at Almadén as an attractive venue

for holding this kind of event. The margin obtained from this kind of activity will depend on the type of act in question and the group organizing it.

Estimate of operating revenue
Summary of Revenue at Almadén Mining Park

2005. Revenue (€)	
Admission tickets	131,537
Shop	39,461
Vending machines	6,577
Cafeteria	10,800
Total revenue	**188,375**
2006. Revenue (€)	
Admission tickets	300,549
Shop	90,165
Vending machines	15,027
Cafeteria	11,000
Total revenue	**416,743**
2007. Revenue (€)	
Admission tickets	721,755
Shop	36,088
Vending machines	216,527
Cafeteria	12,000
Total revenue	**986,373**
2008. Revenue (€)	
Admission tickets	866,106
Shop	259,832
Vending machines	43,305
Cafeteria	13,000
Total revenue	**1,182,247**
2009. Revenue (€)	
Admission tickets	1,039,328
Shop	311,798
Vending machines	51,966
Cafeteria	14,000
Total revenue	**1,417,097**

Organization
The minimal structure that we have considered for carrying out the necessary activities at Almadén Mining Park, on the basis of the forecast visitor estimations, is as follows:

Other estimated operating expenses
Wages and Salaries
Estimation of mean gross wages of € 15,000/year.

Maintenance
The maintenance personnel included in the Organization of the Mining Park would be in charge of supervising the installations from time to time and of carrying out minor repairs. More complex maintenance work would be outsourced to specialist companies and would basically involve the maintenance of lifts, lighting and security equipment, monitoring elements, conservation of structures (paintwork, repair, etc.), conservation of machinery in use and on display (maintenance of engines, bodywork, etc.), as well as the conservation and repair of shafts and tunnels. All of this maintenance work does not need to be carried out every year, so we feel that an estimated annual cost of thirty thousand euros (€ 30,000) is reasonable in addition to the equipment indicated above.

Utilities
For utilities (water, electricity, telephone, etc.), we estimate an annual cost of € 40,000.
Purchases and restocking
We estimate purchase costs at 50% of the total revenue from the shop and vending machines. In addition, we have estimated € 20,000 for the purchase of minor materials.

COMMUNICATION
For the concepts of communication and advertising, the estimated investment is around 10% of the total invested.

INVESTMENTS

	Arquitectura	Ingeniería	Museografía	**TOTAL**
FASE I	2.623,981	3.539,841	2.109,854	**8.273,676**
FASE II	699,225	968,500	115,094	**1.782,819**
TOTAL	**3.323,206**	**4.508,341**	**2.224,948**	**10.056,495**

Estimated investment (in euros)

Finance options (subsidies)

Financial aid from the Castilla-La Mancha Regional Government
Department of Industry and Labour
Title:
Subsidies for the recovery of the environment affected by mining activities carried out by companies and local bodies (Order dated July 24th, 2001).
OFFICIAL JOURNAL OF CASTILLA LA MANCHA (DOCM): Nº: 88 DATED: 07/08/2001 real page: 9469
calendar for submissions:
From January 1st to March 31st in each financial year.
purpose:
Improvement and recovery of the environment affected by former mining activities and structures.

Beneficiaries:
Companies carrying out activities to take advantage of mineral raw materials.
Actions that qualify for subsidies:

Plans for the restoration and improvement of the environment and projects intended to correct the environmental impact on areas affected by mining activities.
Former mining deposits no longer in use, abandoned, lapsed or in the process of becoming lapsed.
Amount of the financial aid:
Maximum of 30% of the investment with a limit of € 54,000.
Title:
Subsidies for new business investments generating employment and the extension and/or modernization of companies. (Order dated July 25th, 2002).
DOCM:
Order dated July 25th, 2002, regulating the award of financial aid to business investments stipulated in Decree 53/1998 dated May 26th, 1998, on competitiveness and incentives for business investment in Castilla La Mancha. DOCM nº 96, dated August 5th.
Calendar for submissions:
Start of period: August 6th, 2002
End of period: June 30th, 2003
Purpose:
To encourage business investment generating employment and the extension or modernization of companies.
Beneficiaries:
Industrial and service companies (particularly SMEs), joint ventures and partnerships of companies and intermediaries. Those companies listed in point three of article 2 of the Order are expressly excluded.
Amount of the financial aid:
Maximum of 30% of the approved investment.
Title:
Financial aid within the scope of Department of Industry and Labour with no specific prior call for submissions (Order dated August 1st, 2000).
DOCM:
Order dated July 5th, 1994 (DOCM nº 83) inviting submissions for financial aid within the scope of Department of Industry (DOCM nº 35). Order dated August 1st, 2000, partially amending the previous Order.
Beneficiaries:
Local bodies in Castilla La Mancha and private individuals or bodies corporate and public or private institutions intending to engage in the activity referred to in the application for the subsidy in the territory of the region.
Actions that qualify for subsidies:
The activities that qualify for subsidies include: promotion and dissemination of products from Castilla La Mancha, industrial designs, improvements in competitiveness, social and economic studies of Castilla La Mancha, premises of a commercial, industrial or tourism-related nature, etc.
Amount of the financial aid:
This will depend on the expenses or investments necessary for the activities to be undertaken.
In excess of € 120,000 the corresponding collaboration agreements must be signed.
Title:
Financial aid for museographic initiatives.
DOCM:
Order dated December 27th, 2002, inviting submissions for museographic initiatives in Castilla La Mancha (DOCM nº 1, dated January 3rd).
Calendar for submissions:
Start of period: 4/1/2003
End of period: 4/3/2003

Purpose:
To encourage investment in museographic initiatives and projects, with regard to the production of inventories, cataloguing of holdings and museographic installations, particularly systems for the exhibition, lighting, security, storage and conservation of museums and visitable collections located in the territory of Castilla La Mancha.
Beneficiaries:
Local authorities, individuals, bodies and not for profit institutions, registered owners of museums, visitable collections located in the territory of Castilla La Mancha and planning to execute museographic plans and projects in 2003.
Amount of the financial aid:
Up to 100% of the costs; in no case shall the amount of each financial aid exceed € 90,000.

Title:
Assistance to finance the execution of work on real estate associated with the historic heritage of Castilla La Mancha.
DOCM:
Order dated December 11th, 2002, from the Department of Education and Culture, regulating the subsidies intended to finance the execution of work on real estate associated with the historic heritage of Castilla La Mancha (DOCM nº 157, dated December 18th).
Calendar for submissions:
Start of period: December 19th, 2002
End of period: February 19th, 2003

Purpose:
To provide economic assistance to finance the execution of work on real estate associated with the historic heritage of Castilla La Mancha.
Criteria:
Intrinsic cultural value of the property.
Diminished economic capacity of the beneficiary.
Architectural interest of the planned building works.
The inclusion of works improving the external treatment of buildings.
An undertaking regarding the intensification of tours and the cultural function of the property forming part of the historic heritage.

Beneficiaries:
Private individuals and public or private bodies owning property related to the Historic Heritage of Castilla La Mancha. Holders of in rem rights on such property and their lessees providing they can show the agreement of the owners with the works proposed.
Actions that qualify for subsidies:
Types of property that can be subsidized:
1. Property declared to be of Cultural Interest.
2. Those included on the Inventory of Architectural Heritage of Historic and Artistic Interest.
3. Those that have been given special planning consideration in view of their historic values.
4. he components of the surroundings of the property classified as Cultural Interest Property.
5. Property of an ethnographic nature.

Amount of the financial aid:
Buildings in sections 1, 2 and 3 (section one of the Order): Up to 50% of the total estimate of the building works, up to a maximum of € 30,000. Properties in sections 4 and 5: Up to 40% of the total estimate, up to a maximum of € 12,000.
New building works for on the properties in section 4: Up to 10% of the total estimate without exceeding € 12,000.
For works considered to be of particular social or cultural utility, in buildings classified in sections 1, 2, 3 and 5: Up to 50% of the total estimate of the work without limit in the amount.

Title:
Financial assistance to carry out archival projects against credits for current operations.
Official State Gazette (BOE):
Nº 21 dated January 24th, 2003 (page 3235).
Calendar for submissions:
30 days following publication in the BOE.
Beneficiaries:
Public institutions and private not for profit bodies.
Amount of the financial aid:
Competitive Procedure
Less than or equal to 90% of the total cost.

Financial aid from the State Administration

Article 68 of the Spanish Historic Heritage Act (Law 16 dated June 25th, 1985) and article 58 of Royal Decree 111 dated January 10th, 1986, which developed that Act in part, stipulate the obligation for the budget for each public work financed in whole or in part by the State to include an item equivalent to at least 1 per cent of the funds provided by the State to be used to finance works for the conservation or enrichment of the Spanish Historic Heritage or to foster artistic creativity, preferably on the work itself or in its immediate surroundings. In order to achieve this purpose and in the light of article 58.7 of Royal Decree 111 dated January 10th, 1986, all services, bodies and state-owned companies that cannot make credit transfers must deposit the mandatory 1 per cent at the Public Treasury, which deposit shall generate the corresponding credit in favour of the Ministry of Culture (now the Ministry of Education, Culture and Sport).

The public body in charge of the building work must specify in the project for the same that is to be submitted to the Public Investment Committee for the preparation of the Triennial Plan for Public Investments or to the Ministry of Education, Culture and Sport when the project for the work has not been submitted to the said Committee, the option chosen from those indicated below as the destination of the funds corresponding to the said 1 per cent:
To finance works for the conservation or enrichment of Spain's Historic Heritage or to foster artistic creativity.
To perform works for the conservation or enrichment of Spain's Historic Heritage preferably on the work itself or in its immediate surroundings, or on any of the cultural interest properties related to the activities of the corresponding body.

Financial Aid from the European Union
INTERREG III

Of the various Community programmes and initiatives in place at the present time, the one which most closely adapts to the needs of the Mines at Almadén project is the INTERREG III Initiative.

The Interreg III Initiative applies within the scope of "cross-border, transnational and inter-regional co-operation intended to foster harmonious, balanced and sustainable development of the Community space as a whole". Interreg III comprises three chapters and has a total budget of 4,875 million euros.

Chapter A: Cross-border co-operation
The purpose of cross-border co-operation between adjacent areas is to develop cross-border economic and social centres through the application of common development strategies.
Chapter B: Transnational co-operation
The purpose of transnational co-operation between national, regional and local authorities is to encourage greater territorial integration in the Union thanks to the formation of large groups of European regions.

Chapter C: Inter-regional co-operation
The purpose of inter-regional co-operation is to improve the efficacy of regional development policies and instruments through a wide-ranging exchange of information and mutual sharing of experiences (membership of networks).
For the Mines at Almadén Project, specific reference is made to the INTERREG III B SUDOE Initiative, which is the one that comprises the south of France and all of the Iberian Peninsula. The following measure is included in the operational programme for the area known as SUDOE:

MEASURE 1-2:
INCREASE THE DYMAMISM OF RURAL AREAS AND DEVELOP COMPLEMENTARY CHARACTERISTICS OF THE TERRITORY BY THE SUSTAINABLE ORGANIZATION OF THE SUDOE
This measure is intended:
On the one hand, to promote the potential of the rural spaces, particularly those classified as fragile due to a high degree of desertification.
On the other hand, to define clearly the role that can be played by the metropolises and the small and medium-sized cities as well as their economic fabric for urban interconnection and territorial organization of areas with scant density that makes up most of the spaces in the SUDOE.
The promotion of alliances and strategic co-operation between political, economic and social actors in small, medium-sized and large cities is viewed as a means of developing the territory so as to fill the empty spaces in the regions involved, generated by the great polarization effect of large conurbations. Through their particular position, small and medium-sized cities play an essential role with respect to territories and it is necessary to strengthen them.
Specific goals
To correct territorial imbalances by instituting co-operation between different territorial levels, particularly in the economic and social arenas.
To promote and activate the creation of networks between institutions, small, medium-sized and large cities.
To strengthen the engineering capacities of spaces with scant density (rural areas, mountain areas, etc.).
To identify and promote new territorial types and practices associating rural and urban area for complementary and solidarity goals.
To foster innovative forms of co-operation, particular between cities and the country.
To identify new ways of ensuring the provision of services to populations and companies in the areas with a strong demographic decline.
To ensure the promotion of local quality products through, in particular, the organization of market access.

STRUCTURAL FUNDS
Four Structural Funds constitute the main bulwarks for solidarity in Europe, in addition to the existence of a Specific Fund applicable to Spain, Greece, Ireland and Portugal (the Cohesion Fund).
The four Structural Funds are:
The European Regional Development Fund (ERDF) finances infrastructure, productive investment, local development initiatives and assistance for SMEs.
The European Social Fund (ESF) helps the unemployed and people at a disadvantage in the labour market people to find work by financing training actions and systems to help them be hired.
The Financial Instrument for Fisheries Guidance (FIFG) is intended to adapt and modernize equipment in this sector.
The "Guidance" section of the European Agricultural Guidance and Guarantee Fund (EAGGF/Guidance) for rural development and aid actions for farmers, mainly in the least developed regions. In order to ensure the maximum impact and the best results, 94% of the Structural Funds focus on three objectives defined as high priority:
Objective 1 (territorial): to foster the recovery of less developed regions, that is to say to provide them with the basic amenities they still lack and favour investments in companies to allow economic activities to take off.
Objective 2 (territorial): to support economic and social reconversion in areas with structural deficiencies, whether urban or dependent on fishing.
Objective 3 (thematic): to modernize the training systems and improve employability.

The Structural Funds are not assigned directly to projects chosen by the European Union. Although the main priorities of a development programme are defined in collaboration with the Union, the choice of projects and their management are the sole responsibility of the national and regional authorities. In the light of the description of Axis nº 5 in the 2000-2006 Operational Programme for Castilla La Mancha, included within the Objective 1 regions, it is understood that the project for the Recovery and Valorization of the Mines at Almadén could receive funding.

Conclusions on economic feasibility:

As a result of the analyses effected, the economic interest of the project is justified in the medium and long term.
The project is economically interesting from the viewpoint of the Mining Park in itself as it has the capacity and the potential to be profitable in a few years, and also from the standpoint of an economic driver for the region as it is going to attract a considerable number of visitors who are going to need services over and above those of the Park itself.
However, this economic attractiveness can only be materialized if it is accompanied by certain actions, namely:

- Tourism planning actions. Execution of a strategic tourism plan starting from a rigorous inventory of the exiting tourism-related resources. Exploitation of the value in heritage and cultural assets and their conservation.
- Creation of a series of measures encouraging private investment, both in accommodation and in tourism companies. These actions will highlight the fostering of differentiation and the quality of offers, stressing the "rural tourism" product as a whole. Economic aid and aid to training.
- Development of marketing actions, including the creation of new ways of promoting and marketing the surroundings, establishing distinctive marketing plans for local products and services.
- Implementation of a series of actions for the Improvement of the Supply Side. These actions should stress the complementary nature of the offers for tourists and the creation of tourist packages.
- The creation of a competent working team that is perfectly integrated into the project and reflected in the same.
- The efforts made in the Park are complemented by the efforts made by private initiative in Almadén.
- The targets set in the feasibility analysis in terms of tourism had been met so that the attraction for visitors is greater.

APPENDIX
Communication and Marketing Plan
Master Plan for the Mine at Almadén

1. INTRODUCTION

In order to make the Almadén Mining Park project better known and foster a positive image, MAYASA will carry out during the 2003-2006 financial years, a whole series of information and communication actions, as well as promotions. The overall communication plan and the operational marketing plan for the Mines at Almadén will be in charge of the prior launch, the inaugurations and the subsequent operation of the Mining Park.

2. SITUATION ANALYSIS

SWOT (Strengths, Weaknesses, Opportunities, and Threats)

2.1. Strenghts

- New concept of tourism
- Historic and cultural component. The history of the Mines at Almadén is part of the history of Spain.
- The Mines at Almadén have a unique and well-acknowledged component: they are the world's largest mercury mines.
- There is previous experience in Spain of projects with mining parks, but none of such great dimensions.

2.2. Weaknesses
- Accessibility.
- The project is not completed.
- Scant hotel infrastructure.
- The region receives few tourists.
- The Surroundings do not include large events that attract huge audiences.
- Image linked to an older population.
- Poor image of the mines: extremely hard work, negative consequences for health (illnesses, accidents), toxicity, pollution.
- Memory of campaigns by activists, NGOs, and community leaders against the activity of the mines on environmental, social and sustainability grounds.

2.3. Opportunities
- There are currently new demands for leisure and tourism, a quest for new experiences.
- New tastes among consumers
- On an international level, there is a high level of concern for conserving mining and metal-working heritage and a trend towards mining culture.
- Increase in inland tourism, a kind of tourism more in harmony with the environment and the rural setting (Rural Tourism) and with strong cultural connotations
- Creation of synergies with other leisure, tourism and culture options in the area (National Parks of Cabañeros, Tablas de Daimiel and the natural park of the Ruidera Lagoons; Campo de Criptana, Classical Theatre Festival in Almagro).

2.4. Threats
- Raising expectations that will not be met (infrastructures, number of visitors, jobs and direct revenue in the local community).
- Other similar projects nearby: Río Tinto Mining Park, Image Mine and the Mining Museum in Puertollano (inauguration scheduled for September, 2003), "The Kingdom of Don Quixote" Theme Park in Ciudad Real (building work started in Dec. 2002).
- Campaigns by environmentalists

3. GOALS
- To have society as a whole become aware of the Mining Park project
- To achieve the permanent attention of the mass media.
- To generate expectation among the various target publics about the Almadén Mining Park project
- To involve and achieve the support of the local community and Public Administrations, mainly.
- To position the Almadén Mining Park vis-à-vis public opinion as a leisure and cultural option in Castilla La Mancha and its neighbouring regions and as a "benchmark" for Spanish mining tourism.
- To get the largest possible number of people to visit the Almadén Mining Park.
- To encourage tourism and economic development in the surroundings.

4. TARGET PUBLICS

1. Prescribers: Official institutions, representatives of the tourism sector, the mass media, opinion leaders. "Through these prescribers we will reach the users of the Mining Park"
2. Users and/or future visitors: Local residents, educational institutions, Social groups (the elderly, young people, women, ...), tourists.

5. COMMUNICATION STRATEGY

As with all cultural and leisure projects (museums, interpretation centres, theme parks, etc.), unless a message is conveyed constantly to all the different targets for the project about what can be found there, very few people are going to go to visit it.

The general communication strategy will be based on:

1. Differentiation by targets.
1. Messages for each target public and evolution of the messages.
2. Co-ordinated use of all communication channels: mass media and more direct channels aimed at specific groups.
3. "Messages and communication actions for each stage and for each of the targets"

5.1. MESSAGE STRATEGY: WHAT TO COMMUNICATE AND WHO TO

The key messages will be defined alongside the project leaders, following the story lines set out below:

5.1.1. MESSAGES FOR THE ADMINISTRATION:

- Large-scale project: major investment by MAYASA in the project, around 9.15 million euros between 2002 and 2006.
- The Almadén Mining Park will contribute to the economic development of the region.
- Generation of jobs in the area (direct and indirect employment).
- Increase in tourism.
- Creation of a new leisure and cultural option.
- Conservation project highlighting the value of the heritage in the Mines at Almadén for cultural and tourism purposes.
- Recovery of a sector that has ceased to be productive and turning it into a profitable and non-conflictive sector.
- Impact of the project in educational circles

5.1.2. MESSAGES FOR REPRESENTATIVES OF THE TOURISM SECTOR:

- The Almadén Mining Park will contribute to the development of tourism infrastructure in the surroundings.
- Project with great tourism-related potential. There is trend in favour of international mining culture. For example, Ironbridge Gorge (Great Britain) receives over 300,000 visitors a year, with a turnover of 10,800 million pesetas (approximately USD 50 million), (Puche, 1996).
- This is a new alternative, unique and attractive tourism offer. Linked with inland tourism, inland tourism, a kind of tourism more in harmony with the environment and the rural setting (Rural Tourism) and with strong cultural connotations
- Creation of synergies with other leisure, tourism and culture options in the area (National Parks of Cabañeros, Tablas de Daimiel and the natural park of the Ruidera Lagoons; Campo de Criptana, Classical Theatre Festival in Almagro).
- Extension of the tourism options on offer in Castilla La Mancha. Possibility of linking the visit to Almadén with other tourism options in the surroundings and the region (Classical Theatre Festival in Almagro, National Park of Tablas de Daimiel, National Park of Cabañeros, Campo de Criptana, etc.).

5.1.3. MESSAGES FOR THE MASS MEDIA:

- Rational:
  Creation of jobs (direct and indirect)
  New alternative leisure and cultural option
  Revitalization of the surroundings
  New opportunities for a depressed area

- Emotional:
  Highlighting and strengthening the "already acknowledged" importance of the Mines at Almadén, mainly stressing its history as part of the History of Spain. In this sense, the messages have to convince our targets that "Rescuing the history of the Mines at Almadén is to recover part of the history of Spain".

- The Almadén Mining Park is different and unique:
  Because they are the largest mercury mines in the world
  Because it has been Spain's largest mining operation throughout history
  For its contribution to the history of Spain
  For the economic and social dimensions of the project

5.1.4. MESSAGES FOR THE POPULATION OF ALMADÉN AND ITS SURROUNDINGS

- The recovery of Almadén's mining heritage will favour the development of tourism in the surroundings, and therefore the economic development of the region.
- Making the citizenry aware of the importance of tourism favours local development.

5.1.5. MESSAGES FOR EDUCATIONAL INSTITUTIONS:

- Educational impact of the Almadén Mining Park project
- Possibility for awareness of geological and mining heritage
- Practical way of carrying out the teaching of Earth Sciences

5.1.6. MESSAGES FOR TOURISTS:

- Historical anecdotes from the mines related to the history of Spain strengthen the historical importance of the mines
- Clarification that this is not a theme park about mining that "would virtual recreate a mining operation", but is rather a "real, authentic" mine. Therefore, visitors' "experiences and emotions" at the Almadén Mining Park will be unique, different, real and authentic.
- The combination of its educational, leisure and cultural characteristics make it a new leisure option.
- Linking the visit to Almadén with other tourist attractions in the surroundings and the region (Classical Theatre Festival in Almagro, Tablas de Daimiel, etc.).
- Encouraging tourists to visit the Almadén Mining Park from March 2004 on.
- Practical and useful information for visitors: opening hours, prices, activities, etc.

5.2. ACTION STRATEGY

In this project, communication will begin after the execution of the Master Plan for the Mines at Almadén, once all of the concepts, areas and uses of the future Mining Park have been defined and will have the following stages.

5.2.1. PHASES OF THE 2003-2006 COMMUNICATION PLAN

A) Pre-Launch Stage (April 2003 - February 2004)
B) Launch Stage (March 2004 - March 2006)
Stage 1 of the Launch (March 2004 - February 2005)
Stage 2 of the Launch (March 2005 - March 2006)
C) Post-Launch Stage (April 2006 - ....)

6. PROGRAMMES IN THE 2003-2006 COMMUNICATION AND MARKETING PLAN

1. Definition and creation of the corporate image
2. Institutional relations programme
3. Relations with the mass media
4. Internet portal.
5. Speaking opportunities
6. Programme with representatives of the tourist sector
7. Programme with the population of Almadén and Surroundings.
8. Travelling exhibition
9. Programme with educational centres
10. Programme with social groups
11. Sponsorship programme
12. Advertising and Promotion Plan

6.1. DEFINITION AND CREATION OF THE CORPORATE IMAGE

- Execution period:
  Pre-Launch Stage.
- Goal:
  To provide a comprehensive, consistent and distinctive corporate image for the project.
- Actions:
  - Determination of the brand and the visual identity (name, logo, symbols, colour, etc.)
  - Development of corporate identity. Applications:
    - Signage
    - Merchandising
    - Personnel uniforms
  - Stationery (envelopes, corporate paper, folders, visiting cards, leaflets, poster, etc.)
  - Possibility of creating a Mascot.
  - A fun mascot, close to the Park and with an image linked to it, aimed mainly at a target of children and teenagers.

6.2. INSTITUTIONAL RELATIONS PROGRAMME

- Execution period:
  Pre-Launch Stage.
- Introduction: The Administration represents one of the basic pillars for the project. It imbues the project with confidence (as the representative of the citizenry) and legitimacy with respect to the actions undertaken.
  Having the support of the Administration will make it much easier to achieve a positive perception of the project, as well as the execution of the project itself.
- Goals:
  The goal of this programme is to develop relations with public and private institutions and bodies of a national, regional and local scope in order to perform joint actions contributing to the achievement of the goals set out in the Master Plan for the Mines at Almadén.
- Actions:
  Identification of the bodies of interest for the project in the Local, Provincial, Regional and Central Administrations.
  Maintaining a constant flow of information with them through personalized presentations, regular meetings and through the distribution of information. In this sense, the creation of a web site with up-to-date information on the project represents a channel with constant information.
- Results:
  The results will be collaboration agreements with related institutions, facilities for the execution of certain actions and programmes, as well as the financing of certain projects.
- Local Administration: Continuing with relations already begun, during the preparation stage of the Master Plan, with the representatives of the Local Administration and the social fabric of Almadén and its neighbouring towns.
  Creating links with business representatives, Local Administration, stakeholders. The function of these meetings is informative and consultative, attempting to minimize the obstacles that the project may encounter in its implementation.

- Priority institutions and bodies:
  - Almadén Town Council
  - Associations in Almadén. Total: 31. (The most active: Association of Housewives, Regional Business Association, “Azogue” Scout Group, “Cáritas” Parish Charity).

- Polytechnic University School in Almadén
- Association for the Development of the "Montesur" District of Almadén
- Administration Provincial

- Continue with and strengthen provincial-level relations with the goal of obtaining support for this project.

- Priority institutions and bodies:
  - Ciudad Real Provincial Council (Its "Conoce tu provincia" (Know your Province) Programme will continue to include visits to the mines at Almadén this season)
  - Regional Administration

- This level of Administration represents the possibility of counting on support for the project from the Regional Government, provinces and town councils. (The Regional Government of Castilla La Mancha has responsibility for internal trade fairs, tourism and culture.)

Priorities:
- To establish contact with the Regional President to make him aware of the project. This contact and awareness of the project may lead to its promotion with other Administrations.
- Making subsequent contact with the different departments that will be involved in the project.

In this sense, the personalized presentations made to each of the Regional Government Departments must reinforce the contents pertinent for that particular Department.

Priority institutions and bodies:
- Department of Industry and Labour. (Responsibility for tourism)
- Department of Education and Culture
- Department of Social Welfare (Castilla La Mancha Volunteer Plan (this includes cultural volunteers)), "Conocer nuestra región" (Know our Region) Programme.
- Department of Public Works (transport)
- Castilla La Mancha Tourism Council (consultative and advisory body of the department comprising the economic and social agents in the Region and the Public Administrations)
- University of Castilla La Mancha.
- Central Administration

- Representation of support from the Central Administration in the visualization of the project

- Mediation of the Central Administration in the promotion of the project at the European level.

- Priority institutions and bodies:
  - Ministry of Education, Science and Sport
  - Ministry of Labour and Social Affairs (Holiday Programmes for the Elderly (IMSERSO), Youth Institute)
  - Ministry of Economy (Turespaña tourism institute)
  - Ministry of Science and Technology (Geological and Mining Institute of Spain)
  - Higher Council of Professional Associations of Mining Engineers and the Spanish National Association of Mining Engineers (Mining image campaign 2003-2004).

6.3. RELATIONS WITH THE MASS MEDIA

- Execution period:
  All
- Goals:
  - To generate interest in the media and a climate of trust and expectation around the project.
  - To obtain a quality coverage that reaches our target publics
- Strategy with the media:

- Creation of a different and personal style of communication
- Turning each of the activities, actions and advances of the project into a news story

• Selection of spokespersons:
- Internal and external (mainly in the public administration) able to transmit the magnitude of the project and to arouse the interest of the media and public opinion.

• Proposal:
Ángel H. Hernández, manager of the Almadén Fco. Javier de Villegas Foundation.

• Target media

a) General media:
News agencies (EFE, Europa Press, Colpisa, Reuters,etc.)
Local press (dailies and magazines)
National press (dailies, magazines)
On-line press
Weekly supplements
Local and national radio stations (magazines, news programmes,etc.)
National, regional and local television channels: TVE, Antena 3, Tele 5, TV Castilla La Mancha, TV Almadén, etc. (News programmes, Magazines, Educational Programmes, Travel, children's programmes, etc.)

b) Specialist media:
Economic press (dailies and magazines)
Technical magazines on mining, engineering, geology and the environment (Bocamina, Canteras y Explotaciones, Ingeopress, etc.) Tourism (Aire Libre, Geo, Viajar, …), Nature Magazines (Biológica, Quercus, National Geographic, etc.) Heritage and Culture Magazines (Lifestyle magazines for men and women: Telva, Cosmopolitan, Elle, Vogue, GQ, Man,…) Thematic TV channels (Geoplaneta TV, Canal Cultura, Beca TV, Canal Historia, Viajar, etc.).

• Actions with the media in the Pre-Launch Stage
- Presentation of the Mines at Almadén Master Plan to the media in Madrid in the second half of 2002
- Inauguration of the Hospital in October, 2002.
- Regular remission of press releases informing about the advances in the project
- Trips to Almadén for journalists to show them the works and the progress of the project at the mine. Trips for the general press (national and local press) and specialist press (mining; society, culture and education; nature and the environment; tourism), in collaboration with the various press associations (Asociación de Periodistas de Información Ambiental (APIA, Association of Environmental News Journalists), Asociación de Periodistas y Escritores de Turismo Association of Tourism Journalists and Writers, etc.).

• Actions with the media in the Launch Stage
- Agreements with the mass media for the dissemination of the Almadén Mining Park's activities, as well as for its promotion: free tickets, etc.
- Invitation to the media to attend the inaugurations of each of the installations as they are made ready for touring by the general public
- Information about the progress of the project and other activities
- Media trips and personal invitations for journalists

• Displays and contents for the media:

1. Press dossier (for all media: press, radio and television) This dossier will include wide-ranging information about the Almadén Mining Park project (historical information on the Mines, descriptions of MAYASA's mining heritage, summary of the Master Plan, investment figures and construction stages, etc.). In addition, it will include a graphic section showing current photographs of the Mines at Almadén and computer-generated images showing what the future Mining Park will look like.

2. Pre-filmed video (for audio-visual media)
   A pre-filmed video will be created in Betacam format for distribution to television channels as a complement to the press dossier.
   Characteristics of the pre-filmed video:
   - Declarations by spokespersons of interest for the project
   - Up-to-date images of the Mines at Almadén, its heritage and the works
   - Three dimensional images of the future Almadén Mining Park
   - The pre-filmed video will not be edited, the images and declarations will be provided "as is"
   - Advantages:
     - This ensures that any audio-visual medium is able to use images of the project, whether or not they have come to cover the story in situ.
     - The images represent a useful resource for the entire life of the project.

3. "Surprising" invitations
   Invitations to the media and press releases will be "surprising, attractive and stimulating" so as to provoke surprise, intrigue, curiosity, and arouse interest in the subject among journalists.
4. Virtual Press Room at the web site: www.minasdealmaden.com
   The web site will include a virtual press room allowing publication of the material for the media (press releases, photographs, etc.) and its consultation by any journalist anywhere in the world 24 hours a day.

Services of the External Press Office
- Consultancy for the management of Almadén Mining Park on communication issues
- Definition of key messages in co-ordination with the project leaders
- Training of spokespersons, courses intended to find the best way to "sell" the project vis-à-vis the media.
- Personalized attention for the media
- Preparation of press releases (frequency depending on the information flow created)
- Preparation of material for the media (corporate dossier, graphic and audio-visual material, update of the web site)
- Organization of presentations and press conferences or other events (logistics, decoration, technical requirements, transport)
- Organization of Press Trips
- Handling of interviews and reports
- Informal meetings between the heads of the mass media and the Mining Park's spokespersons
- Preparation of Opinion Articles
- Monitoring of media
- Report on media impact
- Speaking opportunities

6.4. INTERNET PORTAL

- Execution period: Pre-Launch
  (Updating and maintenance in all stages)
- Goal:
  - To have available an attractive medium for presenting the project that is accessible for all target audiences from anywhere in the world 24 hours a day
  - Support in the media relations programme, institutional relations, etc.

- To provide information on both the Almadén Mining Park and the activities under way over time.

- Action:
  - Design and development of the web site: www.minasdealmaden.com
- Initial content:
  - Information on the Almadén Mining Park project (in Spanish and English), with images and virtual recreations of the park
  - Virtual Press Room, allowing publication of material for the media (press releases, photographs, etc.) and its consultation by any journalist anywhere in the world.
  - Contact details and information about the Almadén Foundation.

6.5. SPEAKING OPPORTUNITIES

- Execution period: All
- Goals:
  - To make the Almadén Mining Park project well-known among the specific target groups (professionals involved with culture, heritage, tourism, mining, the environment, etc.)
  - To establish solid and positive relations with organizations, associations and opinion leaders, from scientists to environmentalists, NGOs, etc.
  - To maintain open channels for dialogue and to seek empathy with certain groups to avoid possible criticism, especially with the "environmentalist" movement.
- Actions:
  - Stage 1
    - Detection and active location of seminars, conferences and congresses to do with culture, heritage, mining, tourism and the environment.
    - Management of speakers' participation at the Almadén Mining Park
  - Stage 2
    - Creation of a seminar and/or conference.
      - Proposal: International Conference on Mining Tourism
      - Selection of speakers:
      - Internal and external, able to transmit the magnitude of the project and to arouse the interest of the different groups
    - Proposal:
      - Ángel H. Hernández, manager of the Almadén Fco. Javier de Villegas Foundation
      - Members of Quality Group, the company that has drawn up the Master Plan for the Mines at Almadén
    - Targets:
      - Opinion leaders (engineers, miners, professionals from the world of culture and tourism, etc.)

6.6. PROGRAMME FOR THE TOURIST SECTOR

- Execution period: All.
- Introduction:

  The intermediaries in the tourist sector are to a certain extent responsible for the successful promotion and sale of a tourism destination.
- Goals:
  - To communicate the future opening of the Almadén Mining Park to the tourism sector

- To start up a relationship with tourism intermediaries (tour operators, travel agencies, shopping clubs, …) and other players with an important role in encouraging the active marketing of a destination (tourism information offices, tourism associations, leisure companies, the hospitality industry, etc..)
- Promotion and marketing of the Almadén Mining Park as a tourist destination

- Actions:
  1. Presentation of the project to representatives of the tourism sector and remission of up-to-date documentation (sales dossier, leaflets, etc.).
     Proposal: Unión de Agencias de Viajes (Travel Agency Union), Asociación Empresarial de Agencias de Viajes Españolas (AEDAVE, Business Association of Spanish Travel Agencies), Asociación Provincial de Hosteleros de Ciudad Real (Ciudad Real Association of the Hospitality Industry), Federación Española de Asociaciones de Agencias de Viajes (Spanish Federation of Travel Agency Associations), Asociación Empresarial de Agencias de Viajes Españolas (SADAVE, Business Association of Spanish Travel Agencies), among others.
  2. Organization of tours by professional tour operators and travel agencies to the Almadén Mining Park. During the construction period and afterwards. In collaboration with the Asociación de Mayoristas de Viajes Españolas (AMAVE, Association of Spanish Tour Operators).
  3. Participation at trade fairs attended by professionals. This may be in the form of an individual stand or through sharing of space on another stand (e.g. at the stand for Castilla La Mancha). Publication of promotional material.
- Targets:
  - Tour operators or wholesalers
  - Travel agencies and retailers
  - Hospitality Industry
  - Tourism Information Offices
  - Tourism Guidebooks
  - Leisure companies
- Proposals for trade fairs in 2003 and 2004:
  - INTERNATIONAL FAIR ON INTERIOR TOURISM (INTUR). VALLADOLID.
  - TURNEXO. PROFESSIONAL SHOW FOR TRAVEL AGENTS.
    Frequency: Several shows a year in different cities in Spain.

6.7. PROGRAMME WITH THE POPULATION OF ALMADÉN AND SURROUNDINGS

- Execution period: All.
- Goals:
  To involve citizens, associations and companies in Almadén in the activities of the Almadén Mining Park
- Targets
  Residents in Almadén and neighbouring towns, and former employees.
- Actions:
  1. Presentation of the project to the residents of the areas directly affected during the execution and development of the project, pointing out and explaining the advantages of this project.
  2. Cultural volunteers programme for the Almadén Mining Park.
  3. Creation of the Association of Friends of the Almadén Mining Park.
  4. Programme with former employees of the Mines at Almadén. Design of events, for example holding a farewell ceremony for the shutdown of the mining activities. Invitation to a cocktail. Approximate dates: Dec 2003 - February 2004.

5. Open Day Sessions, at the different stages of the project's execution and at the various installations.
6. Guided tours for different groups of stakeholders in the town, through their associations.
7. Organization of an exhibition requesting the collaboration of citizens.
8. Integration of the Almadén Mining Park in excursions and programmes organized in the surroundings and/or province, e.g. the "Conoce tu provincia" (Know your Province) Programme.
9. Creation of events with local participation, e.g. organization of a competition solely for school pupils in Almadén and/or the children of miners from Almadén. The stories and/or drawings will be displayed at one of the installations in the Mining Park and a book will be published with all of the works presented. This competition will also achieve the involvement not only of the school pupils but also their relatives.

6.8. TRAVELLING EXHIBITION

- Execution period: Stage Post-Launch
- Goals:
  - To allow the general public to know about the project in towns close to Almadén and in other important cities
  - To turn visitors to the exhibition into future visitors of the Almadén Mining Park

- Strategy:
  - To choose the locations by proximity to Almadén, greatest association and interest
  - To take advantage of the organization of other events arousing interest in the towns chosen in order to communicate our project and boost interest in it. E.g. The Almagro Theatre Festival.
- Action Lines:
  - Creation of a travelling exhibition:
    - For fixed spaces (museums, town halls, etc.)
    - Adapted to a travelling marquee or a bus
  - Contents:
    - Explanation of the Almadén Mining Park project, what it will be like in 2006.
  - Other complementary actions:
    - Hostesses to distribute informative leaflets
    - Animation, through performances, Mascot, actors, enactments, etc.
  - Towns of particular interest:
    - Ciudad Real: Almadén, Ciudad Real, Puertollano, Almagro
    - Toledo: Capital
    - Cuenca: Capital
    - Guadalajara: Capital
    - Albacete: Capital
    - Jaén: Capital
    - Seville: Capital
    - Córdoba: Capital
    - Cáceres: Capital
    - Mérida: Capital
    - Badajoz: Capital
    - Madrid: Capital

- Target Publics:
  - Local institutions (mayors and councillors)

- Citizens in general
- Educational centres
- Local mass media
- Cultural and environmental associations
- Associations for the elderly, women, …

6.9. PROGRAMME WITH EDUCATIONAL CENTRES

- Execution period: launch and post-launch stages.
- Goals:
  - To spark curiosity among the youngest groups so that they become prescribers for the park
  - To increase visits to the Almadén Mining Park
  - To make the tour of the Mining Park an educational leisure activity
- Strategy:
  The creation of a mascot for the Almadén Mining Park will help us as a tool for effective communication with younger audiences.
- Actions:
  1. Preparation and distribution of specific teaching material for schools in various formats (CD, video, books, etc.). Produced with the collaboration of school teachers.
  2. Organization of guided tours by the various Spanish schools to the work for the Mining Park and the mining museum once it was ready to receive visits from the general public, starting with the schools in Almadén and nearby towns.
  3. Organization of a competition in which the pupils who had visited the Almadén Mining Park had to write a text or draw a picture on the subject of mining. (prizes to be determined)
- Target Publics:
  - Primary and secondary schools
  - Elementary pupils and high-school students
  - Local residents
  - Families

6.10. PROGRAMME WITH SOCIAL GROUPS

- Execution period: launch and post-launch stages.
- Goals:
  - To communicate the future opening of the park and propose a new leisure option to this target
- Actions:
  - Production of a database with all the associations of interest
  - Seeking of collaboration with associations
  - Organization of guided tours
  - Creation of informative supporting material to arouse interest
  - Mailing and informative posters for all of the associations in the contact database
- Targets:
  - Associations of women/housewives
  - Associations of retired people
  - Cultural associations
  - PTAs (parent-teacher associations)
  - Associations of geologists and Friends of the Earth, etc.

6.11.SPONSORSHIP PROGRAMME

- Execution period: All.

"Sponsorship is understood to mean the contribution made to an organization in exchange for obtaining the direct benefit of the right to include brand advertising; in this way the brand is associated with the work or manifestation so sponsored and so is differentiated from any other advertising"

The sponsorship programme offers two possibilities:

1. The Almadén Mining Park is the sponsor …
2. Other organizations sponsor events or activities conducted by the Almadén Mining Park.

1. The Almadén Mining Park is the sponsor …

- Goals:
  - To create and develop a positive image of the Almadén Mining Park within its social context
  - To increase the notoriety of the Almadén Mining Park
  - To communicate specifically with certain targets
- Actions and/or events that can be sponsored:
  - To identify actions and/or events that can be sponsored:
    - Local or regional festivities
    - Cultural and/or sporting events
    - Conferences, seminars and courses on heritage, tourism and mining, etc.

2. Other organizations sponsor events or activities conducted by the Almadén Mining Park.

- Goals:
  - To finance part of the activities conducted by the Almadén Mining Park
  - To establish stable relations with sponsors and in general with the business sector

What can they sponsor for us?

- Temporary exhibitions
- Teaching activities and cultural dissemination, etc.

- Action lines:
  - To identify a market for possible sponsors, their demands and expectations with regard to the Almadén Mining Park
  - To establish a sponsorship plan by defining the activities where sponsorship is feasible and the system of relations with the sponsor.
  - To establish quantifiable goals for revenue and qualitative targets for possible sponsors (sectors and geographical scope)

6.12. ADVERTISING AND PROMOTION PLAN

- Execution period: launch and post-launch stages.
- Goals:
  - To inform our target publics about the Almadén Mining Park and its activities
  - To encourage and attract visits from our ultimate target

- Action lines:
  - To design an advertising campaign for the launch of the Mining Park. Design of a commercial that can be adapted to different formats and media: radio, TV, press, billboards, buses, etc.
  - To design promotional actions (discounts on admission tickets, competitions, etc.) and promotional gifts for the various events and targets (merchandising for professional trade fairs on tourism, school trips, etc.).

Security and protection of Idrija's cultural heritage against natural and other disasters on national level

CULTURAL HERITAGE PROTECTION ACT (ZVKD-1)
(OJ RS 16/2008, 123/2008)

Unofficial translation

I. GENERAL PROVISIONS

Article 1
(Purpose of the Act)

(1) This Act shall provide for the methods of cultural heritage protection (hereinafter referred to as: heritage) and the related competencies in order to enable the integrated conservation of heritage.
(2) Heritage shall mean property inherited from the past which the Slovenes, the members of the Italian and Hungarian ethnic communities, and of the Romani community, as well as other nationals of the Republic of Slovenia, determine as a reflection and expression of their values, identities, religious and other beliefs, knowledge and traditions. The heritage shall include those aspects of environment which are the result of interaction between people and the space through the time.
(3) The heritage shall be divided into tangible and living heritage. The tangible heritage shall consist of movable and immovable heritage.
(4) The integrated conservation of heritage shall be realised through development planning and measures of the state, regions and municipalities, so that they include heritage, with due regard to its special nature and social interest, in sustainable development.
(5) For the implementation of Council Regulation (EEC) No. 3911/92 of 9 December 1992 on the export of cultural goods (OJ L No. 39 of 31 December 1992, p. 1; hereinafter referred to as: Regulation 3911/92/EEC) this Act shall provide for a competent authority and penalties for violations of the Regulation.

Article 2
(Public benefit of heritage protection)

(1) Heritage protection shall be for the public benefit. The public benefit of heritage protection shall be determined in accordance with the cultural, educational, developmental, symbolic and identification significance of the heritage for the state, regions and municipalities.
(2) The public interest of heritage protection shall comprise:

- identification of heritage, its values, its documentation, study and interpretation,
- conservation of heritage and prevention of harmful effects on heritage,
- enabling access to heritage or relevant information to anyone, in particular to young people, the elderly and disabled persons,
- the public presentation of heritage and fostering awareness of its values,
- inclusion of knowledge relating to heritage in education and training,
- the integrated conservation of heritage,
- the promotion of cultural diversity, with due regard for the diversity of the heritage and its interpretations, and
- cooperation of the public in matters relating to protection.

(3) The state, regions and municipalities shall realise the public interest in protection by organising and supporting the activities and actions as referred to in the preceding paragraph, and shall implement measures on the basis of this Act.

(4) When realising the public benefit of heritage protection, the state, regions and municipalities shall cooperate with the owners of the heritage, business entities, non-governmental organisations, and civil society in the framework provided for by law and the strategy referred to in Article 73 of this Act.

Article 3
(Definitions)

(1) The terms used in this Act shall have the following meaning:

1. „accession“ shall mean a method of the museum to acquire movable heritage and include it in collections;
2. „archaeological find“ shall mean a movable archaeological remain which has been under the soil or water for at least 100 years. Archaeological finds shall also be arms, munitions, other military material, military vehicles and vessels or their parts which have been under the soil or water for at least 50 years;
3. „archaeological remains“ shall mean all items and any evidence of human activity over different historical periods on the surface, in the soil and water, the conservation and study of which contribute to discovering the historical development of humankind and its connection with the natural environment, the main sources of information of which are archaeological researches or discoveries, and which may be assumed to have been under the soil or water for at least 100 years, and to have the properties of heritage. Archaeological remains shall also be those items connected with burial sites, determined on the basis of regulations governing war cemeteries, and with war, together with the archaeological and natural context, which have been under the soil or water for at least 50 years. Professionally identified and recorded archaeological remains shall become heritage;

4. „archaeological site“ shall mean an original place of deposition or discovery of archaeological remains. The professionally identified and recorded archaeological site shall become heritage (hereinafter referred to as: recorded archaeological site);
5. „integrated conservation“ shall mean a set of measures aimed at ensuring the continued existence and enrichment of the heritage, as well as its maintenance, restoration, renewal, use and revival
6. „documentation“ shall mean a collection, regulation and storage of data on the heritage, its values, state, location and other facts significant for carrying out protection;
7. „social interest“ shall mean the value of the heritage for society and individuals on the account of its cultural, educational, developmental, religious, symbolic and identification potential, or for the study of different professions such as anthropology, archaeology, architecture, ethnology, history of art and history;
8. „searching for archaeological remains“ shall mean actions on the land and in water carried out with a view to discovering new data on archaeological remains, and which may lead to discoveries of archaeological sites and finds;
9. „transfer“ shall mean the physical transfer of any movable heritage from the Republic of Slovenia to another Member State of the European Union, or to a Member State of the Agreement on the European Economic Area;
10. „export“ shall mean the physical transfer of any movable heritage from the Republic of Slovenia as a part of the customs territory of the Community into a third country which is not a Member State of the European Union or the Agreement on the European Economic Area;
11. „training for work in protection“ (hereinafter referred to as: training) shall mean a further or updating of the education of an individual who works in a protection activity, to improve the knowledge of new discoveries and methods in the profession, develop competences and make progress, and after which he is granted a certificate which may be a condition for employment or continuation of the work;
12. „countervailing measure“ shall mean an activity, intervention or action which is aimed at replacing or mitigating the loss or damage of heritage;
13. „conservation plan“ shall mean an expert report which is a part of the project documentation for obtaining project conditions, or a part of the project documentation for obtaining project approval, to determine the components of a monument that should be conserved, and the plan of executing the works necessary for such conservation;
14. „conservation plan for renewal“ shall mean a part of the planning scheme prepared on the basis of regulations governing spatial planning;
15. „cultural landscape“ shall mean immovable heritage which is an open space with natural and created components whose structure, development and use are chiefly controlled by human operations and activities;

16. „cultural monument“ (hereinafter referred to as: monument) shall mean heritage which has been declared a monument or entered in the inventory ledger of an authorised museum;
17. „museum“ shall mean a permanent organisation in the service of society and its development, which is open and collects, conserves, documents, examines, interprets, manages and exhibits the heritage and provides data thereof, with a view to fostering awareness of the heritage, spread knowledge of its values and enable people to benefit therefrom;
18. „national treasures“ shall mean movable heritage that belongs to one of the types of heritage item provided for by the Annex of Regulation 3911/92/EEC which are, due to their interest, subject to limited transfer or export from the Republic of Slovenia, and provision of measures related to trade and storage;
19. „settlement heritage“ shall mean immovable heritage representing in nature a town, market or village centre, its part, or another settlement area;
20. „impermissible encroachment“ shall mean any encroachment on heritage which is carried out without, or in conflict with, cultural protection approval;
21. „immovable heritage“ shall mean immovable heritage or its parts with the value of heritage, entered in the heritage register;
22. „revival“ shall mean activities which enable the integration of the heritage into contemporary life and creativity, the sustainable use of such heritage, and the benefit thereof;
23. „plan“ shall mean a scheme, programme, plan or another general act whose implementation affects the heritage or its protection;
24. „authorised person“ shall mean an official of the competent organisation, or another person authorised to carry out protection tasks under this Act;
25. „authorised museum“ shall mean a museum which is not founded by the state performing the national public service in the field of protection;
26. „encroachment on heritage“ (hereinafter referred to as: encroachment) shall mean any work, activity and action that affects in any way the appearance, structure, internal relations, and function of the heritage, or that damages or decomposes the heritage, or changes its location, and in particular:
    - any alteration of the heritage which are deemed to be a construction in accordance with regulations governing construction of facilities,
    - works for the maintenance and use of the heritage,
    - removal of the heritage or parts thereof,
    - activities and actions carried out in relation to the heritage, or directly with the heritage, and
    - searching for archaeological remains and research of the heritage;

27. „preliminary research“ shall mean research of the heritage which is to be carried out in order to:
    - acquire information necessary for evaluation of the heritage prior to interventions in space or prior to starting a construction,
    - specify protection measures, or
    - remove the heritage under control prior to interventions in space or prior to starting a construction.

    The preliminary archaeological research shall also include the post-excavation processing of the archive of the archaeological site;
28. „movable heritage“ shall mean movable heritage or their collections with the values of heritage;
29. „renewal“ shall mean a set of various activities in the economic, social and cultural fields which provide for, subject to appropriate physical planning, conservation and revival of the heritage;
30. „demonstration of evaluation of the heritage in the area“ shall mean the upgrading of the heritage register with data on the actual state of the heritage and its evaluation in the area available to the producers of the plan as a recommendatory expert grounding;
31. „competent organisation“ shall mean an entity competent to carry out protection measures. Unless otherwise provided for, it shall be considered as follows:
    - as the competent organisation for the protection of immovable heritage: Institute for the Protection of Cultural Heritage of Slovenia hereinafter referred to as: institute),
    - s the competent organisation for the protection of movable heritage: državni oziroma pooblaščeni muzej,the national or authorised museum,
    - as the competent organisation for the protection of living heritage: the institute performing public service of the protection of living heritage under this Act;
32. „research“ shall mean works which encroach on the heritage because of the need for its protection, aiming at examining its parts and obtaining data on its significance, state and threats;
33. „heritage register“ (hereinafter referred to as: register) shall mean a central collection of data on the heritage kept by the ministry responsible for heritage (hereinafter referred to as: ministry);
34. „recorded heritage“ shall mean heritage which is entered in the register and is not a monument;
35. „site“ shall mean an area of immovable heritage protected as a monument on the basis of this Act on the account of its social interest, of sympathetic planning and topographical determination. These shall be in particular the areas of settlement heritage, parts of the urban or rural landscape, places of historic events, archaeological sites, or historic parks and gardens;

36. „use“ shall mean permanent or periodic activities carried out on the heritage, beside the heritage, or in any other connection with the heritage, influencing the heritage or using its cultural values and social interest;
37. „management“ shall mean carrying out the tasks necessary for meeting the purpose on the basis of which the item has been proclaimed a monument, and shall include in particular the management and organisation of maintenance, use, accessibility, public presentation, and monitoring of the state;
38. „import“ shall mean a physical transfer of the movable heritage from a third country which is not a Member State of the European Union or of the Agreement on the European Economic Area, into the Republic of Slovenia;
39. „protection regime“ shall mean rules which, considering the social interest of the monument and on the basis of its evaluation, concretise restrictions of ownership rights and other entitlements, and determine measures for implementing protection;
40. „protection heritage area“ shall mean an area with the uniform characteristics of immovable heritage which is, on account of its values and development potential, an important part of spatial arrangements;
41. „protection“ shall mean legal, administrative, organisational, financial and other measures of the state, regions and municipalities, intended for the existence and enrichment of the heritage. Certain protection measures, other than legal and administrative, shall also be implemented by other protection entities;
42. „protection“ shall mean such handling of the heritage which, by regular maintenance and restoration, provides for the existence of the values of the heritage and its use at least to a minimum extent;
43. „entry“ shall mean a physical transfer of the movable heritage from a Member State of the European Union or a Member State of the Agreement on the European Economic Area, into the Republic of Slovenia;
44. „area of impact“ shall mean the wider surroundings of the immovable monument or heritage which is determined from the historical, functional, spatial, symbolic and social aspect, within which interventions in space and activities shall be adapted to integrated conservation, or where impacts on the heritage are assessed;
45. „maintenance“ shall mean works which enable the physical protection of the heritage against destructive forces or sustainment through appropriate use. The aim of the maintenance shall be conservation of the heritage;
46. „collection“ shall mean a group of movable heritage with similar values of the heritage which may be related through a common historical or spatial context;
47. „living heritage“ shall mean intangible properties, such as practices, presentations, expressions, knowledge, skills, and the related movable heritage and cultural spaces (where such heritage is presented or expressed) which

are transmitted by communities, groups and sometimes individuals from generation to generation, by their continuous interpretation as a reaction to their surroundings, nature and history;

48. „living masterpiece“ shall mean living heritage which is proclaimed a monument.

Article 4
(Rights and obligations associated with heritage)

(1) Everyone shall have the right to use the heritage as a source of information and knowledge, benefit from its values, and contribute to its enrichment.
(2) Everyone shall be responsible for respecting the heritage of other persons like just like his own.
(3) The right to heritage may be restricted merely to the public benefit and by rights of other persons.
(4) Everyone shall be liable to the conservation of the heritage pursuant to this Act and other regulations.
(5) Everyone shall inform the competent organisation on the existence of items assumed to possess the values of heritage.

Article 5
(Protection of rights of owners)

(1) The ownership or other material rights to heritage shall be restricted to the minimum possible extent necessary to effect protection. The state, regions, municipalities, and other entities of protection shall select those measures which, when achieving the same effects, are the least restrictive for the owners and direct possessors of the heritage.
(2) The owner shall be kept informed on matters of protection that concern his property.

Article 6
(Ownership right to the heritage)

(1) An archaeological find or archaeological remain which is movable and is found by any person on the surface of the earth, underneath the surface of the earth, or in water, shall be the property of the state.
(2) The provision referred to in the preceding paragraph shall not hold for archaeological finds which originate from war cemeteries with established ownership.
(3) A monument owned by the state, region or municipality which is an archaeological find or archaeological site, or protected on the basis of special regulations or international treaties to which the Republic of Slovenia is a signatory, shall not be removed
(4) Other monuments owned by the state, region or municipality may exceptionally be removed only if this provides for their improved conservation and public accessibility, and if its use complies with the social interest of the monument.

(5) Decisions on removal of monuments of national importance shall be adopted by the Government of the Republic of Slovenia (hereinafter referred to as: Government) upon the proposal of the minister competent for heritage (hereinafter referred to as: minister), and decision on the removal of monuments of local interest shall be adopted by the competent authority of the region or municipality which proclaimed the monument.
(6) The removal of movable heritage owned by the state, region, or municipality, and stored in a national or authorised museum shall be prohibited, unless this removal involves an exchange which would result in a significant addition to the collection of monuments, which shall be decided by the minister competent for the protection of cultural heritage (hereinafter referred to as: minister), or the competent authority of the region or municipality which is the founder of the museum.
(7) Resources acquired through the sale of heritage or monument owned by the state, a region or municipality may be earmarked merely for conservation, maintenance, revival, or the purchase of a heritage or monument.

7. Article 7
(Heritage without owner)

If the heritage has no owner, or the owner is unknown and can not be found, or if the heritage remains without an owner, it shall be owned by the Republic of Slovenia.

II. ESTABLISHMENT OF PROTECTION

1. Establishment of heritage protection

Article 8
(Subject of public interest)

(1) On the basis of this Act, the subject of public interest for protection shall be individual items or values which are:
- recorded heritage,
- national treasures,
- monuments,
- protection areas of the heritage, and
- archaeological remains.

(2) Identification of the subject of public interest shall represent the basis for the establishment of protection.

2. Recorded heritage and national treasures

Article 9
(Recorded heritage)

(1) Immovable heritage, movable heritage, and values with the properties of heritage referred to in Article 1 of this Act shall be entered in the register.

(2) Immovable heritage shall be entered in the register as individual immovable heritage or as an area of the heritage.
(3) As individual immovable heritage a building, facility or other immovable heritage shall be entered in the register which are constructed or composed or designed with natural elements according to the principles of landscape design, or are an archaeological site. A part of an individual item of immovable heritage shall be also its elements and fixtures intended for its use or its embellishment, or which are indispensable for its operation or understanding.
(4) As the area of heritage, a uniform group of buildings, a settlement or its part, a bigger archaeological site, or the area of cultural landscape shall be entered in the register which, a whole, has the values of heritage, and whose interconnection is sufficient to compose a topographically determinable whole of the immovable heritage.
(5) Movable heritage shall be entered in the register as an individual movable heritage or as a collection
(6) Living heritage shall be entered in the register together with the cultural space, supporting such heritage and providing for the realisation thereof.
(7) The minister shall prescribe the list of types of heritage referred to in preceding paragraphs and the list of possible protection guidelines by individual types of heritage.

Article 10
(National treasure)

(1) National treasure shall be movable heritage which belongs into one of the types of heritage provided for by the Annex of Regulation 3911/92/EEC, and which meets also one or more of the following requirements:
- has monument status,
- is a more than 100-year old archaeological find which originates from excavations and sites on land or under water,
- is a more than 100-year old integral part of an immovable monument which has been dismembered,
- is recorder as a part of a museum collection entered in the list referred to in Article 87 of this Act, as a part of a collection of a public archive or public library, or as a fixture, or as a part of a collection of a church or other religious community, or
- has cultural value for the Republic of Slovenia due to its importance.

(2) In the event of doubt as to whether a certain movable heritage constitutes a national treasure referred to in the second to fifth indents of the preceding paragraph, this shall be decided by the minister.
(3) The minister shall decide that movable heritage has cultural value for the Republic of Slovenia pursuant to the fifth indent of the first paragraph, and is therefore national treasure if such movable heritage complies with one or more of the following criteria:

- has been made by an artist, designer, creator, significant in a certain field of culture in Slovenia,
- is a product of traditional creativity or knowledge,
- is significant from the viewpoint of the heritage of the Republic of Slovenia or its regions,
- is related to a person, occurrence or event significant in Slovenian history or history in the Republic of Slovenia,
- is related to a monument or another important cultural environment,
- is rare in the Republic of Slovenia, threatened, or will become rare.

3. Immovable monuments

Article 11
(Immovable monuments)

(1) Recorded immovable heritage which
- constitutes a suspicious achievement of creativity or a valuable contribution to cultural diversity,
- is a significant part of the space or heritage of the Republic of Slovenia or its regions, or
- represents a source for understanding historical processes, occurrences, and their connection with the present culture and space, on account of its extraordinary interest for the state (hereinafter referred to as: monument of national importance), or special importance for the region or municipality (hereinafter referred to as: monument of local importance), may be proclaimed a monument.

(2) An immovable monument may be proclaimed as an individual monument or as site. As an individual monument, an individual immovable heritage referred to in the third paragraph of Article 9 of this Act shall be proclaimed, and as a site the area of heritage referred to in the fourth paragraph of Article 9 of this Act.

(3) The direct surrounding of an immovable monument and fixtures shall also represent its part, which forms, together with the immovable monument, a spatial, functional or contextual whole. Fixtures shall become monuments by proclamation of an immovable monument if they are entered in the inventory ledger of the monument under the standards referred to in Article 18 of this Act.

Article 12
(Proclamation of immovable monuments)

(1) The institute shall prepare a proposal for proclaiming a monument at its discretion or upon the initiative of another person. If the institute refuses the initiative for proclamation, it shall inform the person who submitted the initiative of its decision and the reasons thereof.

(2) In preparing a proposal for proclamation, the institute shall inform the owners of the heritage which is to be proclaimed a monument, providing them with the possibility to give the opinion on the proclamation. The owners shall be by the rule informed by mail or by public announcement if such a manner is more sufficient due to the high number of people concerned, difficulties in reaching them, or unknown addresses (e.g. for immovable heritage subject to a proposed proclamation, in an official publication, in media, or in another appropriate manner). When a public consultation is carried out, informing the owners pursuant to this paragraph shall not be necessary.

(3) The institute shall carry out a public consultation in the event of the proclamation of a site. The public shall be informed of the public consultation through publication of the date of consultation, the manner of accessibility of material, time limits for delivering opinions, and indicating the accepting authority of the opinions. The notification on the consultation shall be published in at least one media, ten days prior to the public consultation at the latest. During the time until the public consultation, public access to the material subject to public consultation shall be ensured.

(4) At the public consultation, the reasons for proclamation, draft proclamation act, and cartographic documentation shall be presented. Everyone shall have the possibility to give an oral or written opinion on the proclamation. The institute shall take a position on the opinions.

(5) The procedure of the proclamation of a monument of local interest shall be conducted by the competent authority of the region or municipality with the *mutatis mutandis* application of the provisions of the second to fourth paragraphs of this Article. A proposal for the proclaiming a monument of local interest shall be prepared by the institute.

Article 13
(Proclamation act)

(1) An act on the proclamation of a monument of national importance shall be proclaimed by government act, and a monument of local interest by a decree by the representative body of the region or municipality (hereinafter referred to as: proclamation act).

(2) The proclamation act shall comprise in particular:

- the identification of the monument, including setting the borders of the monument as accurately as possible to ensure that the borders may be specified in nature and in the land and property register;
- the values on which the proclamation is based,
- the protection regime of the monument,
- the area of impact, when this is necessary in order to ensure the spatial integrity of the monument, including determination of the borders of the monument as accurately as possible to ensure that the borders may be specified in nature and in the land and property register,

- the protection regime of the monument in the area of impact,
- an eventual necessity of public accessibility to the monument,
- requirements concerning management and an eventual obligation to adopt a management plan, and
- an inventory ledger of any movable heritage which is an integral part of the monument, when necessary.

(3) On the basis of the proclamation act, the legal status of the immovable monument and its area of impact, if so provided for by the proclamation act, shall be listed in the land register as a note designating the immovable monument in the land register. The proclaiming authority of the monument shall submit the proclamation act to the competent land register. The entry of an immovable monument in the land register shall be executed ex officio.

(4) The note designating the immovable monument in the land register shall not be executed for sites, except in the parts thereof that encompass archaeological sites, or in parts where the note is provided for by the proclamation act.

Article 14
(Proclamation on the basis of an agreement)

(1) In the case an area of heritage of a wider territorial coverage with development problems and challenges, the government and the region or municipality in the territory of which the heritage lies shall agree on the joint conservation of the area by agreement. Other entities may also accede to the agreement with important development tasks or responsibilities in the area for implementing certain development policies.

(2) The agreement shall include the obligations and rights of signatories in relation to the protection and revival, development planning, spatial planning, and implementation of international treaties to which the Republic of Slovenia is a signatory.

(3) On the basis of the agreement, the government shall proclaim the area a monument of national importance for the period of validity of the agreement; however, for five years at the longest with the possibility of extension, upon establishing that the signatories to the agreement exercise the obligations provided for by the agreement.

(4) However, if the signatories fail to meet their obligations, the government shall take a decision on an early termination of the status of the monument of national importance.

Article 15
(Uniform protection of monuments and nature)

(1) An area which, besides extraordinary cultural values for the state, includes also characteristics which justify its suitability

to be granted the status of a wider protected area on the basis of regulations in the field of nature conservation may be, by the same Act, protected as a monument under this Act and as a wider protected area of nature.

(2) The resolution on initiating the procedure for the uniform protection of the area shall be adopted by the government upon the proposal by the minister responsible for nature conservation, in the case when the areas referred to in the first paragraph are overlapping, and the protection and development guidelines are supplementary and more effective if interconnected. The procedure of preparation and proclamation shall be executed with the *mutatis mutandis* application of the provisions on establishing a wider protected area under the act governing nature conservation.

(3) The government shall adopt the act on the protection of the area referred to in the first paragraph upon a proposal by the minister and the minister responsible for nature conservation. The area of uniform protection shall be declared either a cultural monument or one of the wider protected areas of nature.

Article 16
(Proclamation of a monument which affects nature conservation)

(1) When the proclamation of a monument of national importance refers to an area which is a natural site or a protected area under regulations in the field of nature conservation, the borders of the monument and the protection regime in the proclamation act shall be determined on the basis of a coordinated proposal of the minister and the minister responsible for nature conservation.

(2) When the proclamation of a monument of local interest refers to an area which is a natural site or a protected area under regulations in the field of nature conservation, the borders of the monument and the protection regime in the proclamation act shall be determined on the basis of a coordinated proposal of the minister and the minister responsible for nature conservation.

4. Movable monuments and living masterpieces

Article 17
(Movable monuments)

(1) A movable monument shall be movable heritage or their collection which:
- represents a suspicious achievement of creativity or a valuable contribution to cultural diversity,
- is a significant part of the life within the territory of the Republic of Slovenia or its regions, or
- represents a significant source for understanding historical processes, occurrences, and their connection with the present culture.

(2) A movable heritage or their collection shall obtain the status of a movable monument by entry in the inventory ledger of the national or authorised museum, or by proclamation.

Article 18
(Recorded movable monuments)

Inventorised movable heritage shall be any movable heritage or their collection, possessing properties as referred to in the preceding Article, which is entered in the inventory ledger of the national or authorised museum, or is managed thereby.

Article 19
(Proclamation of a movable monument)

(1) Movable heritage and their collections entered in the register which are not managed by a national or authorised museum, and are not entered in its inventory ledger, shall become monuments by proclamation.
(2) A proposal for proclamation at its discretion, or upon a proposal by the person who submitted the initiative, shall be prepared by the national or authorised museum. If the museum refuses the initiative for proclamation, it shall inform the person who submitted the initiative of its decision.
(3) The museum shall inform the owner of movable heritage which is to be proclaimed a monument, of the preparation of the proposal for proclamation, and obtain a relevant approval from such owner. Movable heritage shall not be proclaimed a monument without the approval of its owner, unless the owner is unknown.
(4) A collection shall be proclaimed a monument collection only if all individual movable items are entered in the inventory ledger of the collection under the criteria referred to in Article 18 of this Act.
(5) If the proclamation procedure refers to geological collections which contain minerals or fossils, an approval by the minister responsible for nature conservation shall be obtained.
(6) A monument of national importance shall be proclaimed by government act, and a monument of local interest by a decree of a representative body of the region or municipality.
(7) The proclamation act shall include the identification of the monument, the values on which the proclamation is based, and the protection regime of the monument.

Article 20
(Proclamation of a living masterpiece)

(1) A living masterpiece with the properties as referred to in the first paragraph of Article 17 of this Act which is entered in the register shall be proclaimed a living masterpiece with the *mutatis mutandis* application of Article 12 of this Act, whereby

the provisions on public consultation are carried out through inviting communities, groups and individuals, holders of the living masterpiece which is the subject of the proclamation procedure, and other interested public.

(2) The proclamation act shall include also provisions concerning the integrated conservation of the living masterpiece, support to the groups and individuals who are its holders, and protection of related cultural sites.

(3) The proclamation act shall also define the method of exercising copyright and neighbouring rights related to the living masterpiece, by taking account of the regulations governing copyright and neighbouring rights in a manner which would enable public access to the living masterpiece and its transmission from generation to generation.

5. Common provisions concerning proclamation

Article 21
(Temporary proclamation)

(1) When a certain listed heritage possesses the values of a monument, and there is a danger that such values are to be mutilated or destroyed, the minister shall adopt a decree on the temporary proclamation of the monument.

(2) A decree on temporary proclamation shall comprise the reason for temporary proclamation, the protection regime, and the period of temporary proclamation. The temporary proclamation may last 12 months at the longest, and may be exceptionally extended by a further 12 months. The minister shall revoke the temporary proclamation by decree if the reasons thereof cease to exist prior to the expiry of the relevant time limit.

(3) A decree on temporary proclamation or extension shall be published in the Official Gazette of the Republic of Slovenia. In the adoption procedure of the temporary proclamation the provisions on preparation of the proposal for proclamation, on notifying the owners on the time of preparation, and on the public consultation referred to in Article 12, and on the approval of the owner referred to in the third paragraph of Article 19 of this Act shall not apply.

(4) The competent organisation shall at the same time as the proposal for temporary proclamation, start the procedure of preparing the proposal for the proclamation of the monument. No extension of the time for a temporary proclamation shall be granted on account of a late preparation of the proposal for proclamation. If temporary proclamation refers to the areas protected under the regulations on nature conservation, the competent organisation shall inform the minister responsible for nature conservation of the proposal.

(5) The provisions of this Article shall apply *mutatis mutandis* to the temporary proclamation of a monument adopted by the region or municipality.

(6) The minister may adopt the decree on temporary proclamation also in cases when the competent organisation has prepared the proposal for a proclamation of the monument of local interest, but the representative body of the region or municipality has not observed the proposal for proclamation in whole or in its substantial part.
(7) The substantial part of the proposal for proclamation shall be deemed a value on which the proclamation is based, the protection regime, at least to the extent so as to enable the minimum protection, as well as the area of impact and the relevant protection regime which still provide for the spatial integrity of the monument.
(8) When the temporary proclamation of a monument refers to an area which is a natural site or a protected area under regulations in the field of nature conservation, the act on temporary proclamation shall be adopted upon approval by the minister responsible for nature conservation.

Article 22
(Double proclamation)

If the same item is proclaimed a monument of national importance and a monument of local interest, the protection regime and other protection measures under both acts shall not be in opposition. In the event of a conflict of provisions of both proclamation acts, the provisions of the proclamation act of the monument of national importance shall apply, and protection measures issued on the basis thereof.

Article 23
(Termination of monument status)

(1) Termination of the monument status shall be decided by the body competent for proclaiming the monument under the procedure laid down in respect of proclaiming a monument. The body shall submit the act on termination of the status of an immovable monument to the competent land register, which shall ex officio delete the note designating the immovable monument from the land register.
(2) A monument managed by the national or authorised museum shall terminate upon deletion from the inventory ledger on the basis of a resolution of the body which, based on the memorandum of association of the museum, addresses all issues in the field of the professional work of the museum.

Article 24
(Material for acquiring monument status)

(1) The minister shall prescribe the content of proposals for proclamation and the material for acquiring monument status, the criteria and method of evaluating the heritage which is to obtain monument status, the criteria and the method of

keeping a record, as well as the directions for determining the proposals for protection regimes in respect of individual types of monument.

(2) The proposals for proclamation shall define first of all the following categories of protection regime:

- the requirements regarding protection of the monument, meaning its regular maintenance, restoration and use,
- requirements as to encroachments,
- measures for protection against natural and other disasters, and in the event of an armed conflict,
- restrictions of legal transactions,
- method of management of the monument,
- requirements regarding research, examination and documenting,
- requirements regarding public access to the monument, in particular public opening hours,
- other individual restrictions and prohibitions, and measures for the protection of monuments, such as the obligation to submit a movable monument on a temporary basis, and the duration of such submission, the prohibition of the removal or transfer of the monument.

6. Protection areas of heritage

Article 25
(Act on protection areas of heritage)

(1) Protection areas of heritage shall be determined with a view to the integrated conservation of the heritage, prevention of its destruction and mutilation of its values in the space at the national and local level.

(2) The measures for determining the protection areas of heritage shall be first of all:

- the common historical context of the immovable heritage,
- similar morphological characteristics and values of the heritage in the space,
- topographical uniformity.

(3) The government shall determine the types of protection areas of heritage and protection guidelines, and lay down more detailed criteria for their determination.

(4) The institute shall prepare the proposal for determining the protection areas of heritage on the basis of data in the register and demonstration of the valuation of the heritage in space.

(5) The ministry shall provide the proposal referred to in the preceding paragraph to be open to consultation by the public, and ensure its public presentation.

(6) The ministry shall by public announcement on the World Wide Web and in one of the daily newspapers which covers the whole area of the state, specify the place and the time for the consultation by the public and the public presentation

referred to in the preceding paragraph, and specify the manner for asserting opinions and remarks by the public.

(7) The ministry shall ensure consultation by the public and the possibility of asserting opinions and remarks by the public upon the proposal for a period of at least 30 days.

(8) The ministry shall take a position on the opinions and remarks of the public referred to in the preceding paragraph.

(9) The minister shall determine the protection areas of heritage, the objectives of land development of the protection areas of heritage, and lay down the more detailed protection guidelines in relation to an individual property of the heritage in protection areas. The determination of a protection area shall include data which are required for the register, and the type of protection area referred to in the third paragraph. The protection heritage area shall be determined as accurately as possible to ensure that the borders may be specified in nature and in the land and property register.

(10) Prior to the determination referred to in the preceding paragraph, the minister shall inform the region or municipality in which territory of the protection heritage area is envisaged. The region and the municipality may deliver an opinion on the envisaged determination of the protection area of the heritage.

(11) When the envisaged protection heritage area refers to an area which is a natural site or a protected area under regulations in the field of nature conservation, the minister shall determine the borders of the protection area of the heritage and protection guidelines, in agreement with the minister responsible for nature conservation.

7. Archaeological remains

Article 26
(Find of an archaeological remains)

(1) A person who finds any archaeological remains on the surface of the earth, underneath the surface of the earth, or in water shall ensure that it remains undamaged, and in the site and position it was found. He shall inform the institute of the find on the next working day at the latest. Informing of the find shall be the obligation of the finder, owner of the land, other person entitled under the law of property to the land, or its possessor and in the case of the construction of a facility the investor and responsible manager of works.

(2) Only an authorised person of the institute may encroach on the site of the find within seven days following the notification referred to in the preceding paragraph, except in the case of a prior different decision taken by the authorised person, or if a danger exists to human health and life, or for the existence of the archaeological remain.

(3) The authorised person shall explore within the time limit set in the preceding paragraph, whether the find is a heritage. The authorised person shall have, for the needs of research, the right to take the movable item. If it is established that the

find is not a heritage the institute shall, after the completed preliminary research, return all taken movable items to the finder.

(4) The authorised person may extend the time limit referred to in the second paragraph for seven days at the longest, if the necessary research could not be carried out within the planned time limit.

Article 27
(Decision on archaeological site)

(1) When an authorised person of the institute has the grounds to assume that archaeological remains are situated on a certain land and that there is a danger of their being damaged or destroyed, the institute may determine such land as an archaeological site for as long as preliminary research of archaeological remains are carried out. In the case of the find referred to in the preceding Article of this Act a decision shall be issued within the time limit referred to in the second or fourth paragraphs of the stated Article.

(2) The decision on an archaeological site shall provide for the determination of the area of the site, the type and extent of preliminary researches, however it is possible to restrict or prohibit economic and other use of the land which endangers the existence of the archaeological remain.

(3) The decision on an archaeological site shall be in force for six months at the longest.

(4) An appeal against a decision on an archaeological site shall not stay its execution.

(5) The time limit for carrying out preliminary researches into the land for which the investor has obtained a final building permit for preparatory work, or for the construction of a facility, or for other intervention in space shall be a maximum of 60 days following the issue of the decision, except upon permission of the owner, when such time limit may be longer. The minister may, upon a proposal by the institute, extend such time limit to a maximum of 90 days if the preliminary researches could not be executed within the planned time limit for grounded reasons which are not attributable to the institute.

III. ENCROACHMENTS

1. Cultural protection approval for encroachments

Article 28
(Cultural protection approval for encroachments)

(1) Cultural protection approval shall be obtained in respect of:
- encroachments on a monument,
- encroachments on the area of impact of a monument, if such obligation is provided for by the proclamation act,

- encroachments on protection areas of the heritage,
- encroachments on the recorded immovable heritage or on a unit of spatial planning if such obligation is provided for by the physical planning act, and
- research of the heritage.

(2) Cultural protection approval shall not be necessary in respect of:
- maintenance works which do not encroach on the protected values and serve for the conservation of a monument. Such works shall be notified to the institute at least one month prior to the planned commencement of the maintenance works. If the institute does not refuse the notification within 20 days, the maintenance works shall be considered permitted;
- emergency encroachments on the monument or heritage if such encroachments are absolutely and immediately necessary in order to prevent an unpredictable danger of destruction or damage to the monument or heritage, or to prevent danger for humans and property. The emergency encroachment shall be notified to the institute immediately upon being carried out, and a subsequent cultural protection approval shall be applied for;
- carrying out researches which are implemented by the institute or which are implemented upon an order from the institute;
- when the cultural protection approval for the encroachment has already been issued or is planned to be issued, on the basis of regulations on environmental protection.

(3) Cultural protection approval for encroachments which are the subject to a regulatory building permit shall be issued as a project approval pursuant to the regulations governing construction.

(4) Cultural protection approval shall be issued:
- or encroachments on the monument and for encroachments into the area of impact of the monument: pursuant to the proclamation act of the monument,
- for encroachments on protection heritage area: pursuant to the act on determination of the protection area of the heritage,
- for encroachments on the recorded immovable heritage or on a unit of spatial planning: pursuant to the physical planning act.

(5) When deciding on the issue of cultural protection approval, the reasons for encroachment and the reasons for conservation of the heritage in its existing form shall be considered. When the proposed encroachments provide for the establishment of a permanent economic basis for conservation of the heritage, this shall be in favour of the encroachment.

Article 29
(Cultural protection conditions)

(1) Prior to issue of the cultural protection approval, except for the approval for researches or search for archaeological

remains, the cultural protection conditions of the institute shall be obtained.

(2) In the application for obtaining cultural protection conditions, the purpose of the encroachment shall be indicated, and the project documentation prescribed for obtaining the cultural protection conditions by regulations governing construction, shall be attached. When there is an encroachment which is not subject to a regulatory construction permit, the application shall be attached by a corresponding sketch and description of the encroachment.

(3) With the cultural protection conditions, the institute shall lay down the requirements which are to be satisfied by the project in order to obtain a construction permit, or by other project documentation necessary for implementation of encroachments, as well as the requirements with regard to the technical competence of the performers of specialised works.

(4) Cultural protection conditions shall be laid down in respect of:

- an encroachment on the recorded immovable heritage: pursuant to the provisions of the physical planning act, or the act on determination of the protection areas of the heritage,
- an encroachment on a monument and into the area of impact of the monument: pursuant to the proclamation act or the provisions of the physical planning act, or the act on determination of the protection areas of the heritage.

(5) Through the cultural protection conditions, the institute may condition the obtaining of cultural protection approval on the obligation of carrying out preliminary researches or the obligation of preparing a conservation plan.

(6) The obligation of carrying out preliminary researches may be laid down in the event of a grounded assumption that an undiscovered heritage is in the immovable heritage which is the subject of encroachments, and that there is a danger of its being damaged or destroyed.

(7) The preparation of a conservation plan may be required when:

- the intended encroachment is complex,
- there is a danger of the destruction of or threat to the protected values, or
- the encroachment involves conservation-restoration works to be carried out.

(8) The conservation plan shall be necessary on all occasions when encroachments on the structural elements of the monument are involved.

(9) It shall be considered that conditions for the issue of cultural protection approval are not necessary if the institute has not issued the conditions within 30 days following the submission of the application for the issue of conditions. In such case, as conditions for the preparation of project documentation for encroachment on the recorded heritage provisions of the spatial act shall be considered, for encroachment on the protection area, the provisions of the act on the determination

of the protection areas of the heritage, and for encroachment on the monument provisions of the proclamation act shall be considered.

(10) The minister shall prescribe the content, form and manner of preparation of the conservation plan.

Article 30
(Issue of cultural protection approval)

(1) An application for issuing the cultural protection approval for the encroachment which is subject to the construction permit shall be attached by the project documentation, prescribed for obtaining the cultural protection approval, by regulations governing construction. When it is an encroachment which is not subject to the regulatory construction permit under the regulations governing the construction of facilities, the application shall be attached by a corresponding concept. If so provided for by the cultural protection conditions, the application shall be attached also by evidence on the technical competence of the performers of specialised works.

(2) The cultural protection approval may be refused only in a the case when the encroachment does not comply with the cultural protection conditions provided for on the basis of the fourth paragraph of Article 29 of this Act. It shall be considered that the approval has been issued if the cultural protection conditions have been obtained, and if the institute has not decided otherwise within 15 days following submission of the application for issue of the approval.

(3) In the cultural protection approval the institute may lay down the method of handling in the case of discoveries of heritage during the encroachment, the method of carrying out the works, and the method of professional supervision of the implementation thereof, including the certification method of individual stages of implementation.

(4) It shall be considered that a cultural protection approval has been issued when the conservation plan is confirmed by an authorised person of the institute, and when the body competent for the issue of the construction permit issues such permit in which as a part of project documentation the conservation plan is determined.

Article 31
(Cultural protection approval for research and removal of heritage)

A cultural protection approval which permits a research and removal of an archaeological remain may be issued only under the condition that such research and removal be supervised by the institute and executed by a person with the technical competence to carry out archaeological researches.

(2) The cultural protection approval which permits the research and removal of a monument or recorded immovable heritage,

the encroachment on which requires the obtaining of cultural protection approval, and which is not an archaeological remain, may be issued:
- if the monument or heritage is found to be worn or damaged in a way which can not be removed by any regular means, or if the monument or the heritage endangers the safety of people or property,
- if the monument has been previously offered for sale at a price which takes account of its condition.

(3) The cultural protection approval for research and removal shall be issued by the minister. The research and removal referred to in the preceding paragraph shall be supervised by the competent organisation.

(4) Notwithstanding the provision of the first and the second paragraphs, removal on the basis of the approval referred to in the preceding paragraph may be permitted also if the cultural protection approval orders the customer to implement a countervailing measure.

(5) The countervailing measure shall comprise:
- payment of the sum of money corresponding to the value of the caused damage which occurs as a result of the removal of the archaeological remains or monument,
- or financing or implementing measures for the conservation or revival of another monument of comparable significance.

(6) The countervailing measure shall be, in terms of its effect, proportional to the significance of the archaeological remains or monument the removal of which is permitted.

2. Other provisions regarding encroachments

Article 32
(Searching for archaeological remains)

(1) Searching for archaeological remains and the use of metal detectors and other technical means for such purposes shall be admissible only upon the prior permission of the institute, under the condition that it is performed by a person with the technical competence to carry out archaeological researches.

(2) The sellers shall inform buyers of metal detectors that their use for the purpose of acquiring archaeological remains is prohibited.

Article 33
(Researches)

(1) An authorised person who conducts the research shall, upon conclusion of the works or at least once a year until 31 March of the current year, provide the institute with a complete report on the course and results of the research.

(2) The record of researches shall be kept by the institute.

The purpose of the record is the collection of precise data on the results of researches on the basis of the reports on researches. The record shall contain personal names and addresses of residences of the providers of researches.

(3) The authorised person who conducts the research shall have the exclusive right to the publication of the documentation of the research or of the archive of the archaeological site, within the time limit of five years after the research is completed.

(4) The time limit for delivering the whole original documentation of the research of the immovable heritage to the institute shall be six months after the research is completed. The time limit for delivering the whole and original archive of the archaeological site to the national or authorised museum shall be five years after the research is completed. The competent organisation shall provide expert public access to the documentation or the archive of the archaeological site.

(5) The minister shall issue a decision on assigning the archive of archaeological site to the national or authorised museum on the basis of the opinion of the museum where the Service for movable heritage and museums (hereinafter referred to as: Service) is organised. The archive of the sites shall be kept as determined on the basis of the collection policy of the museum, its regional competence, and available storage facilities.

(6) The minister shall prescribe the requirements for carrying out researches and the relevant supervision, the standards of preliminary researches, and the method of preparation, content and keeping of documentation and archives of archaeological sites.

Article 34
(Funding of preliminary researches)

(1) The investor in a construction or other encroachment shall cover the cost of the preliminary research necessary on account of the construction or other encroachment,
- which encroaches on a recorded archaeological site, or
- which requires a change to the purpose of the heritage or monument, or of encroachment on the structural elements of the heritage or monument.

(2) The following costs shall be covered from the state budget within the public service:
- of the preliminary archaeological research of the area covered by the physical planning act under Article 80 of this Act,
- preliminary researches of the monument if it is an encroachment which does not require change of purpose and does not encroach on structural elements of the monument, and the research is necessary for determining the protection measures as a part of preparations for the maintenance, restoration, or revival of the monument.

(3) Also the costs of a preliminary archaeological research shall be covered from the state budget which is necessary for:
- the release of building land for construction if the land is not recorded as the archaeological site, and archaeological remains are discovered during construction or other encroachment despite of the preliminary research referred to in Article 80 of this Act,
- release of the building land which is a recorded archaeological site if the investor who is a natural person builds a dwelling for his own needs on the building land inside the settlement, or if non-profit rental housing is built on the building land inside the settlement.

(4) The costs referred to in the second indent of the preceding paragraph shall be covered from the state budget, in a proportion commensurate with the net surface which is actually intended for the dwelling for own needs or non-profit housing.

(5) If in the case referred to in the first indent of the third paragraph the investor or co-investor is a direct or indirect user of the state budget, the costs of archaeological researches shall be borne by such budget user in a proportion ensured by the state budget as to cover the whole investment.

Article 35
(Co-financing of the programme of a region or community for the restoration of monuments)

(1) The ministry may allocate additional funds to a region or municipality from the state budget for co-financing the programme of maintenance and restoration of monuments (hereinafter referred to as: restoration programme of monuments) which is to be adopted by the region or municipality.

(2) When fixing the amount of co-financing the restoration programme of monuments, the ministry shall take account of the number of monuments within the territory of the region or municipality, any eventual already concluded contracts on co-financing the restoration programme within the territory of the region of municipality, and the provisions of regulations governing the financing of regions and municipalities.

(3) The region or municipality shall allocate funds from its budget for the restoration programme of monuments, at least in the amount of the proportion from the state budget.

(4) A contract shall be concluded between the ministry and the region or municipality on co-financing the restoration programme of monuments from the state budget. The plan of use of funds shall be an integral part of the contract. If the region or municipality prepares a restoration programme of monuments for a period of up to four years, a corresponding multi-annual contract may be concluded, and the annual amount of funds shall be fixed by an Annex to the underlying contract.

IV. USE, MANAGEMENT AND OTHER HANDLING

1. General provisions on handling

Article 36
(Handling of heritage)

(1) Heritage shall be handled so as to ensure the maximum conservation of its cultural values for the future.
(2) A monument shall be handled so as to strictly observe and conserve its natural values and social interest.
(3) The owner or possessor shall handle the monument with due diligence.

Article 37
(Right to advices and instructions)

(1) The owner or possessor of heritage shall have the right to free explanations, advice and instructions from the competent organisation in relation to the properties, social interest, conservation, and maintenance of the heritage.
(2) In emergency cases, when there is a direct danger of damage or destruction of the heritage, the competent organisation shall be liable to provide the owner or possessor with immediate technical assistance as referred to in the preceding paragraph, within three days following the submission of the written request at the latest.

Article 38
(Obligation to protect a monument)

(1) The owner shall protect the monument proportionally to his abilities.
(2) The institute shall issue a decision on ordering the owner partial or complete implementation of certain measures for carrying out protection in proportion to the abilities of the owner, taking account of his advantages and benefits from the heritage. The abilities of the owner as well as advantages and benefits referred to in this Article shall be assessed within the framework of taxable property or taxable income.
(3) In the case of unjustified non-compliance with the provision referred to in the second paragraph which endangers the values or use of the monument, the institute may carry out, or provide for the organisation of the carrying out of protection. In such a case, the institute shall require compensation from the owner of the proportional part of the costs which should be borne by the owner. Compensation of the costs shall give the state, region or municipality which has financed the carrying out of the protection, the right to enforce an obligation claim against the owner.
(4) When assessing proportionality under the first and second paragraphs those advantages and benefits shall also be taken

into account which originate from the monument status. The owner may not refer to burdens resulting from the increased costs of protection which occur due to the omission of protection and of regular maintenance under this or another act.

(5) Data concerning the extent of taxable property and taxable income shall be communicated by the owner of the monument.

Article 39
(Right to compensation)

(1) The owner of a monument shall have the right to compensation if the protection regime results in deterioration in conditions for the commercial exploitation of the monument and if these cannot be compensated for by other activities within the protection regime.

(2) Obtaining the right to compensation shall be conditioned upon restriction by the protection regime of the extent and method of commercial exploitation within the framework of the activity or use which the item ensured, or had, prior to proclamation, or upon its determining a different commercial activity or use than that prior to the proclamation.

(3) The criteria for determining the amount of compensation shall be the following:

- the difference between the amount of incomes which was ensured by the economic activity prior to the enforcement of the protection regime, and the amount of incomes which can actually be expected after the enforcement of the protection regime,
- assessment of the economic advantages or benefits acquired on the basis of the monument status,
- the possibility of obtaining public funds for the implementation of measures which would mitigate the loss of income from the commercial exploitation of the monument.

(4) The compensation may be determined as a single amount or as annual amounts. The compensation for monuments of national importance shall be determined by a contract between the ministry and the owner, and for monuments of local interest by a contract between the competent body of the region or municipality which proclaimed the monument, and the owner.

(5) The time limit for the submission of compensation claims shall be one year at the longest of the entry into force of the proclamation act. A claim for damages for a monument of national importance shall be lodged with the ministry, and for a monument of local interest with the competent body of the region or municipality which proclaimed the monument. A decision on the claim shall be taken within 60 days.

(6) If the state, region or municipality which proclaimed the monument cannot agree with the owner on the amount of compensation referred to in the fourth paragraph of this Article, this amount shall be determined by the competent court in a non-litigious civil procedure.

(7) If the compensation claim is refused in its basis, it may be enforced after the finality of the decision of refusal in a civil procedure before the competent court.

Article 40
(Investment of public funds)

(1) If the protection, revival of the monument, or implementation of other protection measures require extraordinary costs which exceed the normal costs, the advantages and benefits incurring from the monument status, and such costs are not proportionate to the abilities of the owner, the state, region, or municipality may, to the extent possible, allocate public funds for these purposes.
(2) Public funds may be invested also for co-financing the interest on bank loans intended for the maintenance, revival, and implementation of other protection measures. At the annual level, co-financing shall not exceed a five-per cent interest rate on the loan.
(3) The investment of public funds shall be the subject of a contract concluded between the state, region or municipality as an investor, and the owner, or an investor who has the right to implement measures on the monument which are the subject of the contract, as beneficiary. In the contract providers of works shall be laid down who possess the technical competence for carrying out such works, as well as conditions for the public accessibility of such monument, and any eventual special protection measures. The conclusion of the contract shall be subject to regulations governing the realisation of the public interest in culture.
(4) In the event of a sale or lost ownership of a monument for other reasons, the owner shall reimburse the public funds invested in the monument. In the contract referred to in the preceding paragraph, the time limit shall be specified by which the obligation of returning public funds shall apply.
(5) As part of the funds which shall be ensured by the owner or investor, the value of those works shall also be considered which are carried out by the owner or investor on the basis of instructions by the competent organisation if so provided for by the contract, and if the value of the works is proved upon the appraisal of a qualified independent expert.
(6) Public funds shall be paid after completion of the works laid down by the contract referred to in the third paragraph of this Article. If the carrying out of the works does not comply with the contract, the beneficiary shall be liable to reimburse the funds acquired.

Article 41
(Damages for devaluation)

(1) The investor of an unauthorised encroachment shall be liable to pay damages for devaluation of the heritage. The damages

for the devaluation of the heritage shall be determined with regard to the social interest and value of the devaluated heritage, where its value is at least equal to the costs of re-establishment of the previous conditions.

(2) The damages for the devaluation of an archaeological site shall be at least equal to the value of researches which would be necessary in order to transfer the destroyed heritage in the archive of the archaeological site.

(3) The damages shall be required by:

- for a recorded archaeological site or monument of national importance: on behalf or the Republic of Slovenia a state defender,
- for a monument of local interest: a region or municipalities.

(4) The damages shall be decided by the court. The damages shall be the income of the state budget or budget of the region or municipality which has proclaimed the monument.

Article 42
(Financing implementation of special inspection measures)

(1) A state, region or community which has proclaimed the monument shall implement a special inspection measure referred to in Articles 115 to 117 of this Act at the expense of the entity involved.

(2) If the entity involved does not ensure funds or does not reimburse the funds necessary for implementing the measure as referred to in the preceding paragraph within the time limit set in the request for payment of the costs of the entity involved, the state, region or community which has proclaimed the monument shall acquire a statutory mortgage on the immovable heritage which is the subject of the measure.

Article 43
(Promoting mobility of collections)

(1) With a view to promoting the mobility of collections, the government may assume the guarantee for payment of compensation for damage to owners or managers of collections on account of damage, destruction, or loss of a museum, library, or archive material, also if it has been caused by third persons, for:

- exhibition abroad if the material is lent by an organisation which is financed from the state budget, and if the guarantee is not assumed by the organiser,
- lending foreign documents for exhibitions in the Republic of Slovenia, organised by an organisation financed from the state budget, but only for damage incurred in the Republic of Slovenia.

(2) The state may guarantee compensation of the damage on the basis of the preceding paragraph, but only up to 80 per cent of the value of the damage.

(3) The total amount of guarantees referred to in this Article at the annual level shall be provided for by regulations governing the implementation of the state budget.
(4) In the case of payment for the damage referred to in the first paragraph, the state shall have the right to require recovery of the paid amounts with the legally prescribed belated interest from the entity which caused the damage.

2. Use

Article 44
(Prohibition of use of an image or name of a monument without the owner's consent)

No person may use an image and name of a monument without the owner's consent. The owner may, by means of the consent, determine also the amount of compensation for use.

Article 45
(Trade)

(1) Whoever trades in heritage (hereinafter referred to as: trader) which belongs to the types of heritage entered in the list referred to in the seventh paragraph of Article 9 of this Act shall be entered in the list of traders kept by the ministry.
(2) The list of traders is kept with the aim of acquiring precise data on the trade in heritage, so as to prevent unauthorised trade therein. In the list of traders the data shall be entered regarding the firm, registration number and registered office of a trader who is a legal entity, and personal data, namely personal name, unique personal identification number, and the residence, when the trader is a natural person.
(3) The trader shall keep the records of purchases and sales and other transactions in relation to heritage. The aim of the records is to ensure traceability of the sale of heritage with a view to preventing unlawful actions in relation thereof.
(4) The records referred to in the preceding paragraph shall contain data on the origin of heritage, the description and the sale price, as well as data on the owner or possessor and buyer of the heritage. The seller shall inform the purchaser that restrictions may apply to the transfer or export of the item.
(5) Data on the owner and buyer in the records of sale referred to in the preceding paragraph shall be considered data on the firm and registered office if it is a legal entity, or personal name and residence in the case of a natural person.
(6) When trading in national treasures, the trader shall check its origin.
(7) The minister shall lay down the method of keeping the list referred to in the first paragraph, and the method of keeping and supervising the records referred to in the third paragraph.

Article 46
(Transfer or export of heritage)

(1) The transfer or export of movable heritage referred to in the Annex of Regulation 3911/92/EEG shall be subject to the authorisation issued by the minister.
(2) The permanent, namely without any time limit, transfer or export of national treasures referred to in the first, second and third indents of the first paragraph of Article 10 of this Act shall be prohibited.
(3) The permanent transfer or export of the national treasures referred to in the fourth indent of the first paragraph of Article 10 of this Act shall be permitted only in the case of the exchange of museum, archive, or library material.
(4) The permanent transfer or export of the national treasures referred to in the fifth indent of the first paragraph of Article 10 of this Act may be permitted when the movable heritage is not of such cultural value for the Republic of Slovenia that its permanent removal or export would represent the impoverishment of national treasures.
(5) A temporary transfer or export of national treasures shall be permitted for one year at the longest from the date of their crossing the state border, with the possibility of an extension of up to five years.
(6) In the case of a risk of misuse of a permit, the ministry may temporarily revoke the authorisation for transfer or export. The temporary revocation shall apply until the actual condition is established, but not longer than three months. During the period of temporary revocation, the transfer or export shall not be possible, and the heritage already transferred from the state shall be returned to the Republic of Slovenia. When a misuse of the authorisation for the transfer or export is established, such authorisation shall be revoked.
(7) The ministry shall keep records of issued authorisations for transfer and export and of transfers from the state and exports executed on the basis thereof.
(8) The method of issuing the authorisation for transfer and export, and keeping of the records shall be prescribed by the minister.

Article 47
(Introduction or import of heritage)

Heritage may be introduced or imported into the Republic of Slovenia. If the state prescribes a permit for the export or transfer, such permit shall be presented upon introduction or the import.

Article 48
(Recovery of unlawfully removed heritage)

(1) The state shall provide for the recovery of national treasures which are unlawfully removed from the Republic of Slovenia.

The ministry shall coordinate the recovery of national treasures which are unlawfully removed from the Republic of Slovenia, and the recovery of movable heritage which are unlawfully removed from another state and introduced into the Republic of Slovenia, pursuant to international treaties to which the Republic of Slovenia is a signatory.

(2) When deciding on what is to be considered as unlawfully removed national treasures, the provisions of the Return of Unlawfully Removed Cultural Heritage Objects Act (Official Gazette of the Republic of Slovenia, No. 126/03) shall apply.

Article 49
(Deadline for submitting requests for heritage recovery)

(1) If there is a justified suspicion that movable heritage is located in the Republic of Slovenia which was unlawfully taken from a state, which is not a Member State of the European Union, with which the Republic of Slovenia has signed an agreement on heritage recovery, the persons entitled may submit a request for the recovery of the said heritage within one year of the day they were notified of the presence of the heritage in the Republic of Slovenia.

(2) The request for heritage recovery referred to in the preceding paragraph may be submitted prior to the expiry of 30 years from the day when the heritage was unlawfully taken from the state referred to in the preceding paragraph, or prior to the expiry of 75 years if it is movable heritage which belongs to a public or church collection, or collection of another religious community, or movable heritage which enjoys special protection in the state of origin.

Article 50
(Payment of damages to a bona fide possessor)

A bona fide possessor who obtained movable heritage after it has been unlawfully removed from the Republic of Slovenia shall be entitled to fair damages on the basis of a decision issued by the competent court after he has returned the movable heritage to the Republic of Slovenia. The costs of damages shall be covered from the budget of the Republic of Slovenia. The Republic of Slovenia may require reimbursement of the paid damages from the person who unlawfully removed the movable heritage from its territory.

Article 51
(Heritage recovery procedures with the states of the European Union)

Recovery of unlawfully removed movable heritage from Member States of the European Union to the Republic of Slovenia and from the Republic of Slovenia to the Member States of the European Union shall be subject to a special act.

3. Storage

Article 52
(Storage of national treasures)

(1) The owner or possessor of national treasures shall be obliged to meet the minimum requirements for their storage.
(2) The national or an authorised museum shall check the suitability of storage of national treasures, provides their owners or possessors with instructions and advice for protection, and provides for their conservation.
(3) The owner or possessor shall ensure the safe transportation of national treasures. Such transportation shall be carried out only by a national or authorised museum, or by a person who meets the relevant conditions on the basis of regulations governing the transportation of remittances.
(4) If the owner or possessor gives the national treasures to another person for exhibition or other purposes, he shall by a contract temporarily transfer to such person the obligation of meeting the requirements that apply for storage.
(5) The minister shall determine the minimum professional, technical and spatial requirements which shall be met by the owners of possessors when storing or transporting national treasures. He shall, by this Act, determine also standards for the protection and storage of museum material in national and authorised museums.

Article 53
(Storage of archaeological finds)

A person who keeps an archaeological find or a collection of such finds shall possess a certificate of origin thereof.

4. Enabling access and documenting

Article 54
(Public accessibility of monuments)

Monuments shall be, in proportion to the abilities of the owner or possessor, accessible to the public.

Article 55
(Access to archaeological remains and heritage for protection needs)

(1) When carrying out terrestrial excavations, the owner or possessor of immovable heritage shall, with the aim of protecting archaeological remains, allow access to an authorised person of the institute to unfenced land, upon prior notification to the owner or possessor, as well as to the fenced land and into facilities, except into dwellings, with no respect to whether archaeological finds have been discovered or not.

(2) The owner or possessor of the monument shall allow the authorised person to document and research the monument.
(3) If the owner or possessor or another person does not allow access referred to in the first paragraph, or documenting and researching the monument under the preceding paragraph, the authorised person shall have the right to carry out the activities with the assistance of the police.
(4) The owner or possessor who, as a result of ensuring protection under the first paragraph, suffers deterioration in conditions for the commercial exploitation of the immovable heritage shall be entitled to compensation as referred to in Article 39 of this Act.
(5) The owner or possessor shall have the right to compensation for the damages caused by the activities referred to in the first to third paragraphs.

Article 56
(Obligation to inform)

(1) The owner or possessor shall be obliged to, upon a call by the competent organisation, provide such organisation with data on the heritage or item assumed to have the properties of heritage. The costs of collection and processing of such data shall be borne by the state.
(2) The owner or possessor shall immediately inform the competent organisation of any deficiency or damage to the monument.
(3) The owner or possessor of the monument shall inform the purchaser of such monument of the monument status and the restrictions arising therefrom.

Article 57
(Documenting movable items assumed to be heritage)

(1) The documenting of technical devices, equipment, tools, products, and technical plans and sketches, older than 50 years shall be an obligatory part of the rehabilitation and restructuring programmes of companies financed from public funds.
(2) Prior to the demolition of machinery, plants and devices older than 50 years, such parts thereof shall be documented which may have the values of heritage.
(3) Documenting shall be carried out under the supervision of the competent organisation. The costs of documentation shall be borne by a natural or legal person within the interests of whom the rehabilitation or restructuring of the company, referred to in the first paragraph or in a part of the second paragraph is carried out.
(4) A copy of the documentation referred to in the first and second paragraphs shall be delivered to the competent organisation within six months after completion of the documenting.

Article 58
(Labelling of monuments)

(1) Immovable monuments shall be labelled with a view to improving public access. The labelling shall be executed when this is not in conflict with the benefits of protection and other public benefits.
(2) The labelling shall be executed also as a form of protection in the event of an armed conflict on the basis of international treaties to which the Republic of Slovenia is a signatory.
(3) The method of labelling shall be laid down by the minister. The labelling of the areas protected under Article 15 of this Act shall be laid down in agreement with the minister responsible for nature conservation.

5. Management

Article 59
(Management of monuments)

(1) The owner or possessor shall ensure the management of the monument pursuant to the proclamation act directly, or through committing it to the care of a manager.
(2) All monuments which are protected on the basis of international treaties to which the Republic of Slovenia is a signatory, as well as all sites, shall have the manager. The proclamation act may provide for a manager also for other monuments.
(3) The body which has issued the proclamation act may, pursuant to the act on the proclamation of the site, directly manage the monument area by itself in an administrative unit establish a public institute for such a purpose; commit the management to the public institute which is established with the purpose of managing monuments and monument areas; or commit the management to a natural or legal person on the basis of regulations governing public-private partnership.
(4) Management may be committed to a manager of a natural site if so provided for with the act on protection of a natural site, and if the manager possesses the technical competence for managing the site.
(5) Management of a monument or site shall be carried out on the basis of a management plan.
(6) If the manager invests his own funds in the restoration and maintenance of the monument, and takes on other burdens and risks, the body which issued the proclamation act may conclude a concession contract on management with such manager, for a time period proportionate to the financial contribution and risks of the manager.

Article 60
(Management plan)

(1) A management plan shall be a document which lays down strategic and implementing guidelines for the overall

conservation of a monument or site, and the implementation method of the protection thereof. The management plan shall be adopted in respect of all monuments and sites with a manager.

(2) The management plan shall be prepared by the manager, with the technical assistance of the institution. The management plan shall be adopted by the body which has adopted the proclamation act.

(3) The management plan shall contain at least:

- a review of the cultural values which should be particularly conserved and developed,
- a vision of protection and development,
- the strategic and implementing objectives of management,
- provisions which refer to the managing structure and measures for protection against natural and other disasters,
- a plan of activities, including the financial framework, in particular for ensuring accessibility and management of visits,
- indicators and the method of monitoring the implementation, and
- the time limit of validity of the plan, the method of supplementing and amending the plan.

(4) In the case of the joint management of more than one territorially or contextually connected monument, a uniform management plan may be adopted for all such monuments.

(5) If the site and area protected on the basis of regulations from the field of nature conservation overlap, the management plan shall be adopted in agreement with the ministry competent for nature conservation. The organisation competent for nature conservation shall participate in the preparation thereof.

Article 61
(Management of an area of uniform protection or monuments and nature)

(1) The management plan of an area of uniform protection of monuments and nature referred to in Article 15 of this Act shall be adopted by the government upon a proposal by the minister and the minister responsible for nature conservation. Moreover, the government shall appoint the manager of the area.

(2) The manager of the area shall possess the technical competence for carrying out the tasks of conservation of natural values and heritage protection within an area of uniform protection.

(3) The minister may conclude a contract with the manager of an area of uniform protection in order to commit a part of the national public service tasks referred to in Article 84 of this Act to the manager, with the exception of public powers.

V. PRE-EMPTIVE RIGHT

1. Pre-emptive right

Article 62
(Pre-emptive right)

(1) The state shall have the pre-emptive right to:
- a monument of national importance, and
- immovable heritage in the area of impact of an immovable monument of national importance if so provided for with the proclamation act.

(2) The region or municipality which has proclaimed the monument shall have the pre-emptive right to monuments of local interest and to the immovable heritage in the area of impact of the immovable monument of local interest if so provided for with the proclamation act, and in the case of an unused pre-emptive right of the state also to the immovable heritage referred to in the preceding paragraph which is situated in the area of such a region or municipality.

(3) The owner of the items referred to in the first or second paragraphs of this Article shall notify the person entitled to exercise the pre-emptive right in writing of the intended sale, and of the terms and conditions of the sale<0}{0>MinisteThe minister or the competent body of the region or municipality shall, within 30 days, notify the owner as to whether the state or region or municipality will exercise the pre-emptive right. If the state does not exercise the pre-emptive right, the minister shall notify thereof the region within the territory of which the item referred to in the first paragraph of this Article lies, which may make use of the pre-emptive right within further 30 days, or transfer it to the municipality.

(4) The person entitled to exercise the pre-emptive right may transfer the pre-emptive right to a third person if this provides for an improvement in conservation and public access, and ensure a use compatible with the social interest of the monument. If the person entitled to exercise the pre-emptive right is the state, the transfer of the pre-emptive right to a third person shall be decided by the government, and if the pre-emptive beneficiary is a region or municipality, it shall be the competent body of such community.

(5) If the person entitled to exercise the pre-emptive right waives the pre-emptive right, the contractual price shall not be lower than the offer price.

(6) A public notary shall authenticate the signature of the vendor and purchaser on the purchase contract only if the seller submits a statement of the person entitled to exercise the pre-emptive right to waive the pre-emptive right, or after the expiry of the time limit referred to in the third paragraph of this Article.

(7) A contract on the sale of items referred to in the first and second paragraphs which is concluded contrary to the third, fifth and sixth paragraphs of this Article shall be null and void, save in the case of an immovable monument a note of which is not entered in the land register.

(8) A person entitled to exercise the pre-emptive right under this Act shall take priority over any eventual persons entitled to exercise the pre-emptive right provided for by other acts, with the exception of the pre-emptive right of the state to immovable heritage in protected areas in respect of which the state has adopted an act on protection which is implemented pursuant to the regulations in the field of nature conservation.
(9) The pre-emptive right shall be excluded if the owner sells the item referred to in the first or second paragraph of this Article to his spouse, relative in direct line, adopter, adoptee, or an entity of public law founded by the state, region or municipality.

2. Expropriation

Article 63
(Expropriation of a monument)

(1) Ownership rights to immovable monument may be deprived against damages or compensation in kind (hereinafter referred to as: expropriation).
(2) Expropriation shall be permissible if the monument and its protected values are endangered or their conservation is not possible in any other way, or if the accessibility of the monument pursuant to the proclamation act may not be ensured in any other way. The encroachment on ownership rights shall be proportionate to the public benefit which caused the expropriation.
(3) Expropriation of monuments of national importance shall be proposed by the government and of the monuments of local interest by the competent body of the region or municipality which has proclaimed the monument.
(4) The person liable to expropriation shall be a natural or legal person who owns the immovable heritage which is the subject of expropriation. The person liable to expropriation may also be a person of public law, other than the state.
(5) Expropriation shall be carried out under the method and procedure provided for by the act governing the expropriation and restriction of ownership rights in spatial planning.

VI. FINANCING OF SPECIAL PROTECTION MEASURES

Article 64
(Provision of funds for implementing special protection measures)

In the budget of the Republic of Slovenia funds are provided for covering the costs of preliminary researches on the basis of Article 34, costs for co-financing the restoration programme of monuments on the basis of Article 35, costs for compensations on the basis of Article 39, the investment of public funds on the basis of Article 40, and costs for exercising the pre-emptive right on the basis of Article 62 of this Act.

VII. REGISTER AND DOCUMENTING

Article 65
(Register)

(1) The purpose of the register shall be information supporting the implementation of heritage protection.
(2) The purpose of the register shall also be presentations, research, education, and the fostering public awareness of the heritage.

Article 66
(Content of the register)

(1) The register shall comprise three interconnected parts which include basic, protection and presentation data on the immovable, movable and living heritage.
(2) The basic data on the heritage shall contain the identification, description, dating, location, author, characteristic photograph or record of the heritage, protection guidelines, and the relation of the unit of heritage to other units.
(3) Protection data shall be kept for monuments and shall contain: documents on protection, description on protection, protection regime, and data on the owner of the monument.
(4) The presentation data shall include additional data which shall illustrate the heritage in textual, graphic and other media form.
(5) The data on the owner referred to in the third paragraph of this Article shall include: the name of the owner, date of birth, and data as to the address of residence in the case of a natural person, or the name, or the firm and registered office for a legal entity.

Article 67
(Keeping and use of register)

(1) The register shall be kept by the ministry.
(2) The register shall be kept within the procedure for documenting or keeping a record of a unit of heritage, or as an independent procedure.
(3) The data included in the register shall be publicly accessible, with the exception of data on the owners of the heritage, or on the location of archaeological sites where a danger of unauthorised searching for archaeological remains exists, and other data the public accessibility of which might threaten the existence of the heritage.
(4) The competent organisations shall be liable to, regularly and in a manner as determined by the minister, provide to the ministry data for the maintenance of the register.
(5) The natural and legal persons from whom the contents originate which are important for the register shall be liable to, regularly, free of charge, and in a form and manner

determined by the minister, provide such contents to the ministry for the needs of the register, if the production of such contents is financed from public funds.

(6) Whenever they use data from the register, users shall make reference to the register as the source of data.

Article 68
(Access to data)

(1) The ministry and providers of public service shall have the following authorisations as to the accessibility of data:
- the right to access, acquire and use data from the records of immovable heritage, such as the land and property register, cadastre of buildings, land register, and register of immovable items, including personal data on owners of immovable items, as well as data from tax records, including personal data on liable persons, and data on the assessment of the tax for renting the immovable items, for trade in immovable items, for the inheritance of immovable items, and for the assessment of the tax on property,
- the right to keep a database on the location of the heritage and the items assumed to be heritage, including personal data on owners and other entitled persons, whereby the collection is kept permanently,
- the right to on-the-spot documentation and photographing, or reproducing in any other manner, a unit of the heritage.

(2) The personal data on the owner or the person liable to tax referred to in the first paragraph shall be the personal name, date of birth, and data on the address of residence in the case of a natural person. Data on the legal entity which is the owner or the person liable to tax shall be the name or the firm, and the registered office.

(3) The data referred to in the preceding paragraph may be used for:
- keeping the register and documenting the heritage,
- performing public services in relation to the use, management and other handling of the heritage,
- implementing provisions on the pre-emptive right, expropriation, compensation, and damages,
- supervision of the implementation of this Act.

Article 69
(Documenting heritage)

(1) Documenting the heritage shall be an integral part of the information support for carrying out protection.

(2) Documenting the heritage shall include in particular: recording of the material, collection of data for the recording of a unit of heritage, recording the condition of and threat to such unit, and documenting encroachments. In the event of movable heritage, it shall include also documenting the accession and transfer of units.

Article 70
(Joint use of data)

(1) Recording and documenting archive and library material which, according to professional criteria and international recommendations, represent an archive and library heritage shall be carried out pursuant to a special law.
(2) Providers shall keep a register of and document the heritage, including library and archive material, in a form and manner so as to enable the uniform demonstration of public digital material on heritage.

Article 71
(Demonstration of valuation of heritage in space)

(1) An integral part of the information support for carrying out the protection of immovable heritage shall be also a demonstration of the evaluation of the heritage in space.
(2) Demonstration of the evaluation of the heritage in space shall comprise in particular:
- data on the immovable heritage from the register,
- archaeological sites, with determinations of their boundaries and of the methods for their more specific spatial delimitation if necessary,
- guidelines for the integrated conservation of the heritage,
- identification of areas of heritage in space, with a determination of their cultural value, restrictions, and proposals as to the land development of the heritage, and
- effects on the heritage and other restrictions outside the areas of heritage.

(3) The demonstration of the evaluation of the heritage in space shall be conducted by the ministry in respect of the whole territory of the Republic of Slovenia on the basis of data from the register, data communicated by the institute, and other know-how and procedures of evaluation of immovable heritage.
(4) The ministry shall keep the demonstration of the heritage evaluation in space up to date and shall publish it on the World Wide Web, where it is accessible free of charge for use in procedures of physical and development planning, and the inclusion of the public.

Article 72
(Executive regulations on recording, documenting and demonstration of heritage)

(1) The minister shall prescribe the more detailed use and method of keeping the register, of the demonstration of heritage evaluation in space, and the minimum content and method of documenting the heritage.
(2) The minister shall prescribe common rules and requirements as to the uniform demonstration of public digital material on the heritage.

VIII. HERITAGE PROTECTION IN DEVELOPMENT PLANS

Article 73
(Heritage protection strategy)

(1) Heritage protection strategy (hereinafter referred to as: strategy) shall, on the basis of the estimation of the threat to the heritage and its development opportunities, determine the objectives, directions and measures for the integrated conservation of heritage which is the subject of public interest. The strategy shall be prepared by the ministry in cooperation with those departments whose tasks are involved in the field of heritage protection.
(2) The strategy may represent a part of the national cultural programme or an independent development document of the government. If it is an independent development document of the government, it shall be adopted for a period of four years, whereby including also the long-term policies which exceed such period.
(3) The strategy shall represent the basis for the preparation of documents of development planning and the policy-making in the field of culture, spatial planning, environment protection, protection against natural and other disasters, constructions, the residential and public utility sectors, tourism, research, as well as the information society, education, training and lifelong learning.

Article 74
(Protection in plans)

(1) When preparing the plan, the producer shall take account of protection and include protection measures therein.
(2) In the procedures of preparation and adoption of the plan, protection shall be ensured:
- by respecting the acts on the proclamation of immovable monuments, adopted on the basis of Articles 13 to 15 and 21, recorded archaeological sites, and acts on protection areas of the heritage adopted on the basis of Article 25 of this Act;
- by assessing effects on the heritage at least to the extent of the heritage referred to in the preceding indent within the framework of impact assessment on the environment on the basis of regulations governing environment protection. An impact assessment from the protection point of view shall be carried out also in the case if no monuments or protection areas of the heritage are located within the area of encroachment, but where an indirect impact on the heritage, or a direct or indirect impact on archaeological remains is expected (encroachments in the area of impact of the heritage);
- by observing guidelines and opinions in the preparation procedures of physical planning acts.

(3) Observation of protection shall be ensured in all the preparation phases of the plan, in particular of the parts thereof

which represent a direct basis for issuing consents for encroachments on the heritage.

(4) If no demonstration of evaluation of the heritage in space exists in respect of the area of a certain plan, or if this is not sufficiently detailed, a professional plan may be prepared for such plan which shall comprise the content provided for the evaluation of the heritage in space.

(5) The professional plan referred to in the preceding paragraph shall be prepared by the institute and adopted by the ministry.

Article 75
(Compulsory components of physical planning acts)

(1) The conservation of immovable monuments, recorded archaeological sites, and properties of the heritage which are defined in the protection areas of the heritage shall be obligatory considered in physical planning acts which have an indirect impact on the heritage and its protection, and in spatial planning and development measures issued on the basis of regulations governing spatial planning.

(2) Spatial arrangements in the area of the impact of a monument shall be adapted to the spatial potential so as to avoid mutilating the social interest of the monument in space.

Article 76
(Guidelines)

(1) In the preparation procedure of the physical planning act, the producer of the act shall obtain the guidelines adopted by the ministry. The guidelines shall aim at determining, on the basis of the heritage protection strategy, acts on the protection areas of the heritage, proclamation acts, and with *mutatis mutandis* application of the demonstration of heritage evaluation in space, the guidelines, and basic grounds and conditions for protection and conservation in the physical planning act.

(2) The guidelines shall comprise in particular:

- guidelines for integrated conservation,
- proposed solutions and protection measures, and
- a proposal for implementing conditions for protection, when the act laying down the spatial implementing conditions is in preparation.

(3) Regarding planned encroachment, the areas of impact of heritage may be determined in the guidelines, in respect of which protection is proposed on the basis of the physical planning act.

(4) If the physical planning act requires also an impact assessment to be carried out, the guidelines shall comprise also:

- a demonstration of the areas of impact,
- types and sources of data on the heritage which provide for the preparation of the environmental report on the basis of the regulations governing environmental protection and spatial planning.

(5) If the environmental report referred to in the preceding paragraph may not be prepared on the basis of the existing data, guidelines shall provide for the determination of the necessary archaeological researches which will provide additional information for the execution of such a report.
(6) The guidelines which refer to the heritage outside the extent of the heritage referred to in the preceding Article shall be of a recommendatory nature.

Article 77
(Proposal of spatial implementation conditions)

(1) The proposed spatial implementation conditions for protection shall be, as a part of the guidelines, determined by spatial planning units and by individual heritage units, in particular with regard to the position, land allotment, building lines, layout and altitude gauges, spatial dominants, intended use, accessibility to the public, and design.
(2) The proposal of spatial implementation conditions shall lay out those cases when the cultural protection approval for encroachments on the recorded heritage should be obtained.

Article 78
(Conservation plan for renewal)

(1) A conservation plan for renewal shall be an obligatory integral part of a detailed physical planning act which represents the basis for an overall renewal of the area of settlement heritage, cultural landscape, or an area of other heritage which is a significant part of the space and constructed structures, which is a monument area, or a protection heritage area.
(2) If the conservation plan for renewal is prepared for the area of a cultural landscape, the nature conservation requirements shall be observed accordingly.
(3) The conservation plan for renewal shall lay down development conditions and restrictions in the light of protection by spatial planning units.
(4) If the conservation plan for renewal lays down spatial implementation conditions in the area of renewal, and these are approved by the minister and the minister responsible for spatial planning, it shall be considered that cultural protection conditions have been issued in respect of the encroachments specified in the conservation plan.

Article 79
(Opinion)

(1) Prior to adopting the physical planning act, an opinion should be obtained by the ministry so as to establish the acceptability of the proposed solutions in the draft physical planning act, in the light of protection.

(2) In the case of a negative opinion, the ministry shall explain the reasons and instruct the producer of the spatial planning act to make certain amendments.
(3) The request for the issue of the opinion shall be attached by the draft spatial planning act and an explanation of consideration of the guidelines.
(4) Non-consideration of the guidelines of a recommendatory nature shall not be a reason for the issue of a negative opinion.

Article 80
(Preliminary research of the area of a physical planning act)

(1) Within the areas of the spatial planning acts which represent the basis for issue of the authorisations for interventions in space, and in respect of which no preliminary archaeological research has been carried out in the preparation phase of the physical planning act, preliminary archaeological researches shall be carried out, if necessary, after enforcement of such acts and pursuant to the plan of the institute.
(2) The institute shall prepare the plan of preliminary archaeological researches with the purpose of precisely determining the actual condition for the issue of the cultural protection approval within the areas referred to in the preceding paragraph.

IX. PUBLIC PROTECTION SERVICE

1. General provisions regarding public service

Article 81
(Public protection service)

(1) The activity of the public protection service shall comprise the identification, documenting, evaluation, interpretation, and research into the heritage; conservation of the heritage, and the prevention of harmful effects thereon; the management of the heritage; enabling access to the heritage or the relevant information; public presentation and fostering awareness of its values, unless otherwise provided for by the law.
(2) The activities of the public protection service shall be carried out by the institute, national or authorised museums, providers of local public services for heritage protection, and managers of the heritage.
(3) A detailed scope of the performance of the public service within a specified period shall be determined in a resolution or contract on financing pursuant to the act governing the realisation of the public interest in culture.

Article 82
(Supervision of performance of the public protection service)

(1) Supervision of performing the public service of protection shall be carried out by the ministry.

(2) When the ministry discovers that a provider fails to perform the public service pursuant to the regulations or a decision taken by the ministry, such provider shall be ordered to eliminate the deficiencies or irregularities, and fix a time limit for the implementation of such actions.
(3) If after the expiry of the time limit, the deficiencies or irregularities have not been eliminated, this may be a reason for the dismissal of the management body, administrative body of the provider of public service, or for the expiry of the public authorisation.
(4) When there is doubt as to whether a concrete task is part of the performance of the public service, and in competitive disputes between providers of the public service, the minister shall decide.

2. Public service of protection of immovable heritage

Article 83
(Institute for the Protection of Cultural Heritage of Slovenia)

(1) The institute for the Protection of Cultural Heritage of Slovenia shall be a public institute, established by the state for performing the public service of protecting immovable heritage pursuant to this Act.
(2) The institute shall have regional units and a conservation centre.
(3) The institute shall, with its regional units, cover the territory of the whole state.

Article 84
(Tasks of the institute)

(1) The institute shall, as a national public service, carry out the following tasks:
1. to identify, document, study, evaluate, and interpret the immovable heritage and the movable and living heritage, representing it to the public within the framework of immovable heritage protection,
2. to cooperate in the preparation of the heritage protection strategy and propose measures for the implementation thereof,
3. to propose entry of the immovable heritage in the register,
4. to prepare proposals for proclamations of immovable monuments,
5. to analyse and evaluate the space for demonstrating heritage evaluation in space,
6. to prepare the material for guidelines and opinions in the preparation procedures of plans,
7. to cooperate with state bodies, offering them technical assistance in procedures related to items assumed to be heritage,
8. to adopt an implementation plan of preliminary researches of areas of physical planning acts,

to cooperate in heritage protection in the event of an armed conflict, and in protection against natural and other disasters,

9. to carry out an audit of conservation plans prepared by other persons,
10. to cooperate with managers of monuments in the preparation of draft management plans,
11. to issue opinions on the payment and the amount of compensation for limiting the commercial exploitation of monuments,
12. to prepare expert grounds for the administrative procedures managed by the ministry,
13. to propose to the minister the adoption of implementing acts,
14. to design methods and standards for the conservation of immovable heritage, and direct, coordinate and monitor their implementation,
15. to provide for regular and advanced training and coordinate the educational needs of staff in the field of immovable heritage protection,
16. to carry out the expert supervision of preliminary researches,
17. to cooperate with the owners or possessors of immovable monuments and with other users of heritage who have interests in relation to an individual monument, and provide them with explanations, advice and instructions,
18. to implement the programmes for fostering awareness of the heritage, traineeship and practical training for educational programmes at various levels in the field,
19. to cooperate in carrying out professional examinations in the field of immovable heritage protection, and
20. to carry out expert supervision of encroachments on the heritage.

(2) The institute shall, on the basis of a public authorisation, carry out the following tasks:

1. issue cultural protection conditions and approvals for encroachments on the heritage,
1. keep a record of researches,
1. issue decisions on archaeological sites,
1. order the owner of a monument to implement certain measures of monument protection.

(3) The institute may, upon the consent of the founder, carry out also other tasks.

Article 85
(Tasks of the conservation centre)

(1) The institute shall, within the conservation centre, as the national public service carry out the following tasks in the field of conservation-restoration:

1. to provide for the development of the conservation-restoration profession and its direction,

2. to manage and carry out preliminary researches of monuments as referred to in the second indent of the second paragraph of Article 34 of this Act,
3. to prepare conservation plans for monuments owned by the state,
4. to draft the conservation-restoration project documentation for demanding encroachments,
5. to plan, manage and carry out demanding conservation-restoration encroachments on monuments, and conservation-restoration encroachments on monuments owned by the state which are financed from the state budget intended for culture,
6. to participate in the assessment of and be responsible for the material situation of the heritage and monuments,
7. to carry out research projects in the field of protection upon the order of the ministry,
8. to cooperate with state bodies, offering them technical assistance in procedures related to the items assumed to be heritage,
9. provide documentation for conservation-restoration activities,
10. carry out programmes of traineeship and advanced training,
11. carry out the practice of educational programmes of conservation-restoration,
12. to be responsible for fostering awareness of the public concerning conservation-restoration activities, and
13. to manage immovable monuments owned by the state.

(2) The institute shall, within the centre, carry out also the following tasks in the field of conservation-restoration which are not financed from the state budget intended for culture:
1. prepare conservation plans for monuments which are not owned by the state,
2. manage and carry out preliminary researches of monuments as referred to in the second indent of the first paragraph of Article 34 of this Act,
3. produce conservation-restoration project documentation for less demanding encroachments,
4. to plan, conduct and carry out less demanding conservation-restoration encroachments,
5. carry out research and other projects in the field of protection financed under contracts,
6. implement programmes of training and lifelong learning in the field of conservation-restoration activities, and
7. manage immovable monuments which are not owned by the state.

(3) The institute shall, within the conservation centre, as the national public service carry out the following tasks in the field of preventive archaeology:
1. manage and carry out preliminary archaeological researches as referred to in the first indent of the second paragraph of Article 34 and the third paragraph of Article 34 of this Act,

2. provide for methodological and infrastructural development in the field of archaeological researches and post-excavation procedures,
3. manage and carry out the preliminary archaeological researches and post-excavation procedures of monuments owned by the state which are financed from the state budget intended for culture,
4. carry out research projects in the field of preventive archaeology on behalf of the ministry,
5. carry out programmes of traineeship and advanced training,
6. carry out the practical work for educational programmes of preventive archaeology, and
7. be responsible for fostering awareness of the public concerning preventive archaeology.

(4) The institute shall, within the centre, carry out also the following tasks in the field of preventive archaeology which are not financed from the state budget intended for culture:
1. to manage and carry out preliminary and other archaeological researches and post-excavation procedures of treatment of the archives of archaeological sites, including publication, which do not fall under the second and third paragraphs of Article 34 of this Act,
2. to carry out training programmes, and
3. to carry out research and other projects in the field, financed under contracts.

(5) The organisation units of the institute shall perform the public service according to the programme of the institute or on behalf of the ministry.

(6) The minister shall give consent to the price list of the services of the institute.

3. Public service of museums

Article 86
(General provisions regarding the public service of museums)

(1) The state shall provide for the performance of the national public service of museums by establishing national museums and by authorising and financing other museums for carrying out the tasks of protection of the movable and living heritage of the wider interest (authorised museums).

(2) The museums that perform the national public service shall be entered in the list of museums.

(3) The entrance fee and other incomes from the sale of goods and services related to the heritage managed by a national or authorised museum shall be considered income from performing public service.

Article 87
(List of museums)

(1) The list of museums shall be a public document where those museums are listed which comply with the basic spatial,

financial and staff requirements for conservation of the heritage and protection thereof.

(2) The museums that perform the national public service shall be entered in the list of museums. The museums may also be entered in the list of museums which do not perform the national public service of museums.

(3) The list of museums shall be kept by the ministry. The ministry shall enter museums on the list in an administrative procedure.

(4) The application for entry shall be submitted by the museum with the consent of its founder.

(5) A museum shall meet the requirements for entry in the list of museums if:

- it provides public access to collections,
- has elaborated a plan of physical and technical protection, and of damage insurance of the museum collections which is confirmed by the founder, and
- meet other minimum professional, spatial and technical requirements as provided for with the regulation referred to in Article 52 of this Act.

(6) A museum entered in the list shall determine the entrance fee and opening times, which shall be announced in a visible place at the entrance to the museum.

Article 88
(Ownership of the heritage managed by museums)

The ownership of the heritage managed by museums entered in the list shall be determined on the basis of the following criteria:

- the heritage shall be owned by the person who is entered as the owner in the inventory ledger of the museum;
- when the owner is not entered in the inventory ledger of the museum as the owner of the heritage, the heritage shall be owned by the person who has financed the purchase which resulted in the heritage's becoming managed by the museum. When there are more financers, the heritage shall be the subject of joint ownership by the financers in ideal shares proportionate to their contributions;
- in other cases, the heritage shall be owned by the founder of the museum, except for archaeological remains which are owned by the state on the basis of this Act.

Article 89
(Checking the origin of movable heritage)

When acquiring movable heritage, the museum entered in the list shall check its origin. The museum shall notify the inspector competent for heritage of any suspicion of having an illegal origin.

Article 90
(Removal from the list of museums)

A museum may be removed from the list of museums upon its own proposal, upon a proposal by the founder, or ex officio if the museum terminates, or if it is established that it has ceased to meet the requirements as provided for in the fifth paragraph of Article 87 of this Act.

Article 91
(National museum)

(1) A national museum shall be a public institute established by the state in order to ensure protection of movable property of national importance.
(2) The field of activity and the mission of the museum shall be laid down in the memorandum of association adopted by the government.
(3) A national museum shall, as a national public service, carry out the following tasks:
    4. identify, document, study, interpret and evaluate the movable and living heritage, and represent it to the public,
    5. collect, carry out the accession and keeping of the record of movable heritage,
    6. prepare proposals for the proclamation of movable monuments of national importance,
    7. coordinate entry of the movable heritage in the register,
    8. protect and keep collections of national importance,
    9. prepare and carry out conservation-restoration procedures on movable heritage within its field of operation,
    10. supervise the protection of movable monuments and national treasures outside museums,
    11. advise and give instructions to owners of collections of movable heritage regarding the keeping of inventory ledgers in its field of operation,
    12. exhibit museum collections,
    13. research the movable heritage and its protection on behalf of the ministry into the field of operation to which it belongs, and
    14. implement the programmes for fostering awareness of the heritage, traineeship and training programmes, and practical training for educational programmes of various levels in the field.
(4) The national museum shall also implement programmes of training and lifelong learning in relation to the heritage as an activity which is not financed from the state budget intended for culture.

Article 92
(Service for movable heritage and museums)

(1) The Service is organised in one of the national museums. After making a tender on the basis of regulations in the field

of public administration, the minister shall designate the national museum within the framework of which the service is organised.

(2) The museum in which the service is organised shall, in addition to the tasks referred to in the third paragraph of the preceding Article of this Act, as a public authorisation also carry out the following tasks:

1. to give opinions to the ministry in the entry procedure in the list of museums referred to in Article 87 and in the procedure of granting authorisations referred to in Article 95 of this Act,
2. in the issuing procedures of approvals for researches give opinions to the ministry on the allocation of the archives of archaeological sites and found movable items assumed to be heritage to museums,
3. to coordinate the preparation of expert opinions with regard to the transfer or export of movable heritage,
4. to give opinions to the minister for deciding on disputes involving the distribution of responsibilities between museums which perform a national public service,
5. to prepare expert grounds for the issue of administrative decisions issued by the ministry,
6. to carry out the analysis of the activity of museums, and make annual reports to the minister thereof,
7. to cooperate in preparing a heritage protection strategy and propose measures for the implementation thereof,
8. to cooperate with state bodies, offering them technical assistance in procedures related to the movable items assumed to be heritage,
9. to propose criteria for co-financing museum programmes and projects,
10. to establish the joint actions of museums, promotion and marketing of their services,
11. to prepare the standards for keeping the record and procedures for documenting, interpreting and storing movable heritage, and propose to the minister the adoption thereof,
12. to carry out other tasks on behalf of museums on the basis of a preliminary agreement,
13. to cooperate in the protection of the living heritage,
14. to coordinate programmes of training and lifelong learning in the field of movable heritage and the educational needs of museum staff, and
15. coordinate programmes of traineeship and advanced training to be awarded professional titles.

(3) The tasks referred to in the preceding paragraph shall be carried out in cooperation between the national and authorised museums.

Article 93
(National public service in authorised museums)

(1) An authorised museum shall be a museum entered in the list of museums which has been granted authorisation for carrying out the national public service of museums. In an authorised museum, the state shall support the carrying out of the following activities as a national public service:
    1. identifying, documenting, studying, evaluating, and interpreting movable and living heritage,
    2. the collection, accession, and keeping the record of the movable and living heritage,
    3. protecting and keeping museum collections of national importance,
    4. cooperation in administrative procedures conducted by the ministry,
    5. giving advice to owners of collections of movable heritage regarding keeping inventory ledgers,
    6. preparing and carrying out conservation-restoration procedures on a movable heritage of national importance, and
    7. carrying out programmes of traineeship and advanced training.
(2) The state shall co-finance the national public service in an authorised museum to the extent referred to in the preceding paragraph, but up to a maximum of 80 per cent of the total costs of the operation of the museum.
(3) The minister shall, by the regulation referred to in Article 52 of this Act, lay down standards for the protection and storage of museum material in national and authorised museums.

Article 94
(Requirements for obtaining authorisation)

A museum may obtain authorisation for performing national public service if it complies with the following requirements:
- it is entered in the list of museums,
- has permanent financial resources for operation,
- is competent to identify, document, evaluate, interpret, keep a record, protect, store, research movable heritage, and present this to the public,
- ensure accessibility to the heritage in its keeping, and to the relevant data,
- provide for an examination of museum collections with a specified opening time, but not less than 40 hours per week,
- meet other minimum professional, technical, and spatial requirements for the standards for protection and storage of museum material, as provided for in accordance with the provisions of this Article in the regulation referred to in the fifth paragraph of Article 52 of this Act.

Article 95
(Procedure of granting authorisation)

(1) The ministry shall grant an authorisation to museums for performing the public service on the basis of a public tender.
(2) An application to tender shall be submitted by the museum with the consent of its founder.
(3) The application shall be attached by:
- the memorandum of association of the museum in which the mission of the museum as well as its collection policy are determined,
- the concept of arrangement and development of the museum and its collections, and
- corresponding evidence that the museum meets the requirements referred to in Article 94 of this Act.

(4) After receiving the applications, the ministry shall obtain the opinion of the museum in which the service is organised, regarding satisfying the requirements for obtaining authorisation. At deciding on granting the authorisation, priority shall be given to museums founded by municipalities, and which go beyond the municipal interest or satisfy also the needs of the inhabitants of neighbouring municipalities.
(5) A resolution on granting authorisation shall be adopted by the government upon proposal by the minister. The resolution shall determine the field of competence of the authorised museum, the date of commencement of the authorisation, and its duration.
(6) After resolution on obtaining authorisation is issued, the ministry, the authorised museum and its founders shall conclude a contract on performance of the public service, which shall determine the extent and the method of performance of the national public service, its financing, the proportion between the funds contributed by the state and the founder, an obligation of the museum to report to the ministry all facts and occurrences which might affect the performance of the public service, the method of financial and expert supervision of the state of performance of the public service, contractual sanctions, and the method of changing the contract.
(7) The ministry shall, at least once in every three year period, ensure that such requirements are being met.

Article 96
(Termination of authorisation)

(1) The authorisation of the museum to perform the national public service shall terminate:
- upon its proposal or a proposal by its founder,
- upon the museum's removal from the list of museums, or
- if the authorised museum fails to meet the requirements as referred to in Article 94, or the contract is breached as referred to in Article 95 of this Act.

(2) A breach of the contract shall be a reason for termination if:
- the museum deals with funds obtained for performing the national public service in breach of the terms of contract,

- by its conduct the museum may impair the heritage, and a relevant inspection measure has been issued, but the museum has not eliminated the irregularities within the prescribed time limit,
- the museum does not eliminate any other irregularity established by the ministry under the supervisory right.

(3) The authorisation for performing the national public service shall be withdrawn from the museum by the government upon a proposal by the ministry.
(4) Upon termination of the performance of the authorisation, the founder shall provide for the appropriate protection, storage, and accessibility of monuments and heritage which are managed by the museum.
(5) When the authorised museum ceases to perform the national public service, it shall deliver the heritage acquired on the basis of performance of such service to be managed by a national or other authorised museum.
(6) Museum collections obtained on the basis of performance of such service shall not be divided.
(7) The procedure of transfer and delivery of the heritage referred to in the preceding paragraph shall be laid down by the minister with a decision.

Article 97
(Co-financing programmes and projects in museums)

The state may, on the basis of a public call or tender, contribute funds for programmes and projects in authorised museums and in other museums entered in the list referred to in Article 87 of this Act outside the scope of the national public service, including emergency purchases of movable heritage with a view to completing collections of national importance and giving a guarantee for borrowing museum collections for exhibitions.

4. Public service of protection of living heritage

Article 98
(General provisions concerning public service of protection of living heritage)

(1) The national public service of protection of the living heritage shall be performed by national and authorised museums, the institute and a legal entity which may obtain authorisation for performing the national public service on the basis of a public tender (hereinafter referred to as: coordinator of protection of the living heritage).
(2) The coordinator of protection of the living heritage shall, as the national public service, carry out the following tasks:
    1. identify, document, study, evaluate, and interpret the living heritage,
    2. coordinate and independently propose the entry of living heritage in the register,

3. give advice to holders of living heritage regarding its integrated conservation,
4. prepare proposals for the proclamation of living masterpieces,
5. coordinate the work of museums and the institute in relation to the conservation of the living heritage and the related cultural spaces,
6. arry out other tasks associated with the living heritage on behalf of the ministry.

(3) Requirements for performing the public service on the basis of the authorisation, and other requirements for operation shall be subject *mutatis mutandis* to the application of provisions for authorised museums.

(4) Upon termination of the authorisation, the coordinator shall deliver to the national museum any databases and other material produced on the basis of the authorisation.

5. Local public protection service

Article 99
(Local public protection service)

(1) The local public protection service of the heritage shall encompass the heritage protection of the local interest, financing museums and other items of heritage protection, and the management of monument areas of local interest.

(2) In the field of the protection of a region and/or municipality, in addition to other tasks, the following is provided for:
- the establishment, organising and financing of the local public protection service, and providing supervision of its performance,
- financing other forms of protection pursuant to the law.

(3) Regions and municipalities may establish their own organisations for the performance of protection tasks. Protection organisations shall not interfere with such powers held by the state bodies in the field of protection.

Article 100
(Local public service of protection of immovable heritage)

(1) A region or municipality may establish an organisation to perform an optional local public service of protection of immovable heritage to carry out one or more of the following tasks:
- documenting the heritage within the territory of the region or municipality,
- carrying out other preliminary researches,
- performing individual conservation-restoration works,
- cooperating with the owners of immovable monuments and with others showing interest in relation to a certain monument, and communicating explanations, advice and instructions,

- cooperating on heritage protection in the event of an armed conflict, and
- natural and other disasters,
- managing local monuments, and
- implementing programmes for fostering awareness of the heritage.

(2) Several municipalities may establish a joint local public service as referred to in the preceding paragraph.
(3) The provider of the local public service shall submit to the institute at least once a year data on the documentation referred to in the first indent of the first paragraph, and an activity report.

Article 101
(Local public service of protection of movable and living heritage)

(1) The region shall provide for a regional public service of protection of movable and living heritage through the establishment of a museum.
(2) The municipality may, alone or with other municipalities, establish museums or other organisations for providing an optional municipal public service of protection of movable and living heritage, or shall provide for the performance of the municipal public service of protection of movable and living heritage in any other way.
(3) The region or municipality shall be liable to provide spatial, professional and technical requirements for the operation of a local public service of protection of movable heritage, including emergency purchases.
(4) A provider of the local public service of protection of the movable and living heritage shall prepare proposals for the proclamation of the movable and living heritage as monuments of local interest.
(5) The museums referred to in the second paragraph of this Article may, upon meeting the conditions laid down in this Act, acquire the status of an authorised museum.

6. Volunteers in the public service

Article 102
(Volunteers)

(1) The public protection service may engage people, appropriately educated or qualified to act as volunteers. Upon conclusion of the volunteer work, the provider of public service shall issue a certificate of the obtained work experience, or qualifications, unless otherwise provided for by law.
(2) Volunteers may pass a traineeship at the provider of public protection service as volunteer probationers, acquire work experience for the title referred to in Article 103 of this Act, or perform other tasks.

(3) In the public service for the field of protection volunteers – confidants shall also operate. Their task shall be to foster public awareness of the heritage, informing, and the informal supervision of the condition of protection in the field.
(4) The relationship between the volunteer and provider of public protection service shall be regulated by contract.
(5) Criteria for the remuneration of volunteers shall be regulated by the regulation referred to in Article 107 of this Act.

X. PERFORMANCE OF THE PROTECTION ACTIVITY ON THE BASIS OF TITLES AND CONTRACTS, AND CARRYING OUT OF SPECIALISED PROTECTION ACTIVITIES

Article 103
(Professional titles)

(1) An individual who is preparing to carry out professional work in the field or protection which requires a secondary, higher or higher professional education, or wishes to carry out such work, shall undergo a probation and pass a recognised examination for obtaining the professional title.
(2) An individual who has not yet obtained a professional title may carry out work only under the mentorship of a person who possesses the professional title.
(3) For obtaining professional titles, specified education or qualification, work experience, professional competence, and a passed exam shall be required.
(4) The minister shall prescribe the types of professional titles, training programmes for probation and for obtaining professional titles, requirements as to education, work experience and the establishment of professional competencies, as well as the method of passing examinations for obtaining professional titles.

Article 104
(Advanced training)

(1) An individual who works in the field of protection shall have the right and obligation to advanced training.
(2) The advanced training and examination shall be carried out under a programme laid down by the minister.

Article 105
(Specialised protection works)

(1) In order to enable the owners of heritage access to authentic data on natural and legal persons who are professionally qualified for encroachments on the heritage, or for performing other works in relation to the heritage (hereinafter referred to as: specialised protection works), an information system shall be established on those persons who are professionally qualified for carrying out specialised protection works.

(2) Specialised protection works shall be the following:
- carrying out researches and preliminary researches, including archaeological researches,
- performing conservation-restoration works,
- carrying out construction and tradesman's works on the heritage,
- transportations of movable heritage,
- preparation of conservation plans,
- preparation of management plans,
- preparation of project documentation for encroachments on the heritage,
- preparation of environmental reports of reports on impact on the environment from the viewpoint of the heritage,
- preparation of expert opinions and appraisals,
- implementing programmes of advanced training and training,
- storage and public presentation of collections of movable heritage.

(3) The ministry shall keep a list of persons professionally qualified to perform specialised protection works (hereinafter referred to as: list of qualified providers). The list shall include the following data on the persons qualified to perform the specialised works:
- the firm, registration number and registered office of the person; if it is a company or an independent entrepreneur,
- the personal name and residence of the responsible person or the person who carries out the activity as a self-employed person in the field of culture,
- the personal name and residence of the personnel who possess the appropriate education, a national vocational qualification, and a professional title, if such data are essential in proving technical competence, and the type and duration of employment or working relationship.

(4) The list of qualified providers shall be published on the World Wide Web. Personal data from the list shall be published upon approval from the person who submitted such data.

(5) The minister shall, with a regulation referred to in Article 103 of this Act, lay down in detail the manner of listing in the list of qualified providers, the manner of demonstrating the professional competence, and keep the list of qualified providers.

Article 106
(Contract with a major owner of heritage)

(1) A natural or legal person who owns a large number of immovable or movable monuments, such as a church or other religious community, an institute in the field of education, or a company, may internally organise an activity of keeping a record, storing, researching, and publicly representing the heritage.

(2) The government shall conclude a contract with such persons in order to lay down the requirements for executing such

activity, and regulate other matters by *mutatis mutandis* application of the provisions of this Act which apply to the public protection service, professional titles, the authorisations referred to in the second and third indents of the first paragraph of Article 68 of this Act, for authorised museums, and for carrying out specialised protection activities.

(3) The contract shall lay down in concrete and clear terms which purposes and objectives of the contract represent the public interest as it is generally defined in Article 2 of this Act, or in the national programme for culture.

(4) Such contract shall settle all mutual relationships in relation to carrying out the activity referred to in the first paragraph, and in particular:

- objectives to be realised during the period of conclusion of the contract, with a view to realising the purpose of the contract,
- criteria for monitoring the realisation thereof,
- the time limits within which the objectives are to be reached,
- the extent, time limits and the method of any eventual provision of national funds, and the relation between the funds invested in the activity by the state and the major owner of the heritage.
- other matters concerning mutual relationships.

(5) The ministry shall ensure the terms of the contract are being met at least once every three years.

XI. NON-GOVERNMENTAL ORGANISATIONS IN THE FIELD OF PROTECTION

Article 107
(Non-governmental organisation operating in public interest)

(1) A non-governmental organisation whose operation significantly contributes to protection, fostering awareness of the heritage, the spread of knowledge and skills associated with the heritage, and training and lifelong learning may obtain the status of a non-governmental organisation which operates in the field of cultural heritage in the public interest. Such status shall be obtained on the basis of the act governing realisation of the public interest in culture, and with *mutatis mutandis* application of the regulations governing the operation of societies.

(2) The status of a non-governmental organisation operating in the field of cultural heritage in the public interest may be obtained under the same conditions by a church or other religious community if it has its own legal personality.

Article 108
(Right of a non-governmental organisation)

(1) A person with the status of a non-governmental organisation who operates in the field of cultural heritage in the public interest shall have the right to:

- give opinions and propose solutions in relation to individual matters concerning protection,
- participate in consultative bodies of the ministry, regions and municipalities,
- cooperate in the drafting procedures of the strategy referred to in Article 73 of this Act and other strategic documents of the state, regions and municipalities, which concern protection and the conservation of the heritage,
- carry out other tasks in the field of protection on the basis of public tenders.

(2) A person as referred to in the preceding paragraph who is at the same time the owner of the heritage shall have the right to participate in matters related to protection which concern such concrete heritage if this does not involve a conflict of interests between their role as the owner and the non-governmental organisation.

(3) If there are doubts as to whether there is a conflict of interests referred to in the preceding paragraph, this shall be decided by the minister.

XII. SUPERVISION

1. General provisions concerning supervision

Article 109
(Inspection)

The supervision of the implementation of the provisions of this Act and the regulations issued on the basis thereof, as well as other acts which refer to protection, shall be carried out by an inspector competent for heritage.

Article 110
(Authorisations of inspectors)

In addition to the authorisations laid down in the act governing inspection, an inspector shall have also the following authorisations:

- to review immovable and movable heritage, books and documents in relation to trade, encroachments on the heritage and monuments, and to measures of protection in the event of an armed conflict, and of protection against natural and other disasters,
- to review, and require access to documentation which refers to the proclamation of monuments, the issue of administrative decisions to owners, and to the transfer of and trade in the heritage.

Article 111
(Cooperation with public protection service)

In conducting the procedures, the inspector may require the cooperation of state, regional and municipal bodies, in particular in

the event of carrying out an inspection and oral hearing, and it may require expert opinions from the providers of public service.

Article 112
(Persons liable to inspection)

Persons liable to inspection under this Act shall be:

- for encroachments: the investor of the encroachment and the person carrying out the encroachment,
- for maintenance and the omission of maintenance: the owner or possessor, and the person carrying out the maintenance,
- for harmful handling: the person who caused the damage.

Article 113
(Customs control)

The customs authorities shall carry out the control of the import and export of movable heritage as referred to in Articles 46 and 47 of this Act, whereby the competent organisation and inspector provide them with technical support.

(2) The support of the competent organisation referred to in the preceding paragraph shall be free of charge.

2. Inspection measures

Article 114
(General inspection measures)

Inspection shall, besides the measures under the act governing inspection, also encompass special measures provided for by this Act.

Article 115
(Inspection measures in case of unauthorised encroachments)

(1) If an inspector determines that an unauthorised encroachment on the heritage or monument is or has been implemented, he may issue a decision for all works to be halted. The halt of works shall apply until the person liable to inspection obtains the cultural protection approval for the intended encroachment.

(2) The person liable to inspection shall, within one month of the imposed inspection measure on the halt of the carrying out of all works at the latest, make an application to the institute to issue a cultural-protection approval, or to change the cultural-protection approval. If the person liable to inspection does not, within one month of the imposed inspection measure, apply for a cultural-protection approval, or change to the cultural-protection approval, or if the institute finally refuses or rejects an application for the issue or change of the

cultural-protection approval, the inspector shall issue a decision on ordering the re-establishment of the previous conditions at the expense of the person liable to inspection.

(3) If the re-establishment of the previous conditions is no longer possible, the inspector shall order the rehabilitation of the current condition or a substitute measure.

(4) In the decision, the inspector shall specify the time limit for implementing the measures referred to in the second and third paragraphs of this Article.

(5) If the cases referred to in the first paragraph of this Article involve encroachment on a monument or immovable heritage for which a building permit should be obtained under the regulations governing the construction of facilities, the inspector shall issue a decision ordering a halt to all works, and assign the case to the competent construction inspector for resolution. The halt shall apply pending a decision by the competent construction inspector.

(6) The procedure of halting works referred to in the first and preceding paragraphs shall be considered an emergency measure in the public interest pursuant to the provisions of the General Administrative Procedure Act, and may be ordered by the inspector in a shortened procedure without any examination of the parties. The decision may be issued orally.

Article 116
(Inspection measures in the case of damage or direct danger of damage)

(1) If an inspector determines that there is an immediate danger of damage, or that damage has already been done to an immovable monument or national treasures, he shall set a time limit by which such danger is to be eliminated, or adopt measures for eliminating the damage done, or for adequately reducing the damage.

(2) If the person liable to inspection fails to comply with the suitable measures or to ensure the necessary works by the deadline specified in the preceding paragraph, the inspector shall order that the works are carried out at the expense of the person liable to inspection.

(3) The implementation of works referred to in the preceding paragraph shall be based on a conservation plan and shall be conducted under the leadership of an authorised person.

Article 117
(Inspection measures in case of harmful handling)

(1) If an inspector determines that, as the result of incorrect maintenance, handling or use of an immovable monument or national treasures, or of the omission of due maintenance or handling, there is a danger of its damage, he may prohibit such handling or use, and order any measures necessary for ensuring its protection.

(2) If, as a result of incorrect maintenance, handling, use or omission of due maintenance, or handling of the owner or possessor, or a person who performs the maintenance, national treasures are endangered, the inspector may issue a decision on the temporary seizure of possession, and submit the movable heritage for storage to the national or authorised museum until the conditions for return are satisfied. The conditions for return are satisfied when the handling and use of the national treasures in accordance with this Act are ensured.

Article 118
(Inspection measures in the case of the use of an image or name of a monument without the owner's consent)

(1) If an inspector determines that a natural or legal person is using an image or name of a monument without the owner's consent, he may prohibit further use thereof.
(2) When deciding on such prohibition, the inspector shall observe the regulations on copyright and neighbouring rights.

Article 119
(Inspection measures in the case of carrying out activity in conflict with regulations)

(1) If an inspector determines that a monument or other national treasures are stored in conflict with the regulations, he may prohibit storage of the monument or other national treasures and set out measures necessary for ensuring heritage protection, and the time limits for the implementation of such measures.
(2) If an inspector determines that trade in a movable heritage is being carried out in conflict with the regulation referred to in Article 45 of this Acts, he shall prohibit such trade in the heritage and set out the measures necessary for ensuring heritage protection, and the time limits for implementing such measures.

Article 120
(Retention)

(1) If a customs authority carrying out supervision pursuant to this Act has a well-grounded suspicion that the treated goods are movable heritage which is imported or exported contrary to the provisions of this Act, it may provide for the retention of such goods and shall immediately inform the competent organisation or inspector thereof.
(2) The competent organisation shall within ten working days of receipt of the notification by the customs authority, submit an opinion as to whether the goods under retention constitute heritage which, under the provisions of this Act, requires an import or export permit, and shall immediately inform the customs authority thereof.

(3) If the competent organisation does not decide on the nature of the goods under retention within the time limit specified in the preceding paragraph, the customs authority shall submit the goods under retention to the selected customs authorised use.
(4) If the competent organisation determines that the goods under retention are heritage which, under the provisions of this Act, are required to have an export or import permit, the customs authority shall reject the submission of the goods to the selected customs authorised use.

Article 121
(Storage of goods under retention)

(1) The goods under retention shall be stored pursuant to the customs regulations which apply for the customs warehousing of goods.
(2) If the competent organisation determines that the goods under retention are heritage which, under the provisions of this Act, are required to have an import or export permit, the costs of storage and other costs which could arise in relation to the heritage shall be borne by the person who has imported or exported the respective heritage, or a person on behalf of whom the respective heritage has been imported or exported contrary to the provisions of this Act.

3. Carrying out inspections

Article 122
(Carrying out compulsory execution)

(1) Compulsory execution for inspection measures issued pursuant to the provisions of this Act shall be carried out under the provisions of the act governing administrative procedure, with the exceptions provided for by this Act.
(2) When an inspector determines the carrying out of compulsory execution, the penalty for a liable person who is a legal entity shall amount up to EUR 20 000, for a liable person who is an independent entrepreneur and a liable person who is a sole proprietor who executes the activity independently, up to EUR 2 000.

Article 123
(Informing)

The body which receives a proposal for the initiation of criminal proceedings shall inform the inspector, who filed the criminal complaint of the measures it has taken.

Article 124
(Seizure)

(1) An inspector or other authorised person shall have the right to seize the documentation or items which may be seized in the violation procedure, or whenever necessary for the protection of evidence.
(2) The seized documentation or items referred to in the preceding paragraph shall be, pending termination of the inspection procedure or violation procedure, kept by the ministry.

XIII. PENALTY PROVISIONS

Article 125
(Violations)

(1) A fine from EUR 400 to 4 000 shall be imposed for an offence on a legal entity or a sole proprietor, and on an individual performing an activity independently:
- if he fails to give notice of any irregularity or damage to the monument pursuant to the second paragraph of Article 56 of this Act,
- if he fails to make reference to the register as the source of data pursuant to the sixth paragraph of Article 67 of this Act.

(2) A fine from EUR 200 to EUR 2 000 shall be imposed on the responsible person of a legal entity, sole proprietor, national, regional or municipal body for the offence referred to in the preceding paragraph.
(3) A fine from EUR 100 to EUR 600 shall be imposed on an individual for the offence referred to in the first paragraph of this Article.

Article 126
(Violations)

(1) A fine from EUR 1 000 to EUR 4 000 shall be imposed for an offence on a legal entity or sole proprietor and an individual performing an activity independently, who:
- fails to give notice of the find of an archaeological remain pursuant to the first paragraph of Article 26 of this Act,
- fails to send a report on the course and results of the research pursuant to the first paragraph of Article 33 of this Act,
- is not entered in the list of traders in heritage pursuant to the first paragraph of Article 45 of this Act, or
- does not allow the documenting and investigating the monument pursuant to the first paragraph of Article 55 of this Act.

(2) A fine from EUR 400 to EUR 4 000 shall be imposed on the responsible person of a legal entity, sole proprietor, a national, regional or municipal body for the offence referred to in the preceding paragraph.

(3) A fine from EUR 200 to EUR 1 000 shall be imposed on an individual for the offence referred to in the first paragraph of this Article.

Article 127
(Violations)

(1) A fine from EUR 2 000 to EUR 40 000 shall be imposed for an offence on a legal entity, sole proprietor or an individual performing an activity independently who:
- encroaches on the place of the find contrary to the second paragraph of Article 26 of this Act,
- implements an encroachment without the cultural protection approval referred to in Article 28 of this Act or in conflict therewith,
- uses metal detectors or other technical means contrary to the first paragraph of Article 32 of this Act,
- fails to deliver the complete and original documentation on the research of immovable heritage, the whole and original archive of the archaeological site pursuant to the fourth paragraph of Article 33 of this Act,
- fails to handle the monument pursuant to the second paragraph of Article 36 of this Act,
- does not keep the record pursuant to the third paragraph of Article 45 of this Act,
- does not possess a permit for the transfer or export of the movable heritage pursuant to the first paragraph of Article 46 of this Act, or
- at storage or transfer of the national treasures, fails to comply with the minimum professional, technical and spatial requirements as referred to in Article 52 of this Act,
- at import or introduction, fails to present the permit pursuant to Article 47 of this Act,
- fails to possess evidence of origin pursuant to Article 53, or
- fails to implement appropriate measures or ensure appropriate works on the basis of a measure by the inspector as referred to in Article 116 of this Act,
- handles the monument or national treasures contrary to a measure by an inspector as referred to in Article 117 of this Act.

(2) A fine from EUR 800 to EUR 4 000 shall be imposed on the responsible person of a legal entity, sole proprietor, a national, regional or municipal body for the offences referred to in preceding paragraph.

(3) A fine from EUR 400 to EUR 1 200 shall be imposed on an individual for the offence referred to in the first paragraph of this Article.

(4) In the cases referred to in the third indent of the first paragraph of this Article, the secondary penalty may be imposed of the seizure of any metal detectors or other technical means, as well as all equipment used in searching for archaeological remains.

Article 128
(Violations of public service)

(1) A fine from EUR 400 to EUR 4 000 shall be imposed for an offence on a provider of a public service, if:
- he fails to notify the initiator of the refusal pursuant to the first paragraph of Article 12 of this Act,
- he fails to offer technical assistance pursuant to the second paragraph of Article 37 of this Act, or technical support pursuant to Articled 113 of this Act,
- he fails to announce the entrance fee and opening time pursuant to the sixth paragraph of Article 87 of this Act,
- he fails to notify the suspicion on an illegal origin pursuant to Article 89 of this Act, or
- he fails to communicate data pursuant to the third paragraph of Article 100 of this Act.

(2) A fine from EUR 200 to EUR 1 000 shall be imposed on the responsible person of the provider of public service for the offence referred to in preceding paragraph.
(3) Provisions of the fourth and fifth indents of the first paragraph shall apply also to registered museums or responsible persons of registered museums.

Article 129
(Imposing fines in ranges)

The fines provided for by this Act shall be imposed within the ranges laid down in this Chapter.

XIV. TRANSITIONAL AND FINAL PROVISIONS

Article 130
(Existing registered heritage)

(1) All heritages entered in the register of immovable cultural heritage on the day of coming into force of this Act, or that will be entered therein by the day of the establishment of the register under this Act, shall be protected under this Act as registered heritage.
(2) The register under this Act shall be established within 12 months following the coming into force of the regulation referred to in Article 72 of this Act. Pending the establishment of the register under this Act, the heritage shall be registered according to the existing procedures and on the basis of the Rules on the register of immovable cultural heritage (Official Gazette of the Republic of Slovenia, No. 25/02).
(3) Demonstration of the evaluation of the heritage in space shall be established within 12 months following the coming into force of the regulation referred to in Article 72 of this Act.
(4) A uniform demonstration of public digital material on the heritage shall be established within 24 months following the coming into force of the implementing act referred to in Article 72 of this Act.

(5) The minister shall determine the protection areas of heritage six months following the adoption of the government regulation referred to in the third paragraph of Article 25 of this Act.

Article 131
(Protection in spatial acts)

(1) The existing protection regimes and other criteria and conditions for the implementation of interventions in space, pending the determination of protection heritage areas referred to in Article 25 of this Act and the adoption of spatial acts prepared with respect to the provisions of this Act, shall be deemed to be units of heritage included in the professional plans for protection prepared by the institute in respect of the area of examination of the spatial act on the basis of the Cultural Heritage Protection Act (Official Gazette of the Republic of Slovenia, No. 7/9).
(2) Pending the adoption of the strategy referred to in Article 73 of this Act as the basis for the preparation of the documents of development planning the national programme for culture shall be used, and adopted on the basis of the act governing the realisation of the public interest in culture, unless already otherwise provided for by regulations.

Article 132
(Protection guidelines of registered heritage)

(1) Unless otherwise provided for by the register in respect of the registered heritage which has been entered therein prior to the enforcement of this Act, encroachments on such heritage which is under regulations governing construction liable to obtain a construction permit, shall be subject to the following protection guidelines for spatial planning and the issue of cultural protection approvals:
    - for individual immovable heritage: their gauges, exteriors, relations to neighbouring immovable items, and their use shall be conserved,
    - for areas of settlement heritage: morphological plans of the settlement, public places, street facades, forms of roofs, gauges, boundaries, and silhouettes of the settlement shall be conserved,
    - for areas of cultural landscape: the patterns of settlement in the landscape, relations between open spaces and settlements, the traditional use of land and patterns of land allotment, characteristic vegetation, spatial dominants and panoramic views, forms of the land, commemorative sites, burial sites, and the remains of structures shall be conserved,
    - for garden-architectural heritage: design, designed elements and fixtures shall be conserved.
(2) The protection guidelines referred to in the preceding paragraph which refer to the registered heritage within the areas protected under regulations in the field of nature conservation

shall not be observed if such observance would result in a threat to natural values and biological diversity, which is established by the organisation responsible for nature protection with the guidelines concerning nature protection.

(3) Notwithstanding the provisions referred to in the preceding two paragraphs, a cultural protection approval may only be refused in cases when the encroachment does not comply with this Act or spatial acts.

Article 133
(Validity of existing proclamation acts)

(1) Acts on the proclamation of cultural monuments issued on the basis of the Protection of Cultural Monuments and Sites of Natural Interest in the People's Republic of Slovenia Act (Official Gazette of the People's Republic of Slovenia, No. 23/48), the Protection of Cultural Monuments and Sites of Natural Interest Act (Official Gazette of the People's Republic of Slovenia, No. 22/58), the Protection of Cultural Monuments in the People's Republic of Slovenia Act (Official Gazette of the People's Republic of Slovenia, No. 26/61; Official Gazette of the Socialist Republic of Slovenia, No. 11/65), and the Natural and Cultural Heritage Act (Official Gazette of the Socialist Republic of Slovenia, Nos. 1/81 and 42/86; Official Gazette of the Republic of Slovenia, Nos. 8/90 and 26/92), and the Cultural Heritage Protection Act (Official Gazette of the Republic of Slovenia, No. 7/99), and entries of cultural monuments into the registers of monuments on the basis of the stated acts, shall remain in force and shall be, if necessary, coordinated with the provisions of this Act.

(2) The cultural monuments proclaimed by the Škocjanska Jama Regional Park Act (Official Gazette of the Republic of Slovenia, No. 57/96) shall be deemed to be cultural monuments in accordance with this Act.

(3) The protection regimes of areas which are protected under regulations in the field of nature conservation, prior to coming into force of this Act and contain in whole or in part monuments or monument areas, and in which the protection regimes of nature conservation are in conflict with the protection regimes of the monument, shall be adjusted within a period of six months of the coming into force of this Act. The government shall adopt a resolution on adjustment on the basis of an adjusted proposal by the minister responsible for nature conservation.

Article 134
(Protection regime of existing immovable monuments)

(1) If in the proclamation act of an immovable monument which entered into force prior to the entry into force of this Act, the protection regime is determined in such a manner that its scope may not be identified, the following general protection

regime shall apply pending the coming into force of proclamation acts on the basis of this Act in respect of individual types of immovable monuments:

- individual monuments: protection shall apply to all external characteristics, such as gauges, designs of house fronts, ground plan arrangements, significant natural and artificial materials and construction characteristics, adequate intended use, characteristic appearance in space, archaeological layers, and proportions of the monument, and, in particular its area of influence. If the subject of protection as a monument is a historical park or garden, the protection shall apply to the park and garden design, the planting method, designed natural elements, and facilities and fixtures intended for use and embellishment;
- settlement monuments: the subject of protection shall be the morphological design and land allotment of the settlement, public places and their equipment, street facades and roofs in their material appearance and colour harmony, gauges, boundaries and silhouettes of the settlement;
- rchaeological sites: these shall be protected against encroachments and uses which may cause actual damage or threaten damage to archaeological layers, change the archaeological context, or change the environmental factors significant for their conservation;
- protected cultural landscape: the subject of protection shall be the characteristic use of land, land allotment, characteristic vegetation, spatial dominants, relations between settlements and open spaces, commemorative sites, and characteristic topographical names.

(2) The protection regimes referred to in the preceding paragraph which refer to the monuments inside areas protected under regulations in the field of nature conservation shall not be considered if such consideration would result in a threat to natural values and biological diversity, which shall be established by the organisation competent for nature protection within the nature protection guidelines.

(3) The proclamation acts referred to in the first paragraph of this Article shall be, considering the determination of protection regimes, brought into line with this Act within the time limit of one year of the day of entry into force of this Act.

Article 135
(Reporting of an archaeological find)

(1) A person who on the day of entry into force of this Act keeps an archaeological find without a certificate of origin shall, within one year of the day of entry into force of this Act at the latest, notify a national or authorised museum thereof.

(2) If a person acts in accordance with the preceding paragraph such person shall not be sentenced for any of the previous criminal offences and violations in relation to such archaeological finds discovered in such a manner. Transitional criminal acts, or offences not punishable in such cases, shall be

unauthorised research and searching for an archaeological remain from which the archaeological find originates, omission of the duty to inform the competent organisations of the archaeological find, unauthorised keeping of the archaeological find, and a theft which results from the possession of the archaeological find.

(3) The museum referred to in the first paragraph shall issue a certificate of origin including instructions for storage; and if it is a collection it shall prepare an inventory ledger of the collection.

(4) If the museum referred to in the first paragraph establishes that it is an archaeological find of local or national importance, it shall prepare a proposal for proclaiming a movable monument or monument collection of local or national importance.

(5) The person who has notified the museum referred to in the first paragraph within the time limit referred to in the first paragraph on keeping a archaeological find or a collection of archaeological finds, which the museum establishes to be an archaeological find or a collection of the national importance, shall be entitled to reimbursement of the costs incurred in relation to the storage of the archaeological find or collection up to that time.

(6) The reimbursement shall be, upon the proposal of the person referred to in the fifth paragraph, decided by the ministry.

Article 136
(The Institute for the Protection of Cultural Heritage of Slovenia)

(1) The tasks of the institute shall be carried out by the Public Institute for the Protection of Cultural Heritage of the Republic of Slovenia, founded by the Decision on the Establishment of the Public Institute for the Protection of Cultural Heritage of the Republic of Slovenia (Official gazette of the Republic of Slovenia, No. 110/03).

(2) The decision referred to in the preceding paragraph shall be brought into line with this Act within three months of the entry into force of this Act.

Article 137
(National museums)

(1) Upon entry into force of this Act all museums shall be considered national museums which have the status of a national museum upon entry into force of this Act.

(2) The resolutions on the establishment of the museums referred to in the preceding paragraph shall be brought into line with this Act, if necessary, within one month of the entry into force of this Act.

Article 138
(Service for Movable Heritage and Museums)

The minister shall within six months of the entry into force of this Act, decide in which national museum the Service for Movable

Heritage and Museums is to be organised. The public institutes in the field of heritage protection which are financed from the state budget shall provide personnel for the service from its own sources of personnel within the time limit of one year.

Article 139
(Financing of museums and galleries of self-governing local communities)

(1) The museums and galleries referred to in Annex of the Regulation Setting up a Network of Museums for Performing Public Service in the Field of the Protection of Movable Cultural Heritage and Determination of National Museums (Official Gazette of the Republic of Slovenia, No. 97/00 and 105/01), other than national museums, shall be financed from the state budget on the basis of Article 43 of the Financing of Municipalities Act (Official Gazette of the Republic of Slovenia, No. 123/06) until 1 January 2009.
(2) On the 1 January 2009, the function of the financing of museums and galleries referred to in the preceding paragraph shall be taken over by the region or municipality which, pursuant to the law, provides the public service for the protection of movable heritage.

Article 140
(List of museums and traders, and list of qualified providers)

(1) The list of museums referred to in Article 87 of this Act shall be established within three months following the establishment of the service referred to in Article 92 of this Act, and not later than by 31 December 2008.
(2) The museums and galleries referred to in the Annex of the Regulation Setting up a Network of Museums for Performing Public Service in the Field of the Protection of Movable Cultural Heritage and Determination of National Museums (Official Gazette of the Republic of Slovenia, No. 97/00 and 105/01) shall be entered in the list ex officio on the basis of a resolution by the minister within the time limit referred to in the preceding paragraph.
(3) The list of traders referred to in Article 45 of this Act, and the list of qualified providers of specialised activities referred to in Article 105 of this Act shall be established within three months following the adoption of the regulation referred to in the seventh paragraph of Article 45, or the regulation referred to in Article 103 of this Act.

Article 141
(Conclusion of procedures)

Procedures for obtaining cultural protection conditions and cultural protection approvals, as well as those inspection procedures which were started prior to the enforcement of this Act shall be concluded under provisions of the Cultural Heritage Protection Act (Official Gazette of the Republic of Slovenia, No. 7/99).

Article 142
(Transfer of employees)

Due to the new powers provided for by this Act, a reassignment of an adequate number of public officers shall be executed within six months of the entry into force of this Act, pursuant to the Civil Servants Act, from the Inspectorate of the Republic of Slovenia for the Environment and Spatial Planning to the Inspectorate of the Republic of Slovenia for Culture and Media.

Article 143
(Transitional arrangements concerning the financing of preliminary researches)

Until 31 December 2008, the costs of preliminary research referred to in the second indent of the second paragraph and the third paragraph of Article 34 of this Act shall be covered by the investors in a construction or other interventions in space.

Article 144
(Implementing regulations)

The minister shall issue the regulations on the basis of this Act within one year of its entry into force.

Article 145
(Termination of validity of implementing regulations)

(1) On the day this Act enters into force the following regulations shall cease to be valid, adopted on the basis of the Cultural Heritage Protection Act (Official Gazette of the Republic of Slovenia, No. 7/99):

1. Regulations on the Procedure for Issuing Permits for Archaeological Research (Official Gazette of the Republic of Slovenia, No. 113/00),
2. Regulation on the Professional, Spatial and Technical Conditions for the Performance of Public Service in the Field of Cultural Heritage Protection (Official Gazette of the Republic of Slovenia, No. 113/00),
3. Regulation on the Register of Immovable Cultural Heritage (Official Gazette of the Republic of Slovenia, No. 25/02),
4. Rules on the Procedure of Granting Authorisations for Export and Transfer of Cultural Heritage Objects (Official Gazette of the Republic of Slovenia, No. 48/04, 106/04),
5. Rules on the Recording and Supervising the Trade in Cultural Heritage Objects (Official Gazette of the
6. Republic of Slovenia, No. 140/04 and 15/07 – Constitutional Court Decision),
7. Rules on keeping the inventory ledger of movable cultural heritage objects (Official Gazette of the Republic of Slovenia, No. 122/04),

8. Regulation on Establishment of the Network of Museums for the Performance of Public Service in the Field of Movable Cultural Heritage Protection and for the Determination of National Museums (Official Gazette of the Republic of Slovenia, No. 97/00 and 105/01).

(2) The regulations referred to in the preceding paragraph shall apply until the enforcement of corresponding regulations on the basis of this Act, unless they contravene this Act.

(3) Until corresponding regulations take effect on the basis of this Act, the following regulations shall apply as adopted on the basis of the Natural and Cultural Heritage Act (Official Gazette of the Republic of Slovenia, No. 1/81, 42/86 and Official Gazette of the Republic of Slovenia, No. 26/92), unless they contravene this Act:

1. Regulations on the Form and Labelling of Immovable Monuments and Sites of Interest (Official Gazette of the Republic of Slovenia, No. 33/85),
2. Regulations on Traineeship, Professional Exams and the Acquisition of Titles for Employees in the Area of Cultural Heritage Protection Activities (Official Gazette of the Republic of Slovenia, No. 31/96),

Article 146
(Termination of validity)

On the day this Act enters into force the Cultural Heritage Protection Act (Official Gazette of the Republic of Slovenia, No. 7/99) shall cease to be valid.

Article 147
(Termination of obligation to issue decisions on monument protection)

On the day this Act enters into force the provisions of the proclamation acts of cultural monuments shall cease to be valid, as adopted on the basis of the Cultural Heritage Protection Act (Official Gazette of the Republic of Slovenia, No. 7/99), which in relation to Article 13 of this Act regulate the issue of decisions on monument protection.

Article 148
(Final provision)

This Act shall enter into force on the fifteenth day after its publication in the Official Gazette of the Republic of Slovenia.

No. 612-04/98-5/9
Ljubljana, 1 February 2008
EPA 1605-IV

Vice-President of the National Assembly of the Republic of Slovenia
Vasja Klavora

Moreover, the protection of cultural heritage of the town of Idrija is determinated in the following legal instruments in the area of Heritage Protection on national and local level:

- Decree on the proclamation of technical heritage in Idrija and its surroundings as a national cultural monument (OJ RS nos. 66/01, 55/02, 16/08)

- Decree on the proclamation of cultural and historical monuments and natural sights in the area of the Municipality of Idrija (OJ SRS nos. 16/86, 17/88, OJ RS nos. 56/93, 45/97, 131/03, 45/07, 115/07)

- Decree on the proclamation of the Zgornja Idrijca Landscape Park (OJ RS nos. 11/93, 37/95)

With respect to the aforementioned legal texts containing specific measures for the protection of cultural assets in Idrija, a summary in English highlighting their key provisions is included in section 5.

Pursuant to Article 12 of the Cultural Heritage Protection Act (Official Gazette of the RS, No. 7/99), Article 23 of the Statute of the Municipality of Idrija (Official Gazette of the Republic of Slovenia, Nos. 1/01, 33/01, 135/04 and 52/06), the Idrija Municipal Council, at its 8th regular session on 6 December 2007, adopted this

ORDINANCE
amending the Ordinance on the Declaration of Cultural and Historical Monuments and Natural Sites in the Area of the Municipality of Idrija

Unofficial translation. Original document published in the Official Journal of the Republic of Slovenia, no. 115/07, 14 December 2007.

Article 1

In the Ordinance on the Declaration of Cultural and Historical Monuments and Natural Sites in the Area of the Municipality of Idrija (Official Gazette of the SRS, Nos. 16/86 and 17/88, Official Gazette of the RS, Nos. 56/93, 45/97, 131/03 and 45/07), point 2 of Article 3 shall be amended to read:
"2. Idrija – historic centre, with monuments:
- Church of the Holy Trinity;
- Church of St. Anthony with Calvary;
- Chapel of the Church of St. John Nepomucene;
- House at Kosovelova ulica 8;
- House at Vinka Mohoriča 1;
- Shrine at Lazar's – Pot k sv. Antonu 20;
- Lace School, Kosovelova ulica 21;
- Realka, Secondary School of Natural Sciences, Študentovska ulica 16;
- Tomb of the Church of St. Barbara;
- Mercury Path – part of Prelovčeva ulica.

Idrija, with monuments:
Church of the Sad Mother of God with the entrance graveyard building, walls and staircase with ossuary;
- Forestry School, Gregorčičeva ulica 35;
- Shrine at Kumer – Gorska pot 24;
- Engine room of the Inzaghi shaft;
- Čermak-Špirek furnace."

Article 2

A new fourth paragraph shall be added to Article 13, to read:
"The following protection arrangement shall apply to the cultural and historical monuments referred to in point 2 of Article 3 of this Ordinance:

1. Idrija – historic centre:
The following shall be protected:
- the historical character of the town and the appearance of buildings, their heights, roof designs, historical roof coverings, existing architectural details;
- the ground plan design of buildings;
- relationships between individual buildings and relationships between the buildings and open space;
- main natural spatial properties within the town (parks, streams, etc.);
- relationship between the settlement and its surroundings and the appearance of the settlement in the area;
- important public sights in the area: Gewerkenegg Castle, Church of St. Anthony, Delo shaft, Frančiške shaft, Inzaghi shaft.

The following shall apply to monuments within the HRN 182 area: Conservation and restoration interventions are allowed based on a conservation and restoration programme, or a cultural protection consent prepared by the competent Regional Unit of the Institute for the Protection of Cultural Heritage of Slovenia.
Guidelines and consents of the Regional Unit of the Institute for the Protection of Cultural Heritage of Slovenia shall be required for all other interventions. Principles of cultural heritage protection shall apply for spatial planning and urban planning, including detailed municipal spatial plans, interventions based on granted building permits and investment maintenance work on existing buildings. The only exception shall be that of public infrastructure. Guidelines and consents of the Regional Unit of the Institute for the Protection of Cultural Heritage of Slovenia shall not be required for investment maintenance work on public infrastructure. Interventions into a space and activities in the space must be planned in such a manner that they shall not affect the protected values and material substance of heritage. Interventions into a space should contribute to the permanent preservation of the heritage or to increase its value.

2. Church of the Holy Trinity:
The subject of protection shall be the building itself and its broader area, which provides functional integrity of the protected building heritage in the broader area without any intrusive elements.
It shall be prohibited to:
- damage or demolish the building;
- change the ground-floor design or height;
- change the construction design and construction materials;
- change the functional design and distribution of activities in the internal and corresponding external space;
- change the shape of the exterior – architectural division, roof coverings, jutting roofs, roof eves, builders' joinery, construction materials, colours, details, etc.;
- attach advertising boards, signboards and lights on façades if they do not correspond to the building's design and substance;
- change the relationship with other buildings on the plot and with neighbouring buildings;
- change communication and infrastructure connections to public space;
- change the immediate surroundings (appurtenant open space) with the surface heights and position, purpose and shape of appurtenant buildings and areas.

Upon previous consent of the competent cultural protection office, the following may be allowed as an exception:
- changing parts of buildings or building equipment to higher quality or more authentic state based on previous conservation research;
- conducting scientific research;

- changing or supplementing the construction design if the static stability of the building cannot otherwise be secured;
- intervening into the surroundings of the building in order to better present it.

3. Church of St. Anthony with Calvary:

The subject of protection shall be the building itself and its broader area, which provides functional integrity of the protected building heritage in the broader area without any intrusive elements.

It shall be prohibited to:

- damage or demolish the building;
- change the ground-floor design or height;
- change the construction design and construction materials;
- change the functional design and distribution of activities in the internal and corresponding external space;
- change the shape of the exterior – architectural division, roof coverings, jutting roofs, roof eves, builders' joinery, construction materials, colours, details, etc.;
- attach advertising boards, signboards and lights on façades if they do not correspond to the building's design and substance;
- change the relationship with other buildings on the plot and with neighbouring buildings;
- change communication and infrastructure connections to public space;
- change the immediate surroundings (appurtenant open space) with the surface heights and position, purpose and shape of appurtenant buildings and areas.

Upon previous consent of the competent cultural protection office, the following may be allowed as an exception:

- changing parts of buildings or building equipment to higher quality or more authentic state based on previous conservation research;
- conducting scientific research;
- changing or supplementing the construction design if the static stability of the building cannot otherwise be secured;
- intervene into the surroundings of the building in order to better present it.

4. Chapel of the Church of St. John Nepomucene:

The subject of protection shall be the entire monument, its interior and exterior in its original or current form, its complete structure, dimensions, construction materials and construction, details, inventory and the position of the unit on the building plot.

Conservation and restoration interventions shall be allowed with greatest possible consideration for the original form, and presentation interventions shall be allowed which will enable better understanding of the building's development (e.g. removal of any interventions performed inappropriately in the past). Any interventions shall be possible only with the consent of the competent cultural agency based on a conservation programme produced by the same. The building's functionality should not conflict with its cultural characteristics.

5. House at Kosovelova ulica 8:

The subject of protection shall be the two commemorative plaques at the existing location and the building's broader surroundings, which provide functional integrity of the protected building heritage in the broader area without any intrusive elements.

It shall be prohibited to:

- damage or demolish the building;
- change the ground-floor design or height;
- change the construction design and construction materials;
- change the functional design and distribution of activities in the internal and corresponding external space;
- change the shape of the exterior – architectural division, roof coverings, jutting roofs, roof eve, builders' joinery, construction materials, colours, details, etc.;
- attach advertising boards, signboards and lights on façades if they do not correspond to the building's design and substance;

- change the relationship with other buildings on the plot and with neighbouring buildings;
- change communication and infrastructure connections to public space;
- change the immediate surroundings (appurtenant open space) with the surface heights and position, purpose and shape of appurtenant buildings and areas;

Upon previous consent of the competent cultural protection office, the following may be allowed as an exception:

- changing parts of buildings or building equipment to higher quality or more authentic state based on previous conservation research;
- conducting scientific research;
- changing the use of the building if the original function of the building cannot be ensured and if this does not significantly affect the building's material substance and testimony;
- changing or supplementing the construction design if the static stability of the building cannot otherwise be secured;
- attaching inconspicuous signboards and signs to façades;
- opening roofs (roof windows, dormers) on the side of the building not visible from public space;
- intervening into the surroundings of the building in order to better present it.

6. House at Vinka Mohoriča 1:

The subject of protection shall be the entire monument, its interior and exterior in the original or current form, its complete structure, dimensions, all construction materials and construction, details, paintings on the front façade, museum treatment of the inventory and the position of the unit on the building plot.

Conservation and restoration interventions shall be allowed with greatest possible consideration for the original form, and presentation interventions shall be allowed which will enable better understanding of the building's development (e.g. removal of any interventions performed inappropriately in the past).

Any interventions shall be possible only with the consent of the competent cultural agency based on a conservation programme produced by the same. The building's functionality should not conflict with its cultural characteristics.

7. Shrine at Lazar's – Pot k sv. Antonu 20:

The subject of protection shall be the entire monument, its interior and exterior in the original or current form, its complete structure, dimensions, all construction materials and construction, paint jobs, details, inventory and museum treatment of the inventory and the position of the unit on the building plot.

Conservation and restoration interventions shall be allowed with greatest possible consideration for the original form, and presentation interventions shall be allowed which will enable better understanding of the building's development (e.g. removal of any interventions performed inappropriately in the past).

Any interventions shall be possible only with the consent of the competent cultural agency based on a conservation programme produced by the same. The building's functionality should not conflict with its cultural characteristics.

8. Lace School, Kosovelova ulica 21:

The subject of protection shall be the building itself and its broader area, which provides functional integrity of the protected building heritage in the broader area without any intrusive elements.

- It shall be prohibited to:
- damage or demolish the building;
- change the ground-floor design or height;
- change the construction design and construction materials;
- change the functional design and distribution of activities in the internal and corresponding external space;
- change the shape of the exterior – architectural division, roof coverings, jutting roofs, roof eve, builders' joinery, construction materials, colours, details, etc.;
- attach advertising boards, signboards and lights on façades if they do not correspond to the building's design and substance;

- change the relationship with other buildings on the plot and with neighbouring buildings;
- change communication and infrastructure connections to public space;
- change the immediate surroundings (appurtenant open space) with the surface heights and position, purpose and shape of appurtenant buildings and areas.

Upon previous consent of the competent cultural protection office, the following may be allowed as an exception:

- changing parts of buildings or building equipment to higher quality or more authentic state based on previous conservation research;
- conducting scientific research;
- changing the use of the building if the original function of the building cannot be ensured and if this does not significantly affect the building's material substance and testimony;
- changing or supplementing the construction design if the static stability of the building cannot otherwise be secured;
- attaching inconspicuous signboards and signs on façades;
- opening roofs (roof windows, roof eve) on the side of the building not visible from public space;
- intervening into the surroundings of the building in order to better present it.

9. Realka Secondary School of Natural Sciences, Študentovska ulica 16:

The following shall be protected:

ground-floor design and height of the building;

- design of the exterior – stuccowork elements, decorative window frames, wall garlands and rustic elements in the plaster;
- design of builders' joinery;
- design of hallways, ceilings in hallways and flooring in hallways;
- immediate surroundings – especially access by staircase and the appurtenant park along the southern façade.

The following shall be preserved:

- size and distribution of window openings, coffered windows and main entrance door;
- central staircase;
- arched ceilings in the basement.

10. Tomb of the Church of St. Barbara:

The crypt shall be preserved in the current state.

11. Mercury Path – part of Prelovčeva ulica:

The path along part of the current Prelovčeva ulica shall be protected.

It shall be prohibited to change or destroy the path.

12. Church of the Sad Mother of God with the entrance graveyard building, walls and staircase with ossuary:

The subject of protection shall be the commemorative plaques at the existing location and the building's broader surroundings, which provide functional integrity of the protected building heritage in the broader area without any intrusive elements.

It shall be prohibited to:

- damage or demolish the building;
- change the ground-floor design or height;
- change the construction design and construction materials;
- change the functional design and distribution of activities in the internal and corresponding external space;
- change the shape of the exterior – architectural division, roof coverings, jutting roofs, roof eves, builders' joinery, construction materials, colours, details, etc.;
- attach advertising boards, signboards and lights on façades if they do not correspond to the building's design and substance;
- change the relationship with other buildings on the plot and with neighbouring buildings;
- change communication and infrastructure connections to public space;

- change the immediate surroundings (appurtenant open space) with the surface heights and position, purpose and shape of appurtenant buildings and areas;

Upon previous consent of the competent cultural protection office, the following may be allowed as an exception:

- changing parts of buildings or building equipment to higher quality or more authentic state based on previous conservation research;
- conducting scientific research;
- changing or supplementing the construction design if the static stability of the building cannot otherwise be secured;
- intervening into the surroundings of the building in order to better present it.

13. Forestry School, Gregorčičeva ulica 35:

The following shall be protected:

- ground-floor design and height of the building;
- design of the exterior; roof coverings, all details on the façade, size and distribution of window openings;
- windows: the shape of the windows must be preserved to match the original ones.

It shall be prohibited to:

- install roof windows.

The following guidelines shall be followed during all works:

- distribution of rooms on the upper floor can be made in accordance with their purpose;
- walled-in window openings can be reopened;
- it would be reasonable to move the commemorative plaque from the right side of the ground floor in the window area higher up to a position between the two floors and to reopen the window;
- the jutting roofs in the attic (kukrle) can be designed in accordance with the preserved documentation;
- the arches must be preserved on the ground floor and both doors on the axis reopened. The entrance doorway must be kept "clean", without any reconstruction and massive furniture, the plasters must be smooth and lime-based, the flooring must be made of brick to match the partly preserved floors;
- it would be sensible to rebuild the arches on the ground floor that have been removed without culture-protection consent so as to match the existing ones.

14. Shrine at Kumer – Gorska pot no. 24:

The subject of protection shall be the entire monument, it's interior and exterior in the original or current form, its complete structure, dimensions, construction materials and construction, details, paint jobs, museum treatment of the inventory and the position of the unit on the building plot.

Conservation and restoration interventions shall be allowed with greatest possible consideration for the original form, and presentation interventions shall be allowed which will enable better understanding of the building's development (e.g. removal of any interventions performed inappropriately in the past).

Any interventions shall be possible only with the consent of the competent cultural agency based on a conservation programme produced by the same. The building's functionality should not conflict with its cultural characteristics.

15. Engine room of the Inzaghi shaft:

The subject of protection shall be the building itself and its broader area, which provides functional integrity of the protected building heritage in the broader area without any intrusive elements.

- It shall be prohibited to:
- damage or demolish the building;
- change the ground-floor design or height;
- change the construction design and construction materials;

- change the functional design and distribution of activities in the internal and corresponding external space;
- change the shape of the exterior – architectural division, roof coverings, jutting roofs, roof eves, builders' joinery, construction materials, colours, details, etc.;
- attach advertising boards, signboards and lights on façades if they do not correspond to the building's design and substance;
- change the relationship with other buildings on the plot and with neighbouring buildings;
- change communication and infrastructure connections to public space;
- change the immediate surroundings (appurtenant open space) with the surface heights and position, purpose and shape of appurtenant buildings and areas;

Upon previous consent of the competent cultural protection office, the following may be allowed as an exception:

- changing parts of buildings or building equipment to higher quality or more authentic state based on previous conservation research;
- conducting scientific research;
- changing the use of the building if the original function of the building cannot be ensured and if this does not significantly affect the building's material substance and testimony;
- changing or supplementing the construction design if the static stability of the building cannot otherwise be secured;
- attaching inconspicuous signboards and signs on façades;
- opening roofs (roof windows, dormers) on the side of the building not visible from public space;
- intervening into the surroundings of the building in order to better present it.

16. Čermak-Špirek furnace:

The following guideline shall be followed during all works:

- The furnace shall be rebuilt and positioned logically in the smelting plant."

Article 3

The expert groundwork for amendment of the Ordinance on the Declaration of Cultural and Historical Monuments and Natural Sites in the Area of the Municipality of Idrija produced in August 2007 by the Nova Gorica Regional Unit of the Institute for the Protection of Cultural Heritage of Slovenia shall constitute a component part of this Ordinance.

Article 4

This Ordinance shall take effect on the eighth day after its publication in the Official Gazette of the RS.

Ref. no.: 620-0001/2007

Idrija, 6 December 2007

Mayor of the Municipality of Idrija

Bojan Sever

Organization

In accordance with the national legislation, the security and protection of Idrija's cultural heritage against natural and other disasters is provided through an uniform system of protection against natural and other disasters. The Protection Against Natural and Other Disasters Act (OJ RS nos. 64/94, 33/00 Odl.US: U-I-313/98, 87/01-ZMatD, 41/04-ZVO-1, 28/06, UPB-51/06) regulates both the protection of people, animals, property, environment and the protection of the cultural heritage against natural and other disasters.

The Ministry of Defence or its affiliate body, i.e. Administration of the Republic of Slovenia for Civil Protection and Disaster relief performs administrative and professional tasks relating to setting up and functioning of the system for protection against natural and other disasters. In performing its work, the Administration cooperates with the Ministry of Culture and the competent public services. Principally, the Ministry of Culture as a national administrative body the administrative tasks relating to the protection against natural and other disasters (participation in the drawing up of legislative and other legal documents). The professional tasks from this field (elaboration of the risk assessment relating to cultural heritage with respect to individual kinds of disasters, participation in the drawing up of protection and rescue plans, collecting and processing of data on the damage to the cultural heritage incurred by the disasters, drafting of the report on the damage to the cultural heritage, elaboration of the programmes for rehabilitation and restoration of the immovable cultural heritage, elaboration of the programmes for the restoration and curation interventions for the rehabilitation of the historical and archive materials, elaboration of the programmes for the rehabilitation and curation of movable cultural heritage, etc.) are performed by the state public services (museums, gallleries, Institute for the Protection of Cultural Heritage of Slovenia, archives).

Finance

The material and financial resources for implementing the system of security and protection of Idrija's cultural heritage are provided for within the framework of regular activities of line ministries and funds for the operation of a public service. There are several financial resources for the rehabilitation of the damaged cultural heritage: budgetary resources, resources from the European Solidarity Fund. Pursuant to the Elimination of Consequences of Natural Disasters Act - official consolidated text with amendments - (OJ RS no. 114/05 and amendments OJ RS no. 5/07), the holders of the cultural heritage which at the time of the natural disaster is declared as a clutural monument, are entitled to the resources from the Budget of the Republic of Slovenia for the purpose of the rehabilitation of the damage. In accordance with the Act on Implementation of Public Interest in the field of Culture – official consolidated text (OJ RS no. 77/07), public resources or intervention resources of the Ministry of Culture can be allocated for the purpose of renovation and restoration of cultural charecteristics of a cultural monument. In case of inavoidable urgency due to the short term, an EU member state hit by a major disaster (i.e. any disaster exceeding a certain cost treshold) can obtain a grant from the European Solidarity Fund (Council Regulation ES No 2012/2002 of 11.11.2002), for the purpose of providing the essential minimum intervention measures for immediate protection of the cultural heritage in order to prevent further damage.

Proceedings, protection and rescuing of Idrija's heritage in instance of elementary, natural disasters are determined in The Regional Plans on Protection and Rescuing. The Plans of single elementary disasters (fire,

flooding, earthquake) include definitions of proceedings of liable institutions and organs in the Region in case of above listed disasters. The Regional Plans on Protection and Rescuing are based on national legal system and do not need a separate adoption on a local level.

In accordance with legislation on the Protection of Cultural Heritage and the legislation on the Protection Against Natural and Other Disasters, several important measures in this area are in preparation and in execution. These measures assure appropriate protection of heritage and determine the proceedings in case of natural disasters.

The principal anticipated threats to the site originate in fire, flooding and vehicle impact damage.

The Republic of Slovenia does, however, have a comprehensive and reliable system of emergency services, and a number of specific emergency plans and joint operating protocols, which are already in place for managing known hazards within the site. These include:

- The Regional Plan protection and rescuing in case of floods,
- The Regional Emergency Plan and
- The Regional Plan protection and rescuing in case of earthquake
- Management plans of the cultural heritage.

Beside the above listed documents, the basis for protection, above all in the meaning of the definition of protective measures, is also determined in:

- Constitution of the Republic of Slovenia, articles 5 and 73
- Cultural Heritage Protection Act, 1999
- Act amending the Prevention of Effects of Mining in the Mercury Mine Idrija Act (OJ RS, no. 86/04),
- The Programme of the Necessary Activities to Complete the Programme to Prevent the Effects of Mining in the Mercury Mine Idrija for the 1988-2006 period,
- The Operational Programme to Prevent the Effects of Mining in the Mercury Mine Idrija for 2007,
- The Cultural Heritage in the Idrija Municipality, Book 3, Idrijski Log (a heritage analysis for the spatial plan of the Idrija municipality, drafted by Emil Smole and Ivan Sedej), the Nova Gorica Institute for Heritage Protection, Nova Gorica 1980.
- The Expert Basis for Declaring the Immovable Cultural and Historical Monuments as well as Exceptional Natural Features in the Idrija Municipality, the Nova Gorica Institute for Heritage Protection, Nova Gorica, 1984,
- The Protection of Cultural Heritage, Expert Bases for Changes and Amendments of the Spatial Components of the Long-Term and Mid-term Plan, Idrija Municipality, The Nova Gorica Institute for Heritage Protection, Nova Gorica, April 2000,
- The Guidelines for the Protection of the Cultural Heritage for the Drafting of the Spatial Development Strategy of the Idrija Municipality, the Nova Gorica Institute for Heritage Protection, Nova Gorica, December 2006. (Spatial Development Strategy).
- The Guidelines for the Protection of Cultural Heritage in the Idrija Municipality Zoning Programme, the Nova Gorica Institute for Heritage Protection, Nova Gorica, December 2006. (Zoning Act)

Site Management related plans

Fire risks

Many of the principal historical buildings within the site are covered by the existing fire safety legislation of the Republic of Slovenia. Under the competent legislation, for example, buildings

which are pot to a "designated use" are required to have a fire act - certicifate. Certificates are issued by the authorised organisation and specify:

- the means of escape in case of fire,
- the means of ensuring that the escape routes can be used safely and effectively at all material times,
- the means for alerting in case of fire,
- the means for fighting fire,
- details on flammmable or explosive materials wich may be stored or used on the premises.

A fire act - certificate may additionally impose requirements for training the employed personnel on acting and proceeding in case of fire incident and for other relevant fire precautions to be observed.

Similarly, the fire precaution regulations on the workplace require employers, when more than two persons are employed, to prepare risk assessments for premises.

In the Republic of Slovenia, there are many other Acts of Parliament and Regulations that apply to Fire Safety Requirements. The emphasis of this legislation is, however, to protect and safeguard life. Within the area of heritage, the importance lies on preserving the historical buildings of the utmost significance. In addition, the primary duty of fire prevetion and protection of building residents, need to be considered.

Flood risks

The Republic of Slovenia has an efficient system of river flood defences.

Environmental Agency of Republic of Slovenia has identified significant parts of the Goriska region as floodplains which should remain undeveloped. These plains are helping to protect more vulnerable sites within the area in the incident of flooding, functioning as emergency water storage capacity.

The Environmental Agency of the Republic of Slovenia produces leaflets and factsheets containing information and advice about how to prepare for possible flood incidents, how to proceede if a flood occurs, and how to mitigate the effects of a flood.

Protective measures and treatment in case of fire - the Mine (shafts)

- combustible materials must not be kept in direct vicinity of the Mine. The bushes and the grass must be regularly removed.
- Regular control of surroundings is ensured.

Protective measures in the building of Anthony's Main Road:

- appropriate number of fire extinguishers is installed in the object, the emergency exits are labelled evidently.
- a system administrator is in the building to provide order and to control the security of the employees and the visitors constantly.
- consistent control of possible intake and usage of prohibited inflammable agents is established.
- regular examination of electricity installation is procured.

Measures and tasks in case of fire:

- the person who is in charge, instantly closes down the damper on the shaft's entrance and opens the entry gates of the Anthony's Main Road.
- in case of smaller fire, the detailed person starts to extinguís the inflammation with manual fire extinguisher immediately.
- In case the fire goes out of control, the detailed person must immediately call for the responsible personnel as per Informing Instructions for Natural Disasters.

Case of rescue action:

- the leader of the rescue action chooses the appropriate meted of extinguishing (stopping) the fire,
- the leader of the rescue action orders stopping of the fans,
- the leader orders the mine to empty,
- when visitors are present in the shaft during the time of accident, the leader sends a courier or the guide in duty to lead the visitors out of the shaft by the shortest route.

The fuel gasses must not spread in the Mine after the fans are stopped, as the direction of the air flow is reversed.

After the fire, the employees and visitors are allowed to enter the Mine only after its meticulous inspection and after possible harmless impacts of fire are ascertained.

Treatment in case of cave-in water:

In such instance, when the guide of Anthony's Main Road ascertains at his return, that a part of the Mine is flooded with water and that the pasagge is not possible, he and the visitors immediately return back to the Main Road's entrance. With usage of the ICT technology the guide calls for the responsible personnel as per Instructions or by the Informing List in Case of Natural Disasters.

The leader of the rescue action appoints a team, which will carry the lamps to the visitors in the mine and direct them on the surface.

Treatment in case of Anthony's Main Road demolition

In case of the Mine's demolition, the appropriate professional guidance out of the Mine must be ensured. In case of massive demolition of the Main Road (for example earthquake), the procedure of rescuing is identical to the one in case of flooding.

When a visitor is injured, the guide initiates an action for transferring the injured persons from the Mine on the surface.

Comprehensive management plan and management model

The managers of the individual heritage units currently independently manage the buildings and equipment that has been protected as cultural heritage. The protection of monuments and other types of heritage is carried out under the supervision of the Institute for the Protection of Cultural Heritage of Slovenia (ZVKDS) and the Institute for the Protection of Nature of Slovenia. The management plan anticipating the possibilities for the holistic and coordinated management is currently being drafted. As such, it proposes an upgrade of current state of management by introducing proper legislative framework and appointing a site manager responsible for coordination among various stakeholders, as well as, the preparation, supervision, and implementation of the joint programmes related to the heritage preservation, interpretation, promotion, fundraising, and monitoring of the heritage properties.

The process of adopting a management model and plan is to be carried out at local level but will include the national authorities, since the process of protecting the Buffer Zone of the national cultural monuments is carried out at state level. Management plan was adopted in June 2008. In the first half of 2008, an information point dealing with mercury heritage was set up as part of the Idrija Mercury Mine. This facility is closely related with the emerging Information and Research Centre for Mercury that is being established as part of the restructuring of the Idrija Mercury Mine. The management model is to build on the existing methods of managing cultural heritage in the area, as well as include the existing managers.

The goal of the management model and plan is to establish an effective system for protecting, developing and managing Idrijan heritage, thereby providing for the comprehensive conservation of the heritage sites and all-rounded development of the area. The manager will with planned measures and in association with specialist institutions work to ensure that the heritage is preserved, enhanced, maintained, well presented and interpreted.

The plan aims to create a transparent management structure that will enhance the protection and conservation efforts related to Idrijan heritage and form strategies for promoting sustainable development both locally and regionally. The institutions that will be tasked with managing the cultural heritage will work according to the principles of integrity and sustainability, applying the established practices of protecting and conserving the tangible and intangible cultural heritage and including it in local development efforts. The organisation's activities will be based either on the Companies' Act or the Societies' Act. Its organisational structure will allow the local community in Idrija to keep a commanding say given its interest in managing the heritage in the area. The four basic activities of the organisation will be:

- development and marketing activities based on sustainable use of cultural and natural heritage;
- development and marketing of new, specific activities dealing with the effects of mining on various areas of life (labour health, mining, education, etc.);
- promoting private partnership in refurbishing and maintaining heritage sites; and
- steering development and integrating development initiatives in order to achieve greater efficiency.

Its tasks will encompass:

- drafting periodic management plans;
- drafting and adopting annual conservation and development programmes;
- monitoring the state of cultural and natural heritage in the area;
- drawing up the required legal and professional framework for carrying out conservation measures in association with specialised institutions;
- engaging in international cooperation on an expert level through international projects and initiatives;
- providing for the maintenance, renovation and protection of monuments and sites in association with the individual managers;
- presenting and interpreting the importance of the heritage sites;
- planning the development of tourism infrastructure in the area;
- gathering and keeping documents related to the area;

- overseeing the implementation of protection schemes in the area;
- overseeing licensing and supervising the activities of licensees.

Management model

The proposed management model is based on linking the existing entities dealing with heritage and stresses unified management and sustainability of the heritage.

The Idrija local community in 2010 adopted and set up an organisation to tackle the task of management, the Idrija Heritage Centre.

The Idrija Heritage Centre is based on the Institutes Act (Official Journal of the Republic of Slovenia, no. 12/91, 17/91, 5/92, 13/93, 66/93, 8/96, 31/00, 36/00).

The act stipulates setting up institutions for performing educational, scientific, cultural, sports or other types of activities, if these activities are not for profit. An institute can be established by legal entities or individuals.

A public institute is meanwhile set up for performing public services. A public institute can be established by the state, municipality, town or other authorised entities, while other legal entities or individuals can act as co-founders.

Public services can be performed by other institutes, based on a contract (enabled by an act or, in the case of a municipality, a decree).

The institute is run by its council, which includes representatives of the institute's founders, employees and the interested public.

The institute is headed by a director.

The powers and the composition of the council are set by the institution's rules of procedure.

The Municipality of Idrija is slated to be the entity to establish the institute in order to manage the mercury heritage zone. The municipality appoints the representatives of the following bodies to the institute's council: representativesof the Municipal Council , the Idrija Municipal Museum and reprsentative of emploies in Center The act, setting up the institute and other acts will regulate relations with competent ministries on a national level.

The Idrija Heritage Centre was set up by the Idrija Municipality. Representatives of the founders form an assembly, while a programming council of experts will be formed to help them in various fields. The council includes representatives of other interested institutions and is tasked with guaranteeing public interest that arises from the heritage.

Establishment and activities

The Municipal Council of the Idrija Municipality adopted the management plan and models at its session in June 2008. Procedures for setting up and launching the management organisation based on the decision by the Municipal Council.

Regardless of the selected model of management, a team of between 8 and 12 people is planned to manage the organisation. This number was arrived at after an examination of the planned activities to guarantee public interest of the Idrija heritage. At least 4-6 jobs are planned at the launch of the management body.

The organisation will carry out several activities as part of the public service, with the major ones being:

- Maintain, protect and develop the monuments and the zone,
- Monitor and analyse the state of the heritage,
- Coordinate the research and development activities,
- Present and interpret the heritage,
- International cooperation,
- Educational activities,
- Draft operational programmes,
- Councelling.

Based on the above listed activities, the posts in management and the posts for ensuring the expertise from numerous areas (in line with the heritage dealt with) as well as the know-how in marketing have been assigned. Part of the activities, especially marketing, will be carried out, based on contracts.

The management plan is intended to be a tool for coordinated and comprehensive management of heritage sites in the Idrijan area. Its main aim is to establish cooperation and communication channels between all the subjects involved in managing the heritage sites in the area, as well as forming an all-inclusive analysis of the situation and possible improvements in protecting and developing the area. The management plan contains an analytical and operational part:

The analytical part:

- general analysis of the cultural, social and economic situation in the heritage area/SWOT analysis
- an analysis of the possibilities for organisational and personnel improvements in managing heritage related to the mercury mining tradition in Idrija;
- an analysis of the current state of heritage sites and the area's position in local, regional, national and international life;
- the identification of potential negative effects on the area and individual sites;
- examination of other potentials in the Idrija heritage area related to Idrija's nomination as a UNESCO World Heritage Site;
- examination of the current state of tourism, capacities of the most visited heritage sites and possible restructuring of tourism activities aimed at making them sustainable from a developmental and economic point of view, for the benefit of the local community.

Operational part:

- forming a clear management structure and including the various local interest groups in the projects proposed by the management plan;
- forming a strategy for achieving goals in the protection and modernisation of the area, as well as its economic development;
- forming instructions for preserving the authenticity and integrity of the heritage area, including the cultural and natural heritage, as well as providing for its interpretation;
- forming instructions for alleviating any negative effects on the heritage area;
- drawing up a plan of raising awareness among the local community;
- drawing up a plan of utilising the knowledge built up over the centuries in mercury production for research, educational and promotional purpose, both locally an internationally;
- drawing up a plan of upgrading and restructuring tourism, promoting sustainable forms of tourism, with the benefits of the local community in mind;
- drawing up a timetable for carrying out necessary measures;

- preparing a financial plan for implementing the management plan;
- devising an effective monitoring system.

Process of the management model and the overall management plan preparation is being executed on the local level in cooperation with the experts and institutions on the national level. The designation process for the protection of buffer zone will be executed on the national level.

The time schedule related to designation process and the preparation of the management plan:

- September 2007: workshop for raising awareness and inclusion of public, within the framework of the management plan preparation.
- October 2007: expected approval of changes and additions within the municipal act on monuments of local significance. Approval of documents for designation of monuments on the national level and the buffer zone following the »horizon«.
- November 2007: expected approval of the act on designating monuments on the national level and the buffer zone by the Slovene government.
- March 2008: Presentation of Management Plan to the public and submission of Management Plan for the approval to the Idrija Municipal council.
- First half 2008: Introduction of common International management, information, research, and interpretation centre for mercury in Idrija, starting of Information centre for UNESCO in Idrija.
- 2008: implementation of the efficient management network within the nominated heritage properties for the UNESCO World Heritage.

The process of adopting a management model and plan is to be carried out at the local level but will include the national authorities, since the process of protecting the Buffer Zone of the national cultural monuments is carried out at state level. The process of discussing and adopting the management plan was carried out between September and March 2008. In the second half of 2008, an information point dealing with mercury heritage was set up as part of the Idrija Mercury Mine. This facility is closely related with the emerging Mercury Information and Research Centre that is being established as part of the restructuring of the Idrija Mercury Mine. The management model is to build on the existing methods of managing cultural heritage in the area, as well as include the existing managers.

Among other activities, the establishment of UNESCO Information Centre is foreseen as part of the Municipal Museum or the Idrija Mercury Mining Company. The Idrija Mercury Mining Company, currently in process of re-structuralisation, also proposed foundation of an International Information, Research, and Interpretation Centre for mercury mining in Idrija that should pursue the research and educational activities as well as coordinate the research activities related to impacts of the mercury mining on the environment. The general realms of activities of the International Information, Research, and Interpretation Centre will be as follows:

- Coordination and execution of the research on the factors affecting both the core as well as the wider area of the mines.
- Creating a database with studies and documents dealing with effects of Hg on local population and the employees of the mining company.
- Setting up a system for monitoring for the environmental state of the property, and the health impacts of the mining on the local population.
- Realization of technical / professional, educational, and tourism programmes from the field of geological sciences and mining.
- Information and awareness programs for the general public on the goals and results of the activities within the Centre.
- Professional cooperation and exchange with partners both on the National and the International level.

7.c. Form and date of most recent inventory records

(001) Almadén

The Spanish national properties already declared as being of Cultural Interest (BIC) are inscribed on the Register held by the State Administration and / or by the corresponding Autonomous Community.

Each file includes the identification and description of the site and its legal and administrative status. The recording data of those properties that were declared before the competences on this matter were transferred to the Autonomous Communities and those which have been declared by the State Administration since then is kept in the archives of the Institute of the Spanish Institute of Cultural Heritage (IPCE). This Institute also keeps records on the incidences and interventions carried out on such properties. This way, the data is constantly updated. A similar procedure is observed in the Autonomous Communities.

This is the case of the Bullring, the Retamar Castle, the Bustamante Furnaces , tand the Saint Raphael Royal Miners' Hospital, in Almaden which had been declared as BIC in the past years (see 5.b.1).

Legal proceeding for national properties to be declared as being of Cultural Interest (BIC) as it has been the case of the Historic Mining Ensemble of Almadén in recent years, requires identification, description, statement of their outstanding value, documentation on their state of conservation and other relevant information on different aspects affecting the property, like ownership, legal status, cadastral description, delimitation and delineation of the setting which will be subject to protection, maps, photographs, etc. They are also based on authenticity and integrity.

In the case of the properties included on Agreement of 25th November 2008 (Official Gazette of Castile-La Mancha of 1st December) formally declaring the Almadén mines ensemble and related properties as BIC (see 5.b.1) the above data is officialy kept in both the archives of the Ministry of Culture and the Department of Culture of Castile-La Mancha and can be openly consulted by means of its publication on the said official instrument.

The information, research, inventory and records which have given path to this official decision are the result of the great work done by different institutions throughout many years:

The Company "Minas de Almaden y Arrayanes (MAYASA)", the owner of the mining complex, has developed an extraordinary program for recovering, maintaining and protecting the historical elements and cultural values of the mines after the final shutdown of mining activities, while guaranteeing the necessary safety of environment and security for visitors. It has also promoted dissemination of knowledge through the creation of the Mining Park which also includes the Mercury and Mines Museum and the Mining Interpretation Centre. It has also created the Francisco Javier de Villegas Foundation which, as explained in 5.d, is in charge of the Museum of the Royal San Rafael Mining Hospital and the Historic Archives of the Almaden Mines and plays an importat role in the management plan of the Almaden Mines (see 7.b). The initiatives of MAYASA and this Foundation have also led to the obtention of financial funds for conservation and restoration works that are equally recorded in their archives.

The Almadén School of Mining and Industrial Heritage of the University of Castile-La Mancha (EIMIA) has also contributed to the recovery and inventory records of significant movable and immovable properties as demonstrated by its Francisco Pablo Holgado Historic Mining Museum and the Royal Forced Labour Prison Interpretation Centre as well as by its historic archives and the School's Historic Library that keeps documental funds from the origins of the Academy of Mines in the 18th century. The EIMIA has also promoted an important cooperation with other universities and qualified specialists who have provided important data on the history and cultural values of Almaden as an outstanding world wide mining landmark and the starting point of the Intercontinental Camino Real thanks to the amalgamation method described in this dossier. This important data is also kept in the EIMIA archives.

The Bullring also helds an inventory of movable properties which constitute a collection of historic objects for the Bullfighting Museum.

The Almaden Board, which was integrated by local authorities, provincial council, regional government and the State administration also contributed to the recovery and inventory records of assets included in the aforementioned official agreement for the Almaden Mines and related heritage assets to be declared of Cultural Interest (BIC).

(002) Idrija

The state of technical and cultural heritage is duly monitored in the zone. The situation and events are being monitored in various periods. Activities are carried out on daily, weekly, monthly and yearly bases, in line with the regular maintenance programme. The state of the buildings is monitored during several years and more frequently if needed, especially after thunderstorms or natural disasters. The items on display in exhibition areas are checked on a daily and weekly basis.

Inventory and documentation of Idrija's heritage is evidented and mastered by experts in records and documents of 'Documentary Points'. It can be found on locations of single competent institutions and on location of heritage's managers.

Location	Title of the document or record	Date of creation/location of confirmation
Idrija Mercury Mine	Monitoring the buffer zone during the submerging of the mine between the XIth and IXth galleries	02/04, Ljubljana
Idrija Mercury Mine	Proposal for preserving and protecting parts of the ore deposit and the mine	12/04, Nova Gorica
Idrija Mercury Mine	Programme for maintaining and monitoring the unsubmerged part of the mine after the final shutdown activities of Idrija Mercury Mine in the 2008 – 2012 period	04/2007, Ljubljana
Idrija Mercury Mine	The concept for restoring and reviving the smelting plant of Idrija Mercury Mine	09/2007, Idrija
Idrija Mercury Mine	The proposal to establish an Information and Research Centre for Mercury in the mine's smelting plant	04/2007, Idrija
Idrija Municipal Museum	The recording data of the movable heritage is kept in The Idrija Municipal Museums' inventary book as the mine and the lace collection.	Standing orders
Institute for the Protection of Cultural Heritage of Slovenia - Regional Office in Nova Gorica	Changes and amendments of basic experizes of protection of cultural heritage, the Municipality of Idrija.	04/20007, ZVKDS OE Nova Gorica
Institute for the Protection of Cultural Heritage of Slovenia - Regional Office in Nova Gorica	Professional concepts for changes in Decree on Proclamation of cultural and historical Monuments and natural sights on the area of Municipality Idrija	08/2007, ZVKDS OE Nova Gorica
Institute for the Protection of Cultural Heritage of Slovenia - Regional Office in Nova Gorica	Professional basis for proclaming the EŠD 189 Vojsko - Idrijske Klavže as National Monument	10/2007, ZVKDS OE Nova Gorica
Institute for the Protection of Cultural Heritage of Slovenia - Regional Office in Nova Gorica	Professional basis for proclaming the EŠD 506 Gorenja Kanomlja - Kanomeljske klavže as National Monument	10/2007, ZVKDS OE Nova Gorica
Institute for the Protection of Cultural Heritage of Slovenia - Regional Office in Nova Gorica	Professional basis for proclaming the EŠD 593 Idrijska Bela - Putrihove klavže as National Monument	10/2007, ZVKDS OE Nova Gorica
Idrija Mercury Mine	Establishment of the Information and Research Centre for Mercury	06/2008, Idrija
Municipality of Idrija	Establishment of the Idrija Heritage Centre	12/2010, Idrija

The national services (The Institute for the Protection of Cultural Heritage of Slovenia and its Regional Office in Nova Gorica), the Idrija Municipal Museum, Idrija Mercury Mine, the Idrija Municipality, and the Idrijsko-Cerkljanska Regional Development Agency are contributing towards real–time recording of the activities in the mine and on the buildings.

The recording data is kept in the archives of the Institute for the Protection of Cultural Heritage of Slovenia, the Idrija Municipal Museum, Idrija Mercury Mine and the INDOK Documentation Centre of the Ministry of Culture.

7.d Address where inventory, records and archives are held

(001) Almadén

FUNDS	ADDRESS
Ministry of Culture Directorate-General for Fine Arts and Cultural Assets Spanish Institute of Cultural Heritage (IPC)	-Dirección General de Bellas Artes y Bienes Culturales Plaza del Rey, 1 28003 Madrid. Spain. Tel: (++34) 91 701 70 35 Fax: (++34) 91 701 73 81 - Instituto del Patrimonio Cultural (IPC) Pintor El Greco (Moncloa), 4 28011 Madrid. Spain Tel. (++34) 91 550 44 00
Regional Government of Castile-La Mancha	Dirección General de Patrimonio Cultural Calle Trinidad, 8 45071 Toledo. Spain Tel. (++34) 925 26 74 19 Fax(++34) 925 26 74 23
Municipality of Almaden -Town Council -Historical Archive of the Municipality of Almadén	Ayuntamiento de Almadén Plaza de la Constitución, 1 41240 Almadén. Ciudad Real. Spain Tel. (++34) 954 73 50 82
Almaden Mines (Mining Society of Almaden and Arrayanes, MAYASA) Mining Park Museum of Mercury Mercury Interpretation Centre Technological National Centre of Mercury Decontamination	MAYASA Cerco de San Teodoro s/n 13400 Almadén. Ciudad Real. Spain Tel. (++34) 926 26 50 02 Fax (++34) 926 26 50 08
Almadén Francisco Javier de Villegas Foundation Museum of Miners Almaden Mines Historic Archive (Documental files from the 18th century to present days, cartography and library)	San Rafael Royal Hospital for Miners Plaza del Doctor López de Haro 13400 Almadén. Ciudad Real. Spain Tel. (++34) 926 26 45 20 Fax (++34) 926 26 45 08
School of Mining and Industrial Heritage of Almaden (University of Castile-La Mancha) EIMIA Historical Archive Francisco Pablo Holgado Historic Mining Museum Interpretation Centre at the Royal Enforced Labour Prison	Dirección. EIMIA Plaza Manuel Meca, 1 13400 Almadén. Ciudad Real. Spain Tel. (++34) 926 71 05 77 Fax (++34) 926 71 32 57
Almaden Bullring Museum	Museo de la Plaza de Toros Plaza Waldo Ferrer, s/n. 13400 Almadén. Ciudad Real. Spain. Tel. (++34) 926 26 43 33).
Etnographic Museum of Chillon	Museo Etnográfico de Chillón Avenida de España s/n 13412 Chillón. Ciudad Real. Spain Tel (++34) 926 71 13 01 Fax (++34) 926 71 20 49
Archive and Library of Castile-La Mancha	Biblioteca de Castilla-La Mancha Cuesta de Carlos V s/n 45001 Toledo. Spain Tel (++34) 925 25 66 80 / 925 25 54 34 Fax (++34) 925 25 36 42
Historic Archive of the Province of Ciudad Real	Archivo Histórico Provincial de Ciudad Real Calle Echegaray, 2 13004 Ciudad Real.Spain Tel. (++34) 926 25 55 62

General Archive of the University of Castile-La Mancha	Archivo General de la Universidad de Castilla-La Mancha Rectorado Real Casa de la Misericordia Calle Altagracia, 50 13071 Ciudad Real. Spain Tel. (++34) 902 204 100 (Ext. 3018)
School of Mining Engineers of the Polytechnic University of Madrid Historic Library and Archives	ETS de Ingenieros de Minas de Madrid UPM Calle Ríos Rosas, 21 28003 Madrid. Spain Tel. (++34) 91 336 70 71 Fax(++34) 91 336 70 68
Chair on Industrial and Mining Heritage (CIMH) at the School of Mines of the Polytechnic University of Madrid	Director Cátedra UNESCO de Patrimonio Minero e Industrial. ETSI Minas. UPM Calle Alenza, 4- 8ª planta 28003 Madrid Tel. (++34) 91 336 69 79 Fax (++34) 91 536 12 08
The Spanish Society for the Defence of Geological and Mining Heritage (SEDPGYM)	- Presidente. SEDPGYM Calle Alenza, 1 28003 Madrid - Secretary. SEDPGYM ETSI de Minas Calle Lagoas Marcosende, 9 36200 Vigo. Pontevedra. Spain Tel. (++34) 986 81 38 95 Fax (++34) 986 81 19 24
General Archive of Indias	Archivo General de Indias Edificio de la Lonja Avenida de la Constitución, 3 Edificio de La Cilla Calle Santo Tomás, 5 41071 Sevilla. Spain Tel. (++34) 95 450 05 28 Fax (++34) 95 421 94 85
National Historic Archive	Archivo Histórico Nacional Calle Serrano, 115 28006 Madrid. Spain Tel. (++34) 91 768 85 00 Fax (0034) 91 563 11 99
Spanish National Library	Biblioteca Nacional de España Paseo de Recoletos 20-22 28071 Madrid. Spain Tel. (++34) 91 580 78 00
General Archive of Simancas	Archivo General de Simancas Calle Miravete, 8 47130 Simancas. Valladolid. Spain Tel. (++34) 98 359 003 /98 359 07 50 /98 359 18 12 Fax (++34) 98 359 03 11
Historic Archive of the Royal Chancellry of Valladolid	Real Chancillería de Valladolid Calle Chancillería, 4 47071 Valladolid. Spain Tel. (++34) 983 254 746 /983 250 232 Fax (++34) 983 267 802
Historic Archive of the Royal Chancellry of Granada	Real Chancillería de Granada Plaza del Padre Suárez, 1 18009 Granada Tel. (++34) 958 57 57 57 Fax (++34) 958 57 57 56

(002) Idrija

FUNDS	ADDRESS
Rudnik živega srebra Idrija, d. o. o. – v likvidaciji *Idrija Mercury Mine, Ltd. - in liquidation*	Bazoviška 2, SI-5280 Idrija
Informacijsko-raziskovalni center za živo srebro *Information and Research Centre for Mercury*	Bazoviška 2, SI-5280 Idrija
Mestni muzej Idrija *Idija Municipal Museum*	Prelovčeva ulica 9, SI-5280 Idrija
Občina Idrija *Municipality of Idrija*	Mestni trg 1, SI-5280 Idrija
Občina Idrija, Služba za urejanje prostora in varstvo okolja *Municipality of Idrija, Department of Spatial Planning*	Mestni trg 1, SI-5280 Idrija
Center za idrijsko dediščino *Idrija Heritage Centre*	Mestni trg 1, SI-5280 Idrija
Idrijsko–Cerkljanska razvojna agencija ICRA d. o. o. *Regional Development Agency ICRA Ltd.*	Mestni trg 1, SI-5280 Idrija
Ministrstvo za kulturo *Ministry of Culture*	Maistrova 10, SI-1000 Ljubljana
Ministrstvo za kulturo, Direktorat za kulturno dediščino *Ministry of Culture, Directorate for Cultural Heritage*	Maistrova 10, SI-1000 Ljubljana
Ministrstvo za kulturo, INDOK center *Ministry of Culture, INDOK Centre*	Maistrova 10, SI-1000 Ljubljana
Ministrstvo za kulturo, Inšpektorat Republike Slovenije za kulturo in medije *Ministry of Culture, Culture and Media Inspectorate of the Republic of Slovenia*	Metelkova 4, SI-1000 Ljubljana
Ministrstvo za gospodarstvo *Ministry of Economy*	Kotnikova 5, SI-1000 Ljubljana
Ministrstvo za gospodarstvo, Direktorat za notranji trg *Ministry of Economy, Directorate for Internal Market*	Kotnikova 5, SI-1000 Ljubljana
Ministrstvo za gospodarstvo, Inšpektorat RS za energetiko in rudarstvo *Ministry of Economy, Energy and Mining Inspectorate of Republic of Slovenia*	Grajska ulica 2, SI-1410 Zagorje ob Savi
Zavod za varstvo kulturne dediščine Slovenije *Institute for the Protection of Cultural Heritage of Slovenia*	Metelkova 4, SI-1000 Ljubljana
Zavod za varstvo kulturne dediščine Slovenije, Restavratorski center *Institute for the Protection of Cultural Heritage of Slovenia, Restauration Centre*	Poljanska 40, SI-1000 Ljubljana

Zavod za varstvo kulturne dediščine Slovenije, Območna enota Nova Gorica *Institute for the Protection of Cultural Heritage of Slovenia, Regional Unit Nova Gorica*	Delpinova ulica 16, SI-5000 Nova Gorica
Zavod Republike Slovenije za varstvo narave, Območna enota Nova Gorica *The Institute of the Republic of Slovenia for Nature Conservation, Regional Unit Nova Gorica*	Delpinova ulica 16, SI-5000 Nova Gorica
Univerza v Ljubljani, Naravoslovnotehniška fakulteta, Oddelek za geotehnologijo in rudarstvo *University of Ljubljana, Faculty of Natural Sciences and Engineering, Department for Geotechnology and Mining*	Aškerčeva cesta 12, SI-1000 Ljubljana
Univerza v Ljubljani, Naravoslovnotehniška fakulteta, Oddelek za geologijo *University of Ljubljana, Faculty of Natural Sciences and Engineering, Department for Geology*	Aškerčeva cesta 12, SI-1000 Ljubljana
Institut "Jožef Stefan" *The Jožef Stefan Institute*	Jamova 39, SI-1000 Ljubljana
Tehniški muzej Slovenije *Technical Museum of Slovenia*	Parmova 33, SI-1000 Ljubljana
Slovenski etnografski muzej *Slovenian Ethnographic Museum*	Metelkova 2, SI-1000 Ljubljana
Narodna in univerzitetna knjižnica *National and University Library*	Turjaška 1, SI-1000 Ljubljana
Mestna knjižnica in čitalnica Idrija *Idrija Municipal Library and Reading-room*	Ulica sv. Barbare 4-5, SI-5280 Idrija
Ministrstvo za kulturo, Arhiv Republike Slovenije *Ministry of Culture, Archives of the Republic of Slovenia*	Zvezdarska 1, SI-1127 Ljubljana
Zgodovinski arhiv Ljubljana *Historical Archives Ljubljana*	Mestni trg 27, SI-1000 Ljubljana
Zgodovinski arhiv Ljubljana, Enota v Idriji *Historical Archives Ljubljana, Unit in Idrija*	Prelovčeva ulica 2, SI-5280 Idrija
Österreichisches Staatsarchiv	Nottendorfer Gasse 2, A-1030 Wien
Österreichische Nationalbibliothek	Josefsplatz 1, A-1015 Wien
Steiermärkisches Landesarchiv	Karmeliterplatz 3, A-8010 Graz
Ministero per i Beni e le Attività Culturali, Archivio di Stato di Udine	Via F. Urbanis, 1, I-33100 Udine
Biblioteca Civica Cividale	Piazzetta Chiarottini, n. 5, I-33043 Cividale del Friuli
Montanuniversität Leoben	Franz-Josef_Strasse 18, A-8700 Leoben

7. e. BIBLIOGRAPHY

ACOSTA, J. (1.590), *Historia natural y moral de las Indias*, Crónicas de América, Nº34, edición de J. Alcina, Ed. Historia 1, Madrid, 1987.

ADJIMAN, José Marcos, "Caminería americana: cruzando los Andes", in *Libro de Actas del II Congreso Internacional de Caminería Hispánica*, tomo IV, Madrid/Guadalajara (Spain), July 1994, AACHE, Guadalajara (Spain), 1996.

AGRICOLA, Georgius, *Bermannus, sive de re metallica,* Basileae, 1530.

AGRÍCOLA, Georgius, (1556), *De Re Metallica*, Ed. Casariedo (Unión Española de Explosivos, S.A.), Madrid, 1992.

ÁLVAREZ ARECES, Miguel Ángel et al, "Arqueología Industrial", in *Ábaco*, 2ª época I, Gijón, 1992.

ÁLVAREZ NOGAL, Carlos, *Los banqueros de Felipe IV y los metales preciosos americanos*, 1621 – 1665, Banco de España, Madrid,1997.

ANES Y ALVAREZ DE CASTRILLÓN, Gonzalo and Guillermo Céspedes del Castillo, *Las casas de moneda en los reinos de las Indias*, Vol 1 and 2, Fábrica Nacional de Moneda y Timbre, Madrid,1996 -1997.

ARKO, Mihael, *Zgodovina Idrije*, Gorica 1931.

ARROYO, Ricardo: "La Flota de Indias", in: www.mgar.net/var/flota.

ASOCIACIÓN DE AMAS DE CASA, CONSUMIDORES Y USUARIOS "CALATRAVA", *Qué comer en Almadén*.

ARZÁNS DE ORSÚA Y VELA, Bartolomé, *Historia de la Villa Imperial de Potosí*, G. Mendoza, L. Hanke, Edit., Rhode Island, 1965.

ASSADOURIAN Sempat, *El sistema de la economía colonial, mercado interior, regiones y espacio económico*, Nueva Imagen, México, 1983.

_____, "La producción de la mercancía dinero en la formación del mercado interno colonial", in FLORESCANO, Enrique comp., *Ensayos sobre el desarrollo económico de México y América Latina (1500-1975)*, Fondo de Cultura económica/Economía Latinoamericana, México, 1987.

ÁVILA MÉNDEZ, Agustín y Jesús Ruvalcaba (Coords.), *Cuextecapan, lugar de bastimentos*, IV encuentro de investigadores de la Huasteca, Centro de Investigaciones y Estudios Superiores en Antropología Social, México,1991.

BAAZ, J., *Beobachtungen k. k. Quecksilberwerke Idria vorkommenden Erkrankugen an Merkurialismus*, Vienna, 1866.

BAJŽELJ, Uroš, *Rezultati uvajanja mehanizacije v jamo rudnika živega srebra Idrija*, Ljubljana 1972.

BAJŽELJ, Uroš, s sod., *Investicijski program-Obnova proizvodnje v Rudniku živega srebra Idrija*, Ljubljana 1980.

_____, *Idejne rešitve za popolno in trajno ustavitev proizvodnje v Rudniku živega srebra Idrija*, Ljubljana 1987.

BAJŽELJ, Uroš, *Opis in zgodovina Rudnika Idrija: gradivo za pripravo nominacije*, Ljubljana 2007.

_____, *Dediščina živega srebra Idrija – posebnosti*: gradivo za pripravo nominacije, Ljubljana 2007.

BAKEWELL, Peter, *Minería y sociedad en el México colonial, Zacatecas, 1546-1700,* Fondo de Cultura Económica, México,1976.

_____,*Mineros de la montaña roja. El trabajo de los indios en el Potosí (1545-1560)*, Madrid, Alianza Editorial, 1989.

_____, *Silver and Entrepreneurship in Seventeenth-Century Potosi. The life and Times of Antonio Lopez de Quiroga*, University of New Mexico Press, Albuquerque, 988.

BANCROFT, Peter, ČAR, Jože, ŽORŽ, Mirjan, KOBLER, Gregor, T*he Idria Mines Slovenia, Yugoslavia. Mineral* rec 1991.

BAÑOS RAMOS, Envida, "De Caminos y puertos: arqueología y la carretera Veracruz-Tabasco, México", in *Libro de Actas del IV Congreso Internacional de Caminería Hispánica*, V I, Guadalajara (Spain), July de 1998.

BARBA, A. A. (1.640), *Arte de los metales en que se enseña el verdadero beneficio de los de oro y plata por açogue,* Edición facsímil E.T.S.I. Minas, Madrid, 1992.

BARGALLÓ, M., *La minería y la metalurgia en la América española durante la época colonial*, Fondo de Cultura Económica, México D.F.,1955.

_____, *La amalgamación de los metales de plata en Hispanoamérica colonial*, Compañía fundidora de fierro y hacer de Monterrey, México, D.F.,1969.

BAŠ, Franjo, *Rudarska hiša v Idriji*, Ljubljana 1957.

_____, *Rudarska hiša v Idriji. Stavbe in gospodarstvo na slovenskem podeželju*, Ljubljana 1984.

BATIČ, Jerneja, (ur.), *Divje jezero pri Idriji, Ljubljana* 1996.

BAVDAŽ, Jurij, *Idrijska čipka*, Celje, 1989.

BAVDAŽ, Marija, ČAR, Jože, KAVČIČ, Janez, PELHAN, Emil, PELJHAN, Martina, *Ob Rakah : po poti idrijskih naravoslovcev*, Idrija, 1999.

BENOIT, P., "Minés et Metallurgie", *Les chemins de la Recherche*, Directeur de la Publication Alain Bideau, Oullin, France,1994.

BERCE, Boris, *Geologija živosrebrovega rudišča Idrija*, Geologija 4, Ljubljana 1958.

BEVK, Samo, (ur.), KAVČIČ, Janez (ur.), LESKOVEC, Ivana (ur.), *Idrijska obzorja: pet stoletij rudnika in mesta*, Idrija 1993.

BEZEG, Karel, *Prvi rudokopi v Idriji,* Idrijski razgledi, Idrija 1957.

BIZJAK, Mateja (ur.), GNEZDA, Mirjam (ur.), LESKOVEC, Ivana (ur.), TERPIN, Marija (ur.). *Idrijska čipka in njeno mesto med evropskimi čipkami*, Idrija, 2006.

BIZJAK, Rafael, *Urbanistični razvoj skozi stoletja, Idrijska obzorja: pet stoletij* rudnika in mesta, Idrija 1993.

BLANCO, Mónica and Ma. Eugenia Romero Sotelo, *Historia económica de México: La colonia*, UNAM - Editorial Océano, México D. F., 2004.

BLANK, Heinrich, *Der Villacher Burger Wilhelm Neumann als Kaufmann und Gewerke in Idria*, Villach 1941.

BOFFETTA, P., GARCIA-GOMEZ, M., POMPE-KIRN, V., MERLER, E., ZARIZDE, D., BELLANDER, T., BULBULYAN, M., CABALLERO, J. D., CECCARELLI, F., COLIN, D., DIZDAREVIČ, T., ESPAÑOL, S., KOBAL, A., PETROVA, N., SÄLLSTEN, G., MERLER, E., *Cancer occurrence among European mercury miners. Cancer Causes Control*, Lyon, 1998.

BOŽIČ, Lado, *Idrijsko čipkarstvo*,Idrijski razgledi, Idrija 1956

_____, *Naš idrijski kot: ob petintridesetletnici ustanovitve in desetletnici ukinitve prve slovenske realke*, Ljubljana 1936.

BRADING D.A., *Mineros y comerciantes en el México Borbónico (1763-1810)*, Fondo de Cultura Económica, México, 1975.

BRATE, Tadej, Idrijske klavže, Maribor, 1985.

BROWN, E. M. D..,*A Brief Account of some Travels in Hungaria, Serbia, Bulgaria, Macedonia, Thessaly, Austria, Styria, Carinthia, Carniola, and Friuli. As also some Observations on the Gold, Silver, Copper, Quick-silver Mines, Baths, and Mineral Waters in those parts: With the Figures of some Habits and Remarkable places*, London 1673.

CANTOS DE ANDRADA, R., Núñez Vela, G., Contreras, G., Caballero, F. "Relación de la villa rica de Oropesa y minas de Huancavelica" (1586), in JIMÉNEZ DE LA ESPADA, M. *Relaciones Geográficas de Indias. Perú*. V. I. Madrid, Atlas, 1965.

CAÑIZARES RUIZ, María Del Carmen, "Patrimonio minero-industrial en Castilla-La Mancha: el área Almadén-Puertollano", *Investigaciones Geográficas*, nº 31 (2003), Instituto Universitario de Geografía, Universidad de Alicante, pp. 87-106, Alicante, 2003.

CARRASCO MILARA, Javier, "Las minas de Almadén y la recuperación del patrimonio minero. El Parque Minero de las minas de Almadén", in *International Congress: Mining and Industrial Heritage: its impact on major Cultural Routes of universal value. The mine of Almadén and other mining sites linked to the Intercontinental Spanish Royal Road through the mercury route*, ICOMOS-Spain, Madrid – Almadén, November 12th. – 18th, 2006.

CARRILLO, A, "Tratado curioso. Descripción breve de las antiguas minas de España". in *Arte de los metales, de Álvaro Alonso Barba*, Unión Explosivos Riotinto, Riotinto, Huelva 1977.

CASAVILCA PACO, Paúl: "Huancavelica in Mining History", in *International Congress: Mining and Industrial Heritage: its impact on major Cultural Routes of universal value. The mine of Almadén and other mining sites linked to the Intercontinental Spanish Royal Road through the mercury route*, ICOMOS-Spain, Madrid – Almadén, November 12th. – 18th, 2006.

CASTILLO MARTOS, Manuel, *Minería y metalurgia. Intercambio tecnológico y cultural entre América y Europa durante el periodo colonial español*, Muñoz Moya y Montraveta edit., Seville-Bogotá,1994.

CASTILLO MARTOS, Manuel, "Ingenios y sistema de lagunas en Potosí, Bolivia, para el beneficio de plata por amalgamación", in *Actas de la primera sesión científica sobre patrimonio minero metalúrgico, Almadén*, Colección Ciencia y Tecnología, Ediciones de la Universidad de Castilla-La Mancha, Almadén, 1991.

_____, "Alberto Magno: precursor de la ciencia renacentista", in *La ciencia de los filósofos*, "Themata" nº 17,1996.

_____, "Use of Mercury (Quicksilver) from Almadén in the Amalgamation of Precious Metals". in, *International Congress: Mining and Industrial Heritage: its impact on major Cultural Routes of universal value. The mine of Almadén and other mining sites linked to the Intercontinental Spanish Royal Road through the mercury route*, ICOMOS-Spain, Madrid – Almadén, November 12th. – 18th, 2006.

_____, *al-Maden, MEANS The Mine*, notes, 2006.

CASTILLO MARTOS & M. Lang, M., *Metales preciosos: Unión de dos mundos. Tecnología, comercio y política de la minería y metalurgia Iberoamericana*, Muñoz Moya y Montraveta edit., Seville,1995.

CAVO, A., *Los tres siglos de México durante el gobierno español hasta la entrada del Ejército Trigarante*, J.R. Navarro, México, 1852.

CERRILLO CHOWELL, José, "La minería en San Luis Potosí y su relación histórica con Almadén", in *International Congress: Mining and Industrial Heritage: its impact on major Cultural Routes of universal value. The mine of Almadén and other mining sites linked to the Intercontinental Spanish Royal Road through the mercury route*, ICOMOS-Spain, Madrid – Almadén, November 12th. – 18th, 2006.

CHAUNU, P.: Sevillé et l Átlantiqué.- Paris,1955-56.

CHIC GARCÍA, G., "Estrabón y la práctica de la amalgama en el marco de la minería sudhispánica: Un texto mal interpretado", in *La Bética en su problemática histórica*, González Román, C., editor, Granada, 1991.

CIEZA DE LEÓN, P. (1.553), *La crónica del Perú. Crónicas de América*, nº 4, M. Ballesteros edit., Ed. Historia 16 Madrid, 1984.

CIGALE, Marko, s sod., *Dolgoročni program postopnega, popolnega in trajnega zapiranja rudnika živega srebra Idrija, Rudnik živega srebra Idrija*, 1988.

CIGALE, Marko, *Elaborat ocene škode kot posledica rudarjenja RŽS Idrija*, Idrija 1999.

CIGALE, Marko, BAJŽELJ, Uroš, JANEŽ, Jože, LIKAR, Jakob, *Raziskave premikanja površine nad jamskimi prostori RŽS Idrija v času dokončnega zapiranja rudnika*, Idrija1994.

CIGALE, Marko, LIKAR, Jakob, ČADEŽ, Jurij, HORVAT, Milena, KOTNIK, Jože, JANEŽ, Jože, DIZDAREVIČ, Tatjana, REŽUN, Bojan, *Projekt opazovanja (monitoring) vplivnega območja Rudnika živega srebra Idrija po končanih zapiralnih delih. V: 2. slovenski geološki kongres*, Idrija, 2006.

CIPOLLA, C. M., *La odisea de la plata española. Conquistadores, piratas y mercaderes*, Barcelona, Crítica, 1999.

COBB, G., *Potosí y Huancavelica. Bases económicas del Perú, 1545-1640*, Academia Boliviana de la Historia, La Paz, 1977.

CONTRERAS, C. *La ciudad del Mercurio. Huancavelica 1570-170*, Instituto de Estudios Peruanos, Lima, 1982

_____. "Mineros y habilitadores en Hualgayoc en las décadas finales del régimen colonial", in DOLORES ÁVILA, INÉS HERRERA, RINA ORTIZ, comp., *Minería Colonial Latinoamericana, I Reunión de Historiadores de la Minería Latinoamericana*, Instituto Nacional de Antropología e Historia, México,1992.

COVISA CASTRO, María Isabel, MANSILLA ESCUDERO, Jerónimo, *La cultura de la Minería del Azogue*, Almadén.

CRAMAUSSELL, Chantal, "Viajar por los caminos del norte de la Nueva España", in Libro de Actas del *III Congreso Internacional de Caminería Hispánica*, Morelia (México), July1996, AACHE, Guadalajara (México),1997.

CRESPO-LÓPEZ, M.E., Herculano, A.M.; Corvelo, T.C.; Do Nascimento: "Mercurio y neurotoxicidad", *Revista de Neurología*, 40 (7), 2005.- pp. 441-447.

CUNILL GRAU, Pedro, "Potosí: Ciudad minera y valorización ambiental Altiplánica", URBANA v.7 n.31, Caracas, July 2002.

CUTIPÉ CÁRDENAS, Rocío and José María García De Miguel: "Rutas de la minería histórica española", in Octavio Puche and Mariano Ayarzagüena, edit., *Minería y metalurgia históricas en el sudoeste europeo*, p. 727, Sociedad Española para la Defensa del Patrimonio Geológico y Minero, Madrid:2005.

CUTIPÉ, Rocío, INTERNATIONAL COMMITTEE ON CULTURAL ROUTES (CIIC), ICOMOS, Inventory Record for Historic Mining Sites: Huancavelica, ICOMOS CIIC, Madrid, 2005.

CUTIPÉ-CÁRDENAS, Rocío, "The historic route of the mining of mercury in Spanish America" in *Symposium on Monuments and sites in their setting-conserving cultural heritage in changing townscapes and landscapes*, ICOMOS, Xian, China, 2005.

ČADEŽ, Franc, *Najmlajše diskordantne sedimentne kamnine na karbonskih plasteh v Idriji - The youngest sedimentary rocks unconformable with Carboniferous beds at Idrija*, Geologija 23/2, Ljubljana 1980.

ČAR, Jože, *Olistostrome v idrijskem srednjetriasnem tektonskem jarku - Olistostromes in the Idrija Middle Triassic Trough-Fault*, Geologija 18, Ljubljana 1975.

_____, *Svetovna kriza živega srebra*, Idrija 1976.

_____, *Mineralno bogastvo idrijske občine*, Idrija 1980.

_____, *Razvoj srednjetriasnih sedimentov v idrijskem tektonskem jarku, Doktorska disertacija*, Ljubljana 1985.

_____, *Razvoj srednjetriasnih sedimentov v Idrijskem tektonskem jarku*, Ljubljana 1985.

_____, *Rudarsko-geološki razlogi za zapiranje idrijskega rudnika*, Idrija 1987.

_____,, *Ali je cerkev sv. Trojice zgrajena na "živosrebrnem studencu"*, Idrija 1988.

_____, *Ali so rudarsko-geološke raziskave v idrijskem rudišču še potrebne?*, Idrija 1989.

_____, *Prispevek idrijskega rudnika in Idrije k slovenski tehniški in prirodoslovni zgodovini,* Zbornik za zgodovino naravoslovja in tehnike 1989.

_____, *Znameniti Idrijčani in preučevalci Idrijskega rudnika*, 1990.

_____, *Iz tehniške zgodovine idrijskega rudnika*,1990.

ČAR, Jože, PELJHAN, Martina, *Idrijske geološke zbirke* , Idrija 1999.

ČAR, Jože, REŽUN, Bojan, *Prvi geološki opis idrijskega rudišča (Ferber, 1774)*, Idrija 2002.

ČAR, J., Dizdarevič, T.: *Written reports on the effects of mining activities on the natural enviroment in Idrija up tuo the 18th century*. 6th International Symposium Cultural Heritage in Geosciencies, Mining and Metalurgy, Idrija 2003.

ČÁSTEK,F., *Die Bestimmung und Verminderung der Verluste beim Quecksilberhüttenwesen. Berg- und Hüttenmännisches Jahrbuch dr. k.k. montan*, Wien 1910.

ČEŠMIGA, I.: *Rudarstvo LR Slovenije*.- Nova proizvodnja, Ljubljana, 1959.

COVISA CASTRO, María Isabel, MANSILLA ESCUDERO, Jerónimo, *La cultura de la Minería del Azogue*, Almadén.

DARGENT CHAMOT, Eduardo, *Las Casas de Moneda Españolas en América del Sur,* Lima/Madrid, 2005.

Desde el Corazón, Libro de lectura elaborado por los alumnos del Centro de Educación Permanente de Adultos de Almadén.

DIZDAREVIČ, Tatjana, GROŠELJ, Aleksander, KLEMENČIČ, Tomaž, PIŠLJRA; Martina, Ureditev Antonijevega rova – najstarejšega dela Rudnika živega srebra Idrija za obiskovalce, Idrija 1998.

DIZDAREVIČ, Tatjana, REŽUN, Bojan, *Environmental problems related to the closing down of the Idrija Mercury Mine*, Johannesburg 1998.

DIZDAREVIČ, Tatjana, LIKAR, Jakob, HORVAT, Milena, KOTNIK, Jože, JANEŽ, Jože, CIGALE, Marko, REŽUN, Bojan, ČADEŽ, Janez, *Monitoring the consequences of shutdown of the Idrija mercury mine*, Madison-Wisconsin 2006.

DIZDAREVIČ, Tatjana, *The influence of mercury production in Idrija mine on the environment in the Idrija region and over a broad area*, Ljubljana 2001.

_____, *Razvoj zdravstvenega varstva rudarjev in topilničarjev v Rudniku živega srebra Idrija: gradivo za pripravo nominacije*, Idrija 2007.

DIZDAREVIČ, Tatjana, ČAR, Jože, *Historical description of the consequences of mercury excavation and extraction on the natural environment in Idrija from the 16th to the first half of the 20th century*, Idrija 2009.

DIZDAREVIČ, Tatjana, KOTNIK, Jože, HORVAT, Milena, KOCMAN, David, *A decade of experience after stopping mercury production in the Idrija mercury mine: environmental issues*. Guiyang, 2009.

DIZDAREVIČ, Tatjana, REŽUN, Bojan, PELJHAN, Martina, SEVER, Bojan, HORVAT, Milena, *Development of technical/natural sciences and cultural heritage in the municipality of Idrija (Slovenia) after closure of the mercury mine, Guiyang*, 2009.

DOBADO, Rafael, *El trabajo en las Minas de Almadén*, 1750-1855, Doctoral thesis read at the Complutense University in Madrid, 1989.

_____, "El azogue de Almadén y la plata novohispana, 1714-1805", in GÓMEZ MENDOZA, A. (co-ordinator), *Economía y sociedad en la España moderna y contemporánea,* pp. 151-165, Síntesis, Madrid, 1996.

_____. "La minería estatal española, 1748-1873" in: Francisco Comín; Pablo Martín Aceña (dirs.), *Historia de la empresa pública en España*, Madrid, Espasa Calpe [Biblioteca de Economía, Serie Estudios], 1991, pp. 89-138.

_____, "Las Minas de Almadén, el monopolio del azogue y la producción de plata en Nueva España en el siglo XVIII", in SÁNCHEZ, MIRA and DOBADO, *La savia del Imperio. Tres estudios de economía colonial*, pp. 401-495, Ediciones Universidad de Salamanca, Salamanca, 1997.

_____. "El monopolio estatal del mercurio en Nueva España durante el siglo XVIII", *Hispanic American Historical Review*, 82, 4, 2002.

_____, *Almadén and New Spain: Spanish Mercury and Silver from New Spain in the 18th and Early 19th Centuries*, Madrid, 2007, Not printed.

DOBADO, R. and MARRERO, G., "Minería, crecimiento económico y costes de la Independencia en México", *Revista de Historia Económica*, XIX, 3, pp. 573-611, 2001.

_____,"The "Mining-Led Growth" in Bourbon Mexico, the Role of the State and the Economic Cost of Independence", Global Economic History Network, Istanbul Workshop, http://www.tcd.ie/Economics/, 2005.

DROVENIK, Matija, DOLENC, Tadej, REŽUN, Bojan, PEZDIČ, Jože, *O živosrebrovi rudi iz rudnega telesa Grübler v Idriji*, Idrija 1990.

ELHUYAR, Fausto de, *Memoria sobre el influjo de la Minería*, Imprenta de Amarita, Madrid, 1825.

ERŽEN, Uroš, PELHAN, Martina, *Anthony´s main road; the first Slovene turist mine*, Patrimoine de l´índustrie, Paris 2004.

ERŽEN, Uroš, Through the history of smelting activities into the technological future, Patrimoine de l´industrie, Paris 2004.

ERŽEN, Uroš, REŽUN, Bojan, *Idrija´s geological collections: the preservation of natural heritage*, Patrimoine de l´industrie, Paris 2004.

ERŽEN, Uroš, *Območja žgalnic in postopki pridobivanja živega srebra v Idriji*: gradivo za pripravo nominacije, Idrija, 2007.

ESCOBARI, L, *Producción y comercio en el espacio sur andino en el siglo XVII. Cuzco-Potosí 1650-1700*, Embajada de España en Bolivia, La Paz: 1985.

ESCOSURA, L., *Historia del tratamiento metalúrgico del azogue en España*, Imprenta Tello, Madrid, 1878.

ESTEBAN BORRAJO, Germán, *Memoria de la Carta Arqueológica, Paleontológica, Etnográfica e Industrial del término municipal de Almadén (Introducción y Etapa Moderna)* Castilla-La Mancha Regional Government, Almadén, 2006.

EWALD, Ursula, *The Mexican Salt Industry, 1560 - 1980. A study in change*, Gustav Fischer Verlag, Stuttgart - New York, 1985.

FÉRAUD Jean, "Los mapas históricos y el desarrollo de la mina Santa Bárbara. Huancavelica", in I*nternational Congress: Mining and Industrial Heritage: its impact on major Cultural Routes of universal value. The mine of Almadén and other mining sites linked to the Intercontinental Spanish Royal Road through the mercury route*, ICOMOS-Spain, Madrid – Almadén, November 12th. – 18th, 2006.

FERBER, Johann Jacob, *Beschreibung des Quecksilber-Bergwerks zu Idria in Mittel-Kräyn*, Berlin 1774.

FERNÁNDEZ DE OVIEDO, G. (1.526) *Sumario de la natural historia de las Indias*, Bibl. Americana. Fondo de Cultura económica (edición de J. Miranda). México, D.F.,1996.

FILIPIČ, Janez, (ur.) *Idrija in njeni spomeniki sakralne umetnosti*, Idrija 1979.

FERBER, Johann Jacob, *Beschreibung des Quecksilber-Bergwerks zu Idria in Mittel-Kräyn*, Berlin 1774.

FLORESCANO, E. (co-ordinator), MORENO, A., CISNEROS, A., AGUIRRE, C. and TERÁN, Y., *Atlas histórico de México*, Siglo XXI, México D.F.,1988.

FRYE, David, *Indians into mexicans. History and Identity in a Mexican Town*, University of Texas Press, Austin, 1996. 250.

FUENTES CHACÓN, Emilio, MANSILLA PLAZA, Luis et. alt., *La Casa Academia de Minas*, Escuela Universitaria Politécnica de Almadén, Imprenta Ciudad Real, Ciudad Real, 2003.

FUENTES, M.D., "El azogue en las postrimerías del Perú colonial", *Revista de Indias,* nº 177, pp. 75-90,1986.

GALLEGO – PRECIADOS Algora, Ana Isabel, J*uegos tradicionales de la comarca de Almadén*, Biblioteca de Autores Manchegos, Diputación de Ciudad Real, Ciudad Real, 2005.

GARCÍA DE MIGUEL, José María, "Itinerarios culturales relacionados con el patrimonio histórico minero", in *El Patrimonio Intangible y otros aspectos de los Itinerarios Culturales*, CIIC, ICOMOS, Pamplona, 2002.

_____, "Patrimonio histórico minero: Almadén", in, *Congress: Legal protection for archaeological heritage. Mining Route*, Ministry of Culture, Madrid, Sept. 2004.

_____, "Poblaciones Históricas Mineras. Almadén". *Subcomité Regional de Ciudades y Poblaciones Históricas para el Área Hispanoamericana (CIHIB) de ICOMOS,* Reunión científica, Madrid, septiembre 2004.

_____, *La Ruta del Mercurio en el Camino Real Intercontinental. Propuesta de estrategia y acciones para la declaración como Patrimonio Mundial de Almadén, dada su importancia en el itinerario cultural del "Camino Real Intercontinental", a través de la explotación del mercurio*, Cátedra UNESCO – ICOMOS Spain, Madrid, June 2006.

_____, "Mining and its Significance in the Framework of the Great Cultural Routes, with a special reference to the Spanish Royal Road (El Camino Real)", Actas de la XV Asamblea General de ICOMOS, Xi'An, 2005.

GARCIA FUENTES, L., *El comercio español con América 1650-1700*, Universidad de Sevilla, Seville, 1980.

GARFÍAS DE LOS SANTOS, Marco Antonio: "La minería Histórica en la ciudad y el Estado de San Luis Potosí", in *International Congress: Mining and Industrial Heritage: its impact on major Cultural Routes of universal value. The mine of Almadén and other mining sites linked to the Intercontinental Spanish Royal Road through the mercury route*, ICOMOS-Spain, Madrid – Almadén, November 12th. – 18th, 2006.

GARRITZ, Amaya, *Guía del archivo Juan Barragán*, Universidad Nacional Autónoma de México, Instituto de Investigaciones Históricas, México, 1986.

GASTELUMENDI, A.G., *Huancavelica como región productora de mercurio*, Congreso Nacional de la Industria Minera, Lima, 1917.

GAVIRA, M. C., *La intervención de la administración colonial en la minería: abastecimiento de azogue y rescate de plata en el mineral de Oruro, 1776-1810*, IX Congreso Internacional de Historia de América, V I, Junta de Extremadura, Mérida (Spain), 2002.

GENERAL ARCHIVE OF THE INDIES (AGI in its Spanish acronym), Mexico, Bundle 2,198.

_____ , 209 nº29.

GLESINGER, L., *Opis trovanja živom kod rudara u Idriji u 16.stoljeću*, 1950.

GNAMUŠ, Aleš, *Živo srebro v kopenski prehranski verigi : indikatorski organizmi, privzem in kopičenje*, Ljubljana 2002.

GNEZDA, Mirjam, *O zgodovini idrijske čipke*, Idrijska čipka in njeno mesto med evropskimi čipkami, Idrija 2006.

_____, *Arhitekturna podoba in bivanjska kultura Idrije:* gradivo za pripravo nominacije, Idrija 2007.

GÓMEZ DE CERVANTES, G: *La vida económica y social de Nueva España al finalizar el siglo XVI*, Biblioteca histórica mexicana de obras inéditas, Antigua Librería Robredo, de José Porrás e Hijos, México D.F.,1944.

GOMEZ-TABANERA, José Manuel, "Trajineros y Camineros novohispanos y sus recursos", in Libro de Actas del *III Congreso Internacional de Caminería Hispánica*, Morelia (México), July1996, p.p. 301 – 314, AACHE, Guadalajara (México)1997.

GONZÁLEZ JURADO, Alfonso, Alfonso GONZÁLEZ Pavón, *La micología en la comarca de Almadén*.

GONZÁLEZ MILEA, Alejandro: "Ideales del espacio productivo mexicano: Ejemplos de construcciones mineras y metalúrgicas en los siglos XVIII y XIX" in *International Congress Mining and Industrial Heritage: its impact on major Cultural Routes of universal value. The mine of Almadén and other mining sites linked to the Intercontinental Spanish Royal Road through the mercury route*, ICOMOS-Spain, Madrid – Almadén, November 12th. – 18th, 2006.

GONZÁLEZ TASCÓN, Ignacio, Dolores Romero Muñoz, Amaya Sáenz Sanz, "Los caminos del mercurio de Almadén a Nueva España", in *Actas del II Congreso Internacional de Caminería Hispánica*, V. III, pp. 683-692, Centro de Estudios Históricos de Obras Públicas y Urbanismo, Guadalajara (Spain), 1996.

_____. "El camino de los virreyes", in *Actas del II Congreso Internacional de Caminería Hispánica*, V. IV., Centro de Estudios Históricos de Obras Públicas y Urbanismo, Guadalajara (Spain), 1996.

GOODMAN, D. C., *Poder y penuria. Gobierno, tecnología y sociedad en la España de Felipe II*, Madrid, Alianza Universidad, 1990.

GOSAR, Mateja, *Mechanism of mercury dispersion in the Idrija mercury mine surroundings through history,* Ljubljana 2004.

GOSAR, Mateja, ČAR, Jože, *Vpliv žgalnic živosrebrove rude iz 16. in 17. stoletja na razširjenost živega srebra v okolici Idrije*, Ljubljana 2006.

GOSAR, Mateja, *Mercury in river sediments, floodplains and plants growing thereon in drainage area of Idrija mine, Slovenia*. Pol. J. Environ. Stud. 2008.

GOSAR, Mateja, ŠAJN, Robert, TERŠIČ, Tamara, *A review of environmental geochemistry investigations in Idrija area at Geological Survey of Slovenia*, Idrija 2009.

Grönlund, R., Edner, H., Svanberg, S., Kotnik, J., Horvat, M., *Lidar measurements of mercury emissions from the Idrija mercury mine*, Ljubljana 2004.

GOZALBES BUSTO, Guillermo, "Algunas noticias sobre la caminería hispánica en los siglos XVI y XVII", in *Libro de Actas del I Congreso Internacional de Caminería Hispánica*, V. IV, Madrid/Guadalajara (Spain), July 1994, AACHE, Guadalajara (Spain), 1996.

GUTIÉRREZ CANTÚ, Luis Pedro and Moisés Gámez, "De espacio guachichil a centro minero. San Luis Potosí en la época virreinal" in *International Con-*

gress: Mining and Industrial Heritage: its impact on major Cultural Routes of universal value. The mine of Almadén and other mining sites linked to the Intercontinental Spanish Royal Road through the mercury route, ICOMOS-Spain, Madrid – Almadén, November 12th. – 18th, 2006.

HACQUET, Balthasar, Index fossilium Idriensium. Beschäftigungen der berliner Gesellschaft naturforschender Freunde, 1771.

HACQUET, Balthasar, *Verzeichniss der hauptsächlichsten Arten und Abarten der Quecksilber- und Zinnobererze aus der Grube von Hydria oder Idria im Herzogthum,* Krein 1777.

HACQUET, Balthasar, *Beobachtungen und Heilungsmethoden einzelner Hornviehkrankheiten, welche durch Gifte aus den drei Reichen der Natur verursacht werden,* Leibach 1779.

HACQUET, Baltazar, *Oryctographia Carniolica oder Physikalische Erdbeschreibung des Herzogthums Krain, Istrien, und zum Teil der benachbarten Länder*, Leipzig 1781.

HAMILTON, Earl J, *El tesoro americano y la revolución de los precios en España, 1501-1650*, Ariel, Barcelona,1975.

HAMMERSCHMIED, J., *Die sanitären Verhältnisse und Berufskrankheiten der Arbeiter bei den k.k. oesterreichischen Berg-Hütte-und Salinenwerken und Forsten*, Wien 1873.

HARING, C.H., *Los bucaneros en las Indias Occidentales en el siglo XVII,* Cámara de Comercio de Caracas, Caracas, 1925.

HEMMING, John.,*The Conquest of the Incas*, Harcourt Brace and Co., San Diego,1970.

HEREDIA HERRERA, A., *La renta del azogue en Nueva España: 1709-1751*, Publicaciones de la Escuela de Estudios Hispano – Americanos de Sevilla, Seville,1978.

HERLEC, Uroš, UČAKAR, Matjaž, *Izobraževalni CD rom "Cinabarit" o živosrebrovem rudišču Idrija*, Idrija 2006.

HERMANN, B.Franz, *Reisen durch Oesterreich, Styermark, Kärnten, Krein, Italien, Tyrol, Salzburg und Baiern im Jahre 1780, In Briefen an der Herrn Hofrath v. S. Und M.*, Vienna, 1784.

HERNÁNDEZ SOBRINO, Ángel y Javier Fernández Aparicio, *La bomba de fuego en Almadén*, Fundación Almadén Francisco Javier de Villegas, Lozano Artes Gráficas, Almadén, 2005.

HERNÁNDEZ SOBRINO, Ángel, "Presentación del parque minero de Almadén", in Octavio PUCHE and Mariano Ayarzagüena, edit., *Minería y metalurgia históricas en el sudoeste europeo,* p. 589, Sociedad Española para la Defensa del Patrimonio Geológico y Minero, Madrid, 2005.

_____, *Oficios mineros de Almadén. Siglo XIII - XIX*, Almadén, s/f.

_____, *Arriba y abajo (o la evolución del transporte en la vertical a lo largo de la historia minera de Almadén)*, Almadén, s/f.

_____, *Estructura y génesis de los yacimientos de mercurio de la zona de Almadén*, MAYASA.

_____, *Los mineros del azogue*, Fundación Francisco Javier de Villegas, Almadén, 2007.

HERRERA CANALES, Inés María, "Mining in Mexico and Spanish America: a comparative analysis.", in: *International Congress: Mining and Industrial Heritage: its impact on major Cultural Routes of universal value. The mine of Almadén and other mining sites linked to the Intercontinental Spanish Royal Road through the mercury route*, ICOMOS-Spain, Madrid – Almadén, November 12th. – 18th, 2006.

HEVIA, Patricia and Germán Esteban, "De la prehistoria a la antigüedad en la comarca de Almadén," in: *International Congress: Mining and Industrial Heritage: its impact on major Cultural Routes of universal value. The mine of Almadén and other mining sites linked to the Intercontinental Spanish Royal Road through the mercury route*, ICOMOS-Spain, Madrid – Almadén, November 12th. – 18th, 2006.

HIDALGO MADROÑERO, José, "Almadén como factor primordial del desarrollo y expansión de España en el Nuevo Mundo y Europa", in *Almadén. Apuntes históricos de la vida de un pueblo*, Universidad Popular, Grupo de Estudios de Almadén y comarca, Diputación Provincial de Ciudad Real, 1997.

HIGUERAS et. alt., *Mercurio en el medio ambiente del Distrito de Almadén. Un fenómeno dinámico*, www.uclm.es/users/higueras.

HIGUERAS HIGUERAS, Pablo L., José Mª Esbrí, Roberto Oyarzun: "Los usos del mercurio y el medio ambiente", in *International Congress: Mining and Industrial Heritage: its impact on major Cultural Routes of universal value. The mine of Almadén and other mining sites linked to the Intercontinental Spanish Royal Road through the mercury route*, ICOMOS-Spain, Madrid – Almadén, November 12th. – 18th, 2006.

_____, *Procesos petrogenéticos y de alteración de las rocas magmáticas asociadas a las mineralizacioens de mercurio del distrito de Almadén,* Universidad de Castilla La Mancha.

HINES, M. E., HORVAT, M., FAGANELI, J., 2000 *Mercury biogeochemistry in the Idrija river, Slovenia from above the mine into the Gulf Trieste*. Environ. res. (N.Y.), 2000.

HINES, M. E., FAGANELI, J., ADATTO, I., HORVAT, M., *Microbial mercury transformations in marine, estuarine and freshwater sediment downstream of the Idrija Mercury Mine,* Slovenija. Appl. geochem. 2006.

HITZINGER, Peter, *Das Quecksilber-Bergwerk Idria, von seinem Beginne bis zur Gegenwart*, Ljubljana 1860.

HOCQUENGHEM, A.M., *Los españoles en los caminos del extremo norte del Perú en 1532,* Bulletin Institut Francais d'Etudes Andines. Vol. 23, nº 1. Lima, 1994.

HODNIK, Mira, *Trade Routes of the Idrija Mercury Mine. Idrija Mercury Makes Itself Known*, Idrija (Slovenia): Historical Archives Ljubljana, Unit in Idrija, 2007.

HORVAT, M., COVELLI, S., FAGANELI, J., LOGAR, M., FAJON, V., RAJAR, R., ŠIRCA, A., ŽAGAR, D., *Mercury in contaminated coastal environments; a case study: the Gulf of Trieste*. Sci. total environ., 1999.

HORVAT, M., JEREB, V., FAJON, V., LOGAR, M., KOTNIK, J., FAGANELI, J., HINES, M.E., BONZONGO, J-C., *Mercury distribution in water, sediment and soil in the Idrijca and Soča river systems. Geochem., explor. environ. anal. 2002.*

HORVAT, M., TOMAN, M. J, STERGARŠEK, J., KOTNIK, J., FAJON, V., GIBIČAR, D., *Mercury and selenium in fish species in the Idrijca river polluted due to past mercury mining*, Ljubljana 2004.

HORVAT, M., KONTIĆ, B., KOTNIK, J., OGRINC, N., JEREB, V., LOGAR, M., FAGANELI, J., RAJAR, R., ŠIRCA, A., PETKOVŠEK, G., ŽAGAR, D., DIZDAREVIČ, T., *Remediation of mercury polluted sites due to mining activities. Crit. rev. anal. chem.*, 2003.

HORVAT, Milena (ur.), OGRINC, Nives (ur.), FAGANELI, Jadran (ur.), KOTNIK, Jože (ur.). *Mercury as a global pollutant*, RMZ - Materials and geoenvironment, Vol. 51, no. 1-3, Ljubljana 2004.

HORVAT, Milena, *Biomonitoring as an early warning system and cost-effective approach to assessing spatial and time trends of mercury pollution in Idrija*, Idrija 2009.

HRIBERNIK, Ivan., *Naša opazovanja o profesionalnem zastrupljenju z živim srebrom v Idriji (1946-1950)*, 1950.

HUGHES, Stephen, *The International Collieries Study,* ICOMOS-TICCIH, 2002.

HUMBOLDT, A. (1822), *Ensayo político sobre el reino de la Nueva España*, Editorial Porrúa, México D.F.,1991.

ICOMOS-ESPAÑA, *Almadén como componente significativo de la Ruta del Mercurio dentro del Itinerario Cultural Camino Real Intercontinental. Informe sobre su posible propuesta de nominación para su inclusión en la Lista del Patrimonio Mundial*. Madrid, 2006. (Not printed)

ICOMOS, INTERNATIONAL CULTURAL TOURISM CHARTER (*Managing Tourism at Places of Heritage Significance , 1999*), Adopted by ICOMOS at the 12th General Assembly in Mexico, October 1999, Manual of Congresses and Conventions, San Luis Potosí, Secretariat of Tourism, 2007.

ICOMOS. INTERNATIONAL SCIENTIFIC COMMITTEE ON CULTURAL ROUTES (CIIC) OF ICOMOS, *The Intangible Heritage and other aspects of Cultural Routes*, CIIC – ICOMOS-Spain, 2002.

_____, *Cultural Routes. Identification, Promotion, and Inventory: Fortifications, ports and cities as components of Cultural Routes. Cultural Routes of control and use of land, trade and pilgrimage*, CIIC – ICOMOS-Spain, 2005.

ICOMOS, *The World Heritage List. Filling the Gaps – an Action Plan for the Future,* Monuments and Sites XII, París, 2005.

_____, The ICOMOS Charter on Cultural Routes. (Proposed final draft).- Madrid, 2007.

IMHOF, Arthur E. "The hospital in the 18th Century: For Whom? The Charite Hospital in Berlin, the Navy Hospital in Copenhagen, the Kongsberg Hospital

in Norway". In: Branca, P. (ed.), T*he Medicine Show. Patients, Physicians and the Perplexities of the Health Revolution in Modern Society, New York*, Science History Publications, 1977, pp. 141-163.

IRAIZOZ, José María, "Métodos de Explotación de la Mina de Almadén", in *International Congress: Mining and Industrial Heritage: its impact on major Cultural Routes of universal value. The mine of Almadén and other mining sites linked to the Intercontinental Spanish Royal Road through the mercury route*, ICOMOS-Spain, Madrid – Almadén, November 12th. – 18th, 2006.

ITURRIAGA, José N., *Viajeros extranjeros en San Luis Potosí*, Editorial Ponciano Arriaga, San Luis Potosí, 2000.

IZAGUIRRE TORRES, Jesús Artemio, La viruela en la Nueva España. *El caso de San Luis Potosí, 1790 – 1810*, Tesis para obtener el grado de Maestría en Historia, El Colegio de San Luis, San Luis Potosí, A.C., 2000.

JAKLIČ, Fran, *Ob srebrnem studencu : zgodovinska povest*, Gorica 1927.

JEREB, Robert, *Idrijski modus vivendi*, Ljubljana 2003.

JEREB,Vesna, FALNOGA, Ingrid, MILAČIČ, Radmila, STIBILJ, Vekoslava, HORVAT, Milena, *Hg and Se, Cd, Pb, in fudstuffs and Soil Selected Individual Gardens Near Hg Mining Area*, Ljubljana, 2004.

KARSTEN, Charles Johann Bernhard, *Metallurgische Reise durch einem Theil von Baieren und durch die süddeutschen Provinzen Oesterreich,* Halle 1821.

KAVČIČ, Ivica, *O idrijskem cinobru in njegovi izdelavi*, Idrijski razgledi 43/1–2, Idrija 1998.
_____, *Živo srebro in cinober v alkimiji in proizvodnji RŽS v Idriji,* Ljubljana 2003.

_____,*Živo srebro. Zgodovina idrijskega žglanišťva*, Idrija 2008.

KAVČIČ, Ivica, ČAR, Jože , BAVDAŽ, Marija, PELHAN, Emil, *Strokovni opis pomembnih imen oziroma odkritij s področja naravoslovja:* gradivo za pripravo nominacije, Idrija 2007.

KAVČIČ, Janez, *Prva slovenska realka: Idrija 1901-1926*, Idrija 1987.

_____, *Šolske tradicije in prva slovenska realka v Idriji*, Celje 1990.

_____, *330 let idrijske rudarske godbe*, Idrija 1995.

_____, *Znamenje vekov: Cerkev svete Trojice v Idriji 1500-2000*, Idrija, 2000.

_____, *V znamenju Merkurja*, Ljubljana 2003.

KAVČIČ, Janez, MAGAJNE, Milojka, *Carmina historica*, Idrija 1999.

KEEL, Othmar. "The politics of health and the institutionalisation of clinical practices in Europe in the second half of the eighteenth century". In: Bynum, William; Porter, Roy (eds.), *William Hunter and the Eighteenth Century Medical World,* Cambridge, Cambridge University Press, 1985, pp. 207-256.

KHISL, Helfried, *Idrianisch Haubt Bergordnung de anno 1580*, Koper 1969.

KLADNIK, Bogdan, LESKOVEC, Ivana, PIŠLJAR, Martina (ur.), KLEMENČIČ, Tomaž (ur.). *Idrijski rudnik*, Ljubljana 1995.

KLAUER, Alfonso, "Descubrimiento y conquista: El virrey Toledo y el reparto del territorio", in: *Descubrimiento y Conquista/*.htm

KLEIN, H.: *Las finanzas americanas del imperio español*, Instituto de Investigaciones Dr. José María Luis Mora, México,1994.

_____ ,"The Great Shift: The Rise of Mexico and the decline of Peru in the Spanish American Colonial Empire, 1860-1809",*Revista de Historia Económica, XIII,* 1, 1995.

KLEINDIENST, Lidija. *Bam knapa vzela, bam zmeraj vesela: idrijske anekdote in smešnice*, Ljubljana 1995.

KOBAL, Alfred Bogomir, *Poklicna izpostavljenost elementarnemu živemu srebru in vsebnost živega srebra v krvi, eritrocitih, plazmi, izdihanemu zraku in urinu ter aktivnost katalaze v eritrocitih: biološki kazalci poklicne izpostavljenosti elementarnemu živemu srebru,* (Doktorska disertacija), Ljubljana1991.

KOBAL, Alfred Bogomir, NANUT, Emil, STEGNAR, Peter, Horvat, Milena, *Ocena vsebnosti živega srebra v zraku in pitni vodi v Idriji*, Ljubljana 1992.

KOBAL, Alfred Bogomir, *Vpliv rudnika živega srebra na okolje in prebivalce v Idriji,* Ljubljana 1995.

_____, *Socialni in zdravstveni problemi rudarjev RŽS leta 1977,* Idrija 1998.

_____, *Impact of the mercury mine on the health of miners and inhabitants of the town of Idrija*, RMZ-mater. geoenviron., Ljubljana 2001.

KOBAL, Alfred Bogomir, NANUT, Emil, HORVAT, Milena, STEGNAR, Peter, SABADIN, Argio, *Evaluation of internal doses of mercury at intermittent exposure to elemental mercury at the mine in Idrija, In: Mercury contaminated sites : characterization, risk assessment and remediation, (Environmental science),* Berlin 1999.

KOBAL, Alfred Bogomir, DIZDAREVIČ, Tatjana, *The health safety programme for workers exposed to elemental mercury at the Mercury mine Idrija. Water air soil pollut. 1997.*

KOBAL, Alfred Bogomir, HORVAT, Milena, PREZELJ, Marija, SEŠEK-BRIŠKI, Alenka, KRSNIK, Mladen, DIZDAREVIČ, Tatjana, MAZEJ, Darja, FALNOGA, Ingrid, STIBILJ, Vekoslava, ARNERIĆ, Niko, KOBAL GRUM, Darja, OSREDKAR, Joško, *The impact of long-term past exposure to elemental mercury on antioxidative capacity and lipid peroxidation in mercury miners*, 2004.

KOBAL, Alfred Bogomir, NANUT, Emil, HORVAT, Milena, STEGNAR, Peter, SABADIN, Argio, *Evaluation of internal doses of mercury at intermittent exposure to elemental mercury at the mine in Idrija, In: Mercury contaminated sites*

: characterization, risk assessment and remediation, (Environmental science), Berlin 1999.

KOBAL, Alfred Bogomir, *Influence of mercury mining on the inhabitants of Idrija: a medical overview of research activities after the second world war*, Idrija 2009.

_____, *Scopoli's Work in the Field of Mercurialism in Light of Today's Knowledge: Past and Present Perspectives*, Am Jour Ind Med, 2010.

KOCMAN, David, HORVAT, Milena, *Modeling of erosion and erosion processes for transport of mercury in the Idrijca river catchment*, Idrija 2006.

KOCMAN, David, *Mass balance of mercury in the Idrijca river catchment: doctoral dissertation,* Ljubljana 2008.

KOCMAN, David, HORVAT, Milena, Environmental modelling of mercury in wider Idrija region as a tool for sound remediation planning, Idrija 2009.

KORDIŠ, Franjo, *Idrijski gozdovi skozi stoletja,* Tolmin 1986.

KOSI, Miha, *Potujoči srednji vek. Cesta, popotnik in promet na Slovenskem med antiko in 16. stoletjem*, Ljubljana 1998.

KOSSMAT, Franz, *Geologie des Idrianer Quecksilberbergbaues*, Vienna 1911.

KOTNIK, Jože, HORVAT, Milena, DIZDAREVIČ, Tatjana, *Current and past mercury distribution in air over the Idrija Hg mine region, Slovenia*, Atmos. environ., 2005.

KOTNIK, Jože, HORVAT, Milena, *Natural vs. anthropogenic mercury sources in Idrija region,* Idrija 2009.

KOŽELJ, Albin., *Rudnik živega srebra Idrija in njegovi problemi*, Rudarsko-metalurški zbornik 1, Ljubljana 1958.

KROPÁČ, Josef, *Die Lagerstättenverhältnisse des Bergbaugebietes Idria. Berg und Hüttenmännischen Jahrbuch*, Vienna 1912.

KRIŽMAN, Milko, MIKLAVČIČ, Vesna, KONDA, D., STEGNAR, Peter, Radioactivity in Idrija and Population Radiation Exposure as the consequence of Mercury Mining, Ljubljana, 1993.

KUMAR, Aldo, *Na struni Merkurja* , Ljubljana 1990.

LANG, Mervy Francis, *El monopolio estatal del mercurio en el México colonial (1550-1710),* Fondo de Cultura Económica, México, 1977.

_____, *Metales preciosos: unión de dos mundos. Tecnología, comercio y política de la minería y la metalurgia Iberoamericana*, Muñoz Moya y Montraveta edit., Seville-Bogotá,1995.

LANGE, E.F.: "Alchemy and the sixteenth century metallurgist", *Ambix*, vol. XIII, Nº2, 1966.

LANGUE Frédérique, Carmen Salazar, *Diccionario de términos mineros para la América española (siglos XVI-XIX)*, Editions Recherche sur les Civilisations, Paris, 1993.

LAPAJNE, France, *Značilne idrijske jedi in pijača*, Celje 1989.

LASSAGA, J. L. DE and Velázquez, J. (1774:1979), *Representación que a nombre de la minería de esta Nueva España hacen al Rey nuestro señor*, Sociedad de Ex-alumnos de la Facultad de Ingeniería, México D.F.,1979.

LEÓN PORTILLA, Miguel, "Minería y metalurgia en el México antiguo" in *La minería en México*, Universidad Nacional Autónoma de México, México, 1978.

LERDO, M., *Comercio exterior de México desde la conquista hasta hoy*, Imprenta de Rafael Rafael, México,1853.

LESKOVEC, Ivana, *Življenje idrijskega rudarja, Idrijski rudnik skozi stoletja*, Idrija, Ljubljana 1990.

_____, *Life of the Idrija Miner*, Cultural Heritage in Geosciences, Mining and Metallurgy (6th International Symposium), Idrija 2002.

_____, (ur.). *Kolo časa: 50 let Mestnega muzeja Idrija*, Idrijski razgledi, l. 48/2 Idrija 2003.

_____, *Maintenance and presentation of the technical heritage of the Idrija Mercury Mine,* Patrimoine de l´índustrie, Paris 2004.

_____, *Presentation of Idrija through history*, Idrija 2009.

LESKOVEC, Ivana, PELJHAN, Martina, Idrija: The Story oft he Five Century-old Silver Stream, Idrija 2009.

LESKY,Erna., *Arbeitmedizin im 18. Jahrhundert. Werkarzt und Arbeiter im Quecksilberbergwerk Idria,* Vienna 1956.

LEVENTAL, Zdenko, Britanski putnici u našim krajevima od sredine XV do početka XIX veka, Gornji Milanovac 1989.

LIKAR, Jakob, CIGALE, Marko, REŽUN, Bojan, Dolgotrajni deformacijski procesi na širšem območju rudnika živega srebra Idrija v zapiranju, v: 2. slovenski geološki kongres, Idrija 2006.

LIPOLD, Marko Vincenc, *Erläuterungen zur geologischen Karte der Umgebung von Idria in Krain*, Vienna 1874.

LIZÁRRAGA, Fr. Reginaldo de, Descripción Colonial, "Biblioteca virtual Miguel de Cervantes", www.cervantesvirtual.com

LOHMANN VILLENA, G., *Las minas de Huancavelica en los siglos XVI y XVII*, Escuela de Estudios Hispano-americanos de Sevilla, Seville, 1949.

LOPE DE HARO, R., *Asistencia social médico - quirúrgica en el Hospital de Mineros de Almadén (1931-1932).*

LÓPEZ DE AZCONA, Juan Manuel, Ignacio González Casanovas, Esther Ruiz de Castañeda, "La minería hispana e iberoamericana: repertorio bibliográfico y biográfico".

LOPEZ DE AREBALO, F. "Lettre de …, médicin de l'hôpital royal des forçats, dans la ville d'Almaden, à M. Thiéry, docteur-régent de la faculté de médecine

de Paris (1-VI-1755)". In: Thiéry F. *Observations de Physique et de Médecine faites en différens lieux de l'Espagne*, Paris, Garnéry Lib, 1791, vol. 2, pp. 19-45.

LÓPEZ DE CARAVANTES, F. *Noticia general de las provincias del Perú y Tierra Firme y Chile*, Atlas, Madrid,1985.

LÓPEZ MORALES, Francisco Javier: "San Luis Potosí on the Mercury Route of the Intercontinental Camino Real", in: *International Congress: Mining and Industrial Heritage: its impact on major Cultural Routes of universal value. The mine of Almadén and other mining sites linked to the Intercontinental Spanish Royal Road through the mercury route*. ICOMOS-Spain, Madrid – Almadén, November 12th. – 18th. 2006.

LÓPEZ PIÑERO, J. Mª. "El testimonio de los médicos españoles del siglo XIX acerca de la sociedad de su tiempo. El proletariado industrial", in: López Piñero JM, García Ballester L, Faus Sevilla P. *Medicina y sociedad en la España del siglo XIX*, Madrid, Sociedad de Estudios y Publicaciones, 1964, pp. 109-208.

LÓPEZ VELARDE, Ramón, Obras. Ed. José Luis Martínez, Fondo de Cultura Económica, México,1986.

LOZANO LEYVA, Manuel, *El enviado del Rey*, EMECÉ, Madrid, 2000.

MAGANTO PAVÓN, E. *El Hospital Real de Laborantes de El Escorial (1563-1599)*, El Escorial, Ayuntamiento de El Escorial, 1992.

MAFFEI, E.; RUA, R. (1.871), *Apuntes para una biblioteca española de libros, folletos y artículos, impresos y manuscritos relativos al conocimiento y explotación de las riquezas minerales y a las ciencias auxiliares*, VI Congr. Internac. Minería, vol. II y III, León, 1970

MAJNIK, Stanko, *Prometne in poštne zveze v Idriji v preteklih stoletjih*, Idrijski razgledi Idrija 1969.

_____, *Slovarček idrijskih besed*, Idrija 1978.

MAKAROVIČ, *Marija, Klekljane čipke*, Ljubljana 1970.

MANSILLA PLAZA, *Luis, La Minería de Almadén, su influencia en la perspectiva de la minería hispanoamericana de finales del siglo XVIII* , Universidad de Castilla la Mancha, Gráficas Pozoblanco, Ciudad Real,1991.

_____, *Almadén en América a través de las rutas del mercurio,* Ediciones de la Universidad de Castilla la Mancha, Almadén, 1992.

_____, "El Patrimonio minero de Almadén camina hacia la declaración de patrimonio de la humanidad", Scientific Meeting of the SEDPGYM, Belmez, 1997.

_____, "El Patrimonio Minero Metalúrgico de Almadén (Ciudad Real)", Revista Minería y Siderurgia, nº 17, 1997.

_____, *Los hornos de aludeles o Bustamante 350 años desde su puesta en marcha en las Minas de Almadén*.- En: VII Congreso Internacional sobre Patrimonio Geológico y Minero, Puertollano (Ciudad-Real), 22-24 de septiembre, 2006.

_____*Puesta en valor del patrimonio minero metalúrgico de Almadén (Ciudad Real). (Valorisation of the mining-metallurgical heritage of Almadén (Ciudad Real),* Conference given at the Summer Course on Geological Heritage: Culture, tourism and the environment, University of Murcia, Moratalla (Murcia), September 2006.

_____, "Almadén en la ruta del mercurio del Camino Real Intercontinental" in *International Congress: Mining and Industrial Heritage: its impact on major Cultural Routes of universal value. The mine of Almadén and other mining sites linked to the Intercontinental Spanish Royal Road through the mercury route*. ICOMOS-Spain, Madrid – Almadén, November 12th. – 18th, 2006.

_____,*La Real Cárcel de Forzados de Almadén y su Centro de Interpretación*. (The Royal Enforced Labour Prison in Almadén and its Interpretation Centre). Communication presented to the International Conference: The Civil War in Castilla - La Mancha, 70 years later, Ciudad-Real, September 2007

MANSILLA, Luis, et alt. , Actas de la Primera Sesión Científica sobre Patrimonio Minero y Metalúrgico de la S.E.D.P.G.Y.M. celebradas en Almadén el día 21 y 22 de octubre de 1996, Publications Department of the Castilla-La Mancha Regional Government, 1997.

MARICHAL, C. and SOUTO, M., "Silver and Situados: New Spain and the Financing of the Spanish Empire in the Caribbean in the Eighteenth Century", *Hispanic American Historical Review*, 74, 4, 1994.

MARICHAL, C., "The Fiscal Logic of the Spanish Empire: New Spain and the Costs and Benefits of Colonialism, 1750-1810" in PIEPER Y SCHMIDT (Eds.) *Latin America and the Atlantic World. El mundo atlántico y América Latina (1500-1850) Essays in honor of Horst Pietschmann*, pp.367-385, Berlin – Vienna: Böhlau verlag Köln Weimar, 2005.

MARÍN RODRÍGUEZ, Desiderio, *Almadén y sus obreros*, Establecimiento Tipográfico de Enrique Pérez, Ciudad Real, 1906.

MARTÍN MARTÍN, Victoriano, *Los Rotschild y las Minas de Almadén,* Instituto de Estudios Fiscales, Ministerio de Hacienda, Madrid.

MARTINEZ CORZA, José Jaime: "Los caminos hacia los minerales de México".- *Libro de Actas del IV Congreso Internacional de Caminería Hispánica*.- Guadalajara (Spain) July 1998, V. I Caminería Física.- Guadalajara, AACHE, 1999

MARTÍNEZ CORZA, José Jaime and Cristina Pérez León: "La plata de la ciudad Pachuca, Hidalgo, México".- *Libro de Actas del IV Congreso Internacional de Caminería Hispánica*.- Guadalajara (Spain) July 1998, V. I Caminería Física.- Guadalajara, AACHE, 1999

MATILLA TASCÓN, Antonio, *Historia de las minas de Almadén*, Volumes I and II, Francisco Javier de Villegas Foundation, Almadén, 2005.

MAZI, Stanislav, *Klavže nad Idrijo*, Ljubljana 1955.

MEDINGER, Karl, *Physikalisch-chemische Abhandlung vom Quecksiber und Vitriol*, München 1786.

MEDVEŠČEK, Stanko, *Kratka zgodovina cerkve Sv. trojice v Idriji*, Idrija 1988.

MEDVEŠČEK, Stanko, *Zgodovina in opis idrijskih cerkva*, Celje 1989.

MENCEJ, M., s sod., *Možnosti za nadaljni razvoj Rudnika živega srebra Idrija*, Ljubljana 1987.

_____, *Novelacija dolgoročnega programa preprečevanja posledic rudarjenja v RŽS Idrija za leta od 1992 do 2006*, Ljubljana 1991.

MENÉNDEZ NAVARRO, Alfredo, "La botica del Real Hospital de Mineros en la estrategia asistencial del establecimiento de Almadén, siglos XVIII y XIX", in *Asclepio*, separata del Vol. XLIV, F. 1, pp. 223-242, Centro de Estudios Históricos, Consejo Superior de Investigaciones Científicas, Madrid, 1992.

_____, *"Catástrofe morboso de las minas mercuriales de la villa de Almadén del Azogue" (1778) de José Parés y Franqués*. Edición anotada. Ediciones de la Universidad de Castilla La Mancha, Cuenca, 1998.

_____, Un mundo sin sol. *La salud de los trabajadores de las minas de Almadén, 1750 - 1900*, Universidad de Granada, Universidad de Castilla La Mancha

_____, "La asistencia médica en la minería de Almadén", in *International Congress: Mining and Industrial Heritage: its impact on major Cultural Routes of universal value. The mine of Almadén and other mining sites linked to the Intercontinental Spanish Royal Road through the mercury route*. ICOMOS-Spain, Madrid – Almadén, November 12th. – 18th, 2006.

MESEGUER PARDO, José, "Bosquejo histórico del desenvolvimiento de la minería hispana y su enseñanza técnica", *Minería y Metalurgia*, nº154,Madrid, 1954.

MEYER, Jean, *La Cristiada*, 3 vols. Siglo Veintiuno, México,1993.

MIKLAVČIČ, Vesna, (ur.), *Idrija as a natural and anbropogenic laboratory*, Idrija 1996.

MINAS DE ALMADÉN Y ARRAYANES S.A., *Expediente de declaración como Bien de Interés Cultural del conjunto histórico-minero de Almadén*, Almadén, January, 2007.

MINISTERIO DE CULTURA DE PERÚ, http://www.mcultura.gob.pe

MIRA, Guillermo, *La provisión de azogue en el virreinato de La Plata*, Cuadernos Hispanoamericanos, Madrid, 1988.

_____, "La minería de Potosí, las elites locales y la crisis del sistema colonial", in MARGARITA MENEGUS coord., *Dos décadas de investigación en historia económica comparada en América Latina,* El Colegio de México, Centro de Estudios Históricos, México, 1999.

MIRAMBELL, Lorena (coord.) *Arqueología de San Luis Potosí*, Instituto Nacional de Antropología e Historia, México,1991.

MITTER, K., *Über das alte und das moderne Quecksilberverhüttungswesen in Idria,*Vienna 1894.

MLAKAR, Ivan, *Geološke razmere idrijskega rudišča in okolice*, Ljubljana 1959.

_____, *Primerjava spodnje in zgornje zgradbe idrijskega rudišča*, Ljubljana 1967.

_____, *Krovna zgradba idrijsko žirovskega ozemlja. Nappe Structure of the Idrija-Žiri Region*, Ljubljana 1969.

_____, *Osnovni parametri proizvodnje rudnika Idrija skozi stoletja do danes*, Idrija 1974.

MLAKAR, Ivan, *Mineraloške, petrografske in kemične značilnosti rude in prikamnine idrijskega rudišča I. faza. Mezozoik v Sloveniji*, Idrija 1975.

MLAKAR, Ivan, DROVENIK, Matija, *Structural and genetic particularities of the Idrija mercury ore deposit,Geologija* 14, Ljubljana, 1971.

MOHORIČ Ivan, *Rudnik živega srebra v Idriji: zgodovinski prikaz nastanka, razvoja in dela: 1490-1960*, Idrija,1960.

MOLINA MARTÍNEZ, M., "Técnica y laboreo en Huancavelica a mediados del siglo XVIII", IX Congreso Internacional de Historia de América (AHILA), Seville,1992.

_____, *Antonio de Ulloa en Huancavelica*, Universidad de Granada, Biblioteca Chronica Nova de Estudios Históricos, 35, Granada,1995.

MONROY CASTILLO, María Isabel, *Pueblos, Misiones y Presidios de la Intendencia de San Luis Potosí, 1819*, Archivo Histórico del Estado de San Luis Potosí, San Luis Potosí, 1991.

MONROY CASTILLO, María Isabel and Tomás Calvillo Unna, Breve Historia de San Luis Potosí, Fondo de Cultura Económica, El Colegio de México, México,1997.

_____, *Historia Regional de San Luis Potosí. Perfil Socioeconómico,* Secretaría de Educación Pública, Colegio Nacional de Educación Profesional Técnica, Limusa Noriega Editores, México, 2000.

_____, El real de minas de la Purísima Concepción de los Catorce, S.L.P, Academia de Historia Potosina, San Luis Potosí,1975.

_____, *La minería en San Luis Potosí,* Archivo Histórico del Estado, San Luis Potosí,1994.

MOTA DE LA Y ESCOBAR, Alonso, Descripción geográfica de los reinos de Nueva Galicia, Nueva Vizcaya y Nuevo León, Pedro Robredo, México, 1940.

MUCHA, Wolfgang, J.J.M., *Anleitung zur mineralogischen Kentniss des Qecksilberbergwerkes zu Idria,* Vienna, 1780.

MUÑOZ ESPEJO, Francisco, "Camino Real Intercontinental (Datos complementarios para la ficha de Identificación elaborada por María Isabel Navarro", in *Encuentro Científico Internacional sobre Itinerarios Culturales,* Ferrol, Spain, 2002, CIIC, Monuments and Sites X, 2003.

MUÑOZ SUMOZAS, Agustín, "La Plaza de Toros" (Un hexágono lleno de historia), in *Almadén. Apuntes históricos de la vida de un pueblo*, p. 108, Universidad Popular, Grupo de Estudios de Almadén y comarca, Diputación Provincial de Ciudad Real, 1997.

NATIONAL REGISTER OF HISTORIC PLACES, USA, http://www.nps.gov/nr/

NAVARRO, María Isabel, "El Camino Real Intercontinental", in CIIC, ICOMOS: *El Patrimonio Intangible y otros aspectos de los Itinerarios Culturales*, Pamplona, 2002.

NAVARRO REIGADAS, José, *Las Minas de Almadén*, Imprenta de Manuel Tello, Madrid, 1872.

NOEJOVICH, Héctor, "El consumo de azogue: ¿Indicador de la corrupción del sistema colonial en el virreinato del Perú? (Siglos XVI-XVII)", Fronteras de la Historia nº 7. Año 2002, Pontificia Universidad Católica de Lima, www.icanh.gov.co

ORCHE, E., *La Prospección e Investigación Minera*. E.T.S.I. Industriales y Minas, Vigo, 1996. Not printed.

ORCHE, Enrique, "Huancavelica on the Mercury Route of the Intercontinental Camino Real", in *International Congress: Mining and Industrial Heritage: its impact on major Cultural Routes of universal value. The mine of Almadén and other mining sites linked to the Intercontinental Spanish Royal Road through the mercury route*. ICOMOS-Spain, Madrid – Almadén, November 12th. – 18th, 2006.

ORCHE, Enrique, Octavio PUCHE, *Intercambio tecnológico en la minería y metalurgia hispanoamericana de la plata y del mercurio durante el imperio*, II Congr. Europeo de Latinoamericanistas, Halle, 1998.

_____, *Devenir histórico de la relación entre la Joyería y las ciencias mineras y de los minerales*, X Congr. Internac. Minería, Valencia, 1998.

_____, "Fuentes documentales sobre la génesis y prospección de yacimientos minerales en la América colonial (1500-1650)", ejemplar en soporte electrónico.

ORCHE, Enrique, Francisco Lara, María Pilar Amaré, *Puesta en valor del patrimonio minero, histórico-cultural y natural de Huancavelica (Perú) y su integración en el ordenamiento y en el desarrollo sostenible de la ciudad*, www.xiii.org/biblioteca/ public/2006.

OREŠNIK, Mitja, PEZDIČ, Jože, ŠAJN, Robert, DIZDAREVIČ, Tatjana, Geomedicine - link between geology and human health: mercury in Idrija, Idrija 2006.

OSORIO HUACUJA, Cecilia, *Los plateros en San Luis Potosí en la segunda mitad del siglo XVII*, Tesis para obtener el grado de Maestría en Historia, El Colegio de San Luis, A.C., San Luis Potosí, 2002.

OVIEDO GÁMEZ, Belem, *Canto en la tierra e imagen ante el tiempo, El Distrito Minero de Real del Monte y Pachuca*, Archivo Histórico y Museo de Minería, A.C, Editorial Raíces, México, 2000.

PACHECO JIMÉNEZ, César, "Los caminos para el suministro: vías de comunicación entre Talavera de la Reina y Madrid", *Libro de Actas del I Congreso Internacional de Caminería Hispánica,* Madrid/Guadalajara, julio 1992, I, AACHE, Guadalajara, 1993

PARACELSUS, Hohenhaim von Theophrast, *Von der Bergsucht und anderen Bergkrankheiten*, Dillingen 1567.

PATIÑO, M., *Huancavelica colonial*, Ed. Huancavelica, Lima, 2001.

PAVLIČ, Slavica, *Zgodovina idrijskega šolstva*, Idrija 2006.

PAVŠIČ, Tomaž, *O idrijskem govoru*, Celje 1989.

PEDRAZA MONTES, José Francisco, *Casa de Moneda*, Ed. Universitaria Potosina, San Luis Potosí,1962.

PERGER, H., *Ueber die Schädlichkeit des Idrianer Hüttenrauches*, Vienna 1873,

PERVANJA, Irma, SVETLIK, Maja, *Idrijska čipka: uvod v tehniko in vzorci*, Ljubljana 2001.

PFEIFER, Jože, *Idrijski ranocelniki v prvi polovici in sredi 18. stoletja*, Idrija 1978/79.

_____, *Zgodovina idrijskega zdravstva. Zdravstveno in socialno varstvo idrijskih rudarjev v preteklih stoletjih*, Idrija 1989.

PILZ A., *Überblick über den Quecksilberbergbau und Quecksilberhüttenbetrieb von Idria in Krain,* Kattowitz 1908.

PINTAR, I., *Johannes Antonius Scopoli in njegovo prizadevanje za obratno higieno,* 1954.

PLACER, Ladislav, ČAR, Jože, *Rekonstrukcija srednjetriadnih razmer na idrijskem prostoru*, Ljubljana 1975.

_____, *Srednjetriadna zgradba idrijskega ozemlja*, Ljubljana 1977.

PLACER, Ladislav, *Strukturna kontrola epigenetskih rudnih teles v idrijskem rudišču*, Ljubljana 1976.

PLACER, Ladislav, *Tektonski razvoj idrijskega rudišča,* Ljubljana 1982.

_____, *V spomin Ivanu Mlakarju,* Idrija 2006.

PLAMINEK Adolf, *Geologisch-bergamanische Beschreibung des Bergbauterrains von Idria. Bloudek Jaroslav: Erläuterungen zu en Bildern der Quecksilber-Lagerstätten von Idria. Literatur über Idria. Aufgenommen von den k.k. Bergbeanten, Redigirt von dem Wilhelm Göbl, Der Kaiserlich-königlichen Hof- und Staatsdruckerei,* Vienna, 1893.

PLAMINEK, Adolf, BLOUDEK, Jaroslav, *Geologisch-bergmännische Karten mit Profilen von Idria nebst Bildern von den Quecksilber-Lagerstätten in Idria*, Vienna,1893.

POLJANEC, Katica, RUPNIK, Marinka, ČESNIK, Dragica, PERVANJA, Irma, TRATNIK, Metka, *Klekljanje I, Program* Čipkarstvo, Ljubljana 1995.

POLJANEC, Katica, RUPNIK, Marinka, TRATNIK, Metka, *Klekljanje 3, Program* Čipkarstvo, Železniki 1998.

_____, Klekljanje II, Ljubljana 1997.

POPE, Walter, *Extract of a Letter, lately written from Venice by the Learned Doctor Walter Pope, to the Reverend Dean of Rippon, Doctor John Wilkins, concerning the Mines of Mercury in Friuli. Philosophical Transactions,* London 1665.

POSCH, Fritz, *Gesamtinventar des Steiermärkischen Landesarchives 1*, Graz 1959.

PRESTA, Ana María, *Los encomenderos de la plata 1550-1600*, Instituto de Estudios Peruanos, Lima, 2000.

PRIETO, Carlos, *La minería en el Nuevo Mundo*, Ediciones de la Revista de Occidente, Madrid, 1969.

PRIOR CABANILLAS, Julián Antonio, *La pena de minas: los forzados de Almadén, 1646 – 1699*, Universidad de Castilla La Mancha, Almadén, 2003.

PUCHE RIART, Octavio, *Mecanismos estructurales del volcanismo paleozoico en la región Alcudiense,* Doctoral Thesis, Madrid, 1989.

_____, *La enseñanza de la Mineralogía*. E.T.S.I. Minas, Madrid, 1991. Not printed.

_____, "Influencia de la legislación minera, del laboreo, así como del desarrollo técnico y económico, en el estado y producción de las minas de Huancavelica durante sus primeros tiempos", in CASTILLO, M., *Minería y metalurgia. Intercambio tecnológico y cultural entre América y Europa durante el período colonial español, Ed. Muñoz Moya y Montraveta,* Sevilla-Bogotá, 1994.

_____, *Primera sesión científica de la SEDPGYM: Patrimonio Minero metalúrgico,* Boletín Inf. SEDPGYM, 5, 3 – 5, 1996.

_____, "La conservación del patrimonio geológico y minero" in CUSTODIO GIMENA, E. y HUERGA RAMÍREZ, A. *Ciento cincuenta años (1849-1999). Estudio e investigación en las Ciencias de la Tierra*, 73-101. Ed. MCYT-IGME Madrid, 2000.

PUCHE RIART, Octavio, "Heritage Values of Almadén and its Setting" In: International Congress: *Mining and Industrial Heritage: its impact on major Cultural Routes of universal value. The mine of Almadén and other mining sites linked to the Intercontinental Spanish Royal Road through the mercury route* ICOMOS-Spain, Madrid – Almadén, November 12th. – 18th, 2006.

PUCHE RIART, Octavio and Kendaall W. Brown, "Pedro Subiela: alumno de Almadén en América", in *Industria minera*, Madrid, 1992.

PUCHE RIART, O., GARCÍA CORTÉS, A. and MATA PERELLÓ, J.M., "La conservación del Patrimonio Minero-Metalúrgico español", Actas IX Congreso Internacional de Minería y Metaurgia, Tomo V, 433-448,Ed. Consejo Sup. Col. Ing. Minas, León, 1994.

PUST, Klemen, KODER, Tina, *Vzorci Zorke Rupnik*, Idrija 2004.

RAJAR, Rudi, ŽAGAR, Dušan, HORVAT, Milena, ČETINA, Matjaž, *Mass balance of mercury in the Mediterranean Sea*, Mar. Chem., 2007.

RAJŠP, Vincenc, *Slovensko ozemlje na vojaškem zemljevidu 1763-1787 (1804),* Ljubljana 1997.

RÁBANO, I. (Ed.), *Patrimonio Geológico y Minero en el marco del desarrollo sostenible,* IGME, 2000

RAMÍREZ HUÍZAR, José Luis, "Minería y metales preciosos: un signo de riqueza", *México en el Tiempo* No. 27, November-December 1998.

Relacion muy particular del Cerro y Minas de Potosi y de su Calidad y Labores, por Nicolas del Benino, Dirigida a Don Francisco de Toledo, Virrey del Perú, en 1536, on-line.

RESOLUTION *on the protection of the environment and health in the affected area of the Idrija Mercury Mine in the Phase of Gradual Shutdown*, Participants of International Conference in Idrija, 2004.

REŽUN, Bojan, DIZDAREVIČ, Tatjana, *The Influence of Surface Waters and Mine Waters on the Closing Down of Idrija Mercury Mine*, Bled 1997.

REŽUN, Bojan, ERŽEN, Uroš, *Idrija's geological collections: the preservation of natural heritage*, Patrimoine de l'industrie, Paris 2004.

REŽUN, Bojan, *Študijska geološka zbirka Rudnika živega srebra Idrija*, Ljubljana 2006.

REŽUN, Bojan, ZELENC, Anton, ERŽEN, Uroš, "Heritage Values of Idrija and their Relationship with the Mercury Route of the Royal Road", Madrid-Almaden, 2006.

REŽUN, Bojan, *Zapiralna dela v Rudniku živega srebra*, vodnik, Idrija 2006.

REYES FLORES, Alejandro: *Huancavelica "Alhaja de la Corona": 1740 – 1790*, in: www. Sociales.unmsm.edu.pe/ENSAYOS/3Reyes.pdf

RIVERA, M. "Arica en las rutas del tráfico de Potosí: algunas consideraciones sobre la sociedad andina del siglo XVIII", Revista chilena de antropología, nº 13, 1995-1996.

_____, *Indice de documentos virreinales de San Luis Potosí existentes en el Archivo General de la Nación,* El Colegio de San Luis, San Luis Potosí, 1999.

ROCKE, A.J., "Agricola, Paracelsus and 'Chimia'", *Ambix*, vol. XXXII, Nº1, 1985.

RODRÍGUEZ GALLARDO, ADOLFO, *Notas para el estudio del azogue en México en el siglo XVII*, www.ejournal.unam.mx/historia_novo/ehn08/EHN00810

ROJAS ÁVALOS, Ángela: "Valor universal excepcional de la Ruta del Mercurio del Camino Real Intercontinental", in International Congress: *Mining and Industrial Heritage: its impact on major Cultural Routes of universal value. The mine of Almadén and other mining sites linked to the Intercontinental Spanish Royal Road through the mercury route* ICOMOS-Spain, Madrid – Almadén, November 12th. – 18th, 2006.

ROMERO SOTELO, María Eugenia, "El Mercurio y la producción minera en la Nueva España (1810-1821)", *Historia mexicana*, Vol., XLIX, n. 003,Jan.-March, 2000.

ROSEN, George. “El cameralismo y el concepto de policía médica”, In: Lesky E (dir.), *Medicina Social. Estudios y testimonios históricos*, Madrid, Ministerio de Sanidad y Consumo, 1984. pp. 107-131.

ROSSO DEL BRENNA, Giovanna “Arqueología industrial y proyecto contemporáneo. Un juego sin reglas”, en *Preservación de la Arquitectura industrial en Iberoamérica y España*, Cuadernos del Instituto Andaluz del Patrimonio Histórico, 2001, p. 336.

ROSSI, Paolo. *El nacimiento de la ciencia moderna en Europa*, Barcelona, Crítica, 1998, p. 27.

SALA CATALÁ, José. “Vida y muerte en la mina de Huancavélica en la primera mitad del siglo XVII”, in *Asclepio*, 1987, 39, 193-204.

SALAZAR ALONSO, *Las minas de Almadén. Propiedad del Estado, conferencia y notas*, Sociedad de Calcinadores Almadén, Madrid, 1929.

SÁNCHEZ MARTÍN, Guillermo, *Estudio Médico del Hidrargirismo de las Minas de Almadén,* Imprenta del Sucesor de E. Teodoro, Madrid, 1924.

SANTA CLARA COUNTY PARKS. ALMADEN QUICKSILVER COUNTY PARK, http://www.sscgov.org/portal/parks

SÁNCHEZ GÓMEZ, Julio: “Spanish and Latin American Mining in Modern History”, in International Congress: Mining and Industrial Heritage: its impact on major Cultural Routes of universal value. The mine of Almadén and other mining sites linked to the Intercontinental Spanish Royal Road through the mercury route. ICOMOS-Spain, Madrid – Almadén, November 12th. – 18th, 2006.

SCHRAUF, A., *Über Metacinnabarit von Idria und dessen Paragenesis*, Vienna, 1892.

SCHÄFER, E, *El Consejo Real y supremo de las Indias*, Escuela de Estudios Hispanoamericanos de Sevilla, Seville,1947.

SCOPOLI, Giovanni Antonio*, Anfagsgründe der Metallurgie,* Mannheim 1784.

SCOPOLI, Giovanni Antonio *De Hydrargyro Idriensi. Tentamina physico-chemico-medica*, München 1786.

SCOPOLI, Giovanni Antonio, LINNÉ, Carl von. *Joannes A. Scopoli - Carl Linnaeus: correspondence: 1760-1775*, Ljubljana 2004.

SCOPOLI, Giovanni Antonio, Ioannis Antonii Scopoli, *Entomologia Carniolica: exhibens insecta Carnioliae indigena et distributa in ordines, genera, species, varietates, methodo Linnaeana,* Vindobonae 1763.

SEPÚLVEDA GALLEGO, L.E., Agudelo Gallego, L.M., *El mercurio, sus implicaciones en la salud y en el ambiente,* www.lunazul.ucaldas.edu.co.

SERRERA, Ramón María, *Tráfico terrestre y red vial en las Indias españolas*, Madrid: Dirección General de Tráfico-Lunwerg, 1992.

SITAR, Sandi, *Alkimija skozi čas*, Ljubljana 2003.

SOCIEDAD ESPAÑOLA PARA LA DEFENSA DEL PATRIMONIO GEOLÓGICO Y MINERO, (SEDPYM), *Manifiesto de Linares*, 2000.

STAMPFER, Friderich, *Kürzliche und gründliche Information der neu-verbesserten Quecksilber-Brennung*, Vienna 1715.

STRIEDER, J., *Studien zur Geschichte kapitalistischer Organisationsformen, Monopole, Kartelle, und Aktiongesellschaften in Mittelalter und zu Begin der Neuzeit. Ch 5: Monopolle und Kartelle in Idrianer Quecksilberhandel des 16. Jahrhunderets,* München und Leipzig 1925,

STRUNA, Albert, *Idrijska "Kamšt*", Ljubljana 1954.

SUÁREZ ARGÜELLO, Clara Elena: "La arriería novohispana durante el siglo XVIII", *Libro de Actas del IV Congreso Internacional de Caminería Hispánica*, Guadalajara (Spain) July 1998, V. I Caminería Física, AACHE, Guadalajara, 1999

SUÁREZ – INCLÁN DUCASSI, María Rosa, *The Present Legal Measures for the Protection, Conservation and Management of Cultural Heritage in Spain,* Madrid, 2 June, 2004.

_____, *International Congress: Mining and Industrial Heritage: its impact on major Cultural Routes of universal value. The mine of Almadén and other mining sites linked to the Intercontinental Spanish Royal Road through the mercury route.* (Call for papers), ICOMOS-Spain, Madrid – Almadén, November 12th. – 18th, 2006.

_____, Meeting on Preparation of a Joint Nomination to the World Heritage List of The Mining Sites of Almaden (Spain), Huancavelica (Peru), Idrija (Slovenia) and San Luis Potosi (Mexico) on the Mercury Route of the Spanish Intercontinental Royal Route, (Notes), Almaden (Ciudad Real), Spain, November 14, 2006

_____,"Los itinerarios culturales. Papel del CIIC y de ICOMOS-España".- *International Congress: Mining and Industrial Heritage: its impact on major Cultural Routes of universal value. The mine of Almadén and other mining sites linked to the Intercontinental Spanish Royal Road through the mercury route.* (Call for papers), ICOMOS-Spain, Madrid – Almadén, November 12th. – 18th, 2006.

SUMOZAS GARCÍA PARDO, Rafael, "La influencia de la arquitectura industrial de Almadén en América". In: International Congress: Mining and Industrial Heritage: its impact on major Cultural Routes of universal value. The mine of Almadén and other mining sites linked to the Intercontinental Spanish Royal Road through the mercury route. ICOMOS-Spain, Madrid – Almadén, November 12th. – 18th, 2006.

_____, A*rquitectura industrial en Almadén: antecedentes, génesis y repercusión del modelo en la minería americana,* Secretariado de Publicaciones Universidad de Sevilla, Ediciones de la Universidad de Castilla La Mancha, 2007.

ŠARF, Fanči, *Rudarska hiša in oprema stanovanj ob prelomu stoletja,* Idrija 1974.

ŠUMRADA, Janez, *Slovenian translation of Hacquet's memoir to the Royal Medical Society of Paris on the occupational diseases of miners in the Idrija Mercury Mine,* Idrija 2009.

TERPIN, Rafael, *Stara Idrija v linorezu*, Idrija 2001.

TERŠIČ, Tamara, GOSAR, Mateja, BIESTER Harald, *Historical ore processing in Idrija: Case study of a unique mercury waste disposal site.* Geochimica et cosmochimica acta, 2008.

TRACHANA, A., "Arqueología minera y proyecto de restauración" in Octavio PUCHE and Mariano AYARZAGÜENA, edit., *Minería y metalurgia históricas en el sudoeste europeo,* p. 713, Sociedad Española para la Defensa del Patrimonio Geológico y Minero, Madrid, 2005.

TRATNIK, Metka, *Klekljanje I*, Ljubljana 2004.

TRENADO NAHARRO, Antonio (Coord.), *Almadén en verde. Guía de campo*, Universidad Popular, Taller Estudios de Almadén y Comarca, Almadén, s/f.

TROŠT, Janko, *Idrija naše najstarejše rudarsko mesto*, Idrija 1953.

TSCHEBULLA, Anton, *Der k.k. Quecksilber-Bergbau zu Idria*, Vienna, 1867.

ULLOA, M., *La Hacienda Real de Castilla en el reinado de Felipe II*, Fundación Universitaria Española, Madrid, 1977.

UNEP, *Informes sobre la oferta y la demanda actuales de mercurio, con inclusión de proyecciones en las que se tiene en cuenta la eliminación gradual de la minería primaria de mercurio,* Ginebra, julio 2008.

UNESCO. INTERGOVERNMENTAL COMMITTEE FOR THE PROTECTION OF THE WORLD CULTURAL AND NATURAL HERITAGE. WORLD HERITAGE CENTRE. Operational Guidelines for the Implementation of the World Heritage Convention. WHC.05/2. 2 February 2005.

URBÁN MARTÍNEZ, Édgar, "La ruta de la plata a San Luis Potosí ", in: International Congress: *Mining and Industrial Heritage: its impact on major Cultural Routes of universal value. The mine of Almadén and other mining sites linked to the Intercontinental Spanish Royal Road through the mercury route.* ICOMOS-Spain, Madrid – Almadén, November 12th. – 18th, 2006.

URH, J., *Spitzenklöppelei* ,Ljubljana 1966.

VALENTINISCH, Helfried, *Das landesfürrstliche Quecksilberbergwerk Idria 1575-1659*, Graz 1981.

VALENZUELA CANDELARIO, José; Esteban RODRÍGUEZ OCAÑA, "Lugar de enfermos, lugar de médicos. La consideración del hospital en la medicina española, siglos XVIII a XX". In: L. Montiel (coord.), *La Salud en el Estado de Bienestar. Análisis histórico*, Madrid, Editorial Complutense, 1993, pp. 107-131.

VALVASOR, Janez Vajkard, *Die Ehre des Herzogtums Krain,* Ljubljana 1689.

VÁZQUEZ DE ESPINOSA, A. (ca 1.630) *Compendio y descripción de las Indias Occidentales*. Madrid: Crónicas de América, n. 68, edición de B. Velasco. Ed. Historia 16, Madrid, 1992.

VERBIČ, Marija, *Gospodarski stiki Loke z Idrijo v 16. in 17. stoletju,* Ljubljana 1963.

_____, *Idrijski rudnik do konca 16. Stoletja*, Ljubljana 1965.

_____, *Idrija okoli leta 1830,*. Idrijski razgledi, Idrija 1969.

_____, *Karolinški rudarski red za idrijski rudnik*., Idrijski razgledi 14/2, Idrija 1969.

_____, *O začetkih slovenskega čipkarstva s posebnim ozirom na Idrijo*, Idrija 1969.

_____, *O lesu za idrijski rudnik, prvih idrijskih grabljah in klavžah,* Idrija 1970.

_____, *Fabrikacija cinobra v Idriji*, Koper 1971.

_____, *Valvasorjeva rimana kronika o idrijskem rudarju,* Idrija 1975.

VILER, Darko, *Teater in Godbeno društvo rudarjev Idrija:* gradivo za pripravo nominacije, Idrija 2007.

VILLAR MOYO, R. et al., *Arquitectura para la Industria de Castilla La Mancha*, Ed. Publications Department of the Castilla-La Mancha Regional Government, 1995.

VOSS, Wilhelm, *Die Mineralien des Herzogtums Krain. Mittheilungen des Musealvereines für Krain*, Ljubljana 1895.

WISE, J.M. & Jean Féraud, "Historic Maps Used in New Geological and Engineering Evaluation of the Santa Bárbara Mine, Huancavelica Mercury District, Perú, De Re Metallica, 4, 2005, pp. 19 – 28, Sociedad española para la Defensa del Patrimonio Geológico y Minero.

WHITAKER, Arthur Preston,*The Huancavelica Mercury Mine. A Contribution to the History of the Bourbon Renaissance in the Spanish Empire*, Greenwood Press Publishers, Westport,1941.

ZARRALUQUI MARTÍNEZ, Julio, *Los Almadenes de Azogue. (Minas de Cinabrio). La Historia frente a la Tradición,* Librería Internacionald e Romo, Madrid, 1934.

ZAVALA, Silvio: "Asientos de la Gobernación de la Nueva España, in *Colección Documentos para la Historia*, 3,Mexican National Archive, México,1982.

ZELENC, Anton, *In vendar se giblje: katalog obnovljenih rudniških strojev in naprav*, Idrija 2001.

_____, *Electric power plants of the Idrija mercury mine*, Idrija 2003.

_____, *Idrija municipal museum: restored mine machines and devices of the Idrija mercury mine*, Patrimoine de l´industrie, Pariz 2004.

_____, *Klavže*: gradivo za pripravo nominacije, Idrija 2007.

_____, Kley's Pump, Idrija 2009.

ZUPANČIČ PUŠAVEC, Nina, ŽONTAR, Jože, *Idrijski rudnik skozi stoletja: razstava Zgodovinskega arhiva Ljubljana in Mestnega muzeja v Idriji, Idrija*, Ljubljana 1990.

ŽAGAR, Dušan, KNAP, Ana, WARWICK, J. J., RAJAR, Rudi, HORVAT, Milena, ČETINA, Matjaž, *Modelling of mercury transport and transformation processes in the Idrijca and Soča River system*, Sci. total environ. 2006.

ŽIŽEK, Suzana, HORVAT, Milena, GIBIČAR, Darija, FAJON, Vesna, TOMAN, M. J., *Bioaccumulation of mercury in benthic communities of a river ecosystem affected by mercury mining*, Sci. total environ., 2007.

Chapter 8

Contact information of responsible authorities





Contact information of responsible authorities

(001) Almadén

8.a Preparer

Provide the name, address and other contact information of the individual responsible for preparing the nomination

1) Individual responsible for preparing the nomination

Name: **Ángeles Alastrué Campo***
Title: Deputy Director of Heritage Preservation
Address: Dirección General de Bellas Artes y Bienes Culturales.
Ministerio de Cultura
Plaza del Rey, 1
28003 Madrid. Spain.
City, Province/State, Country: Madrid. Spain.
Tel: (++34) 91 701 70 35
Fax: (++34) 91 701 73 81
E-mail: angeles.alastrue@mcu.es

2) Group responsible for preparing the nomination

MINISTRY OF CULTURE
- **Ángeles Alastrué Campo**, Deputy Director of Heritage Preservation (SGPPC), angeles.alastrue@mcu.es

REGIONAL GOVERNMENT OF CASTILE-LA MANCHA
- **Luis Martínez García,** Director General of Cultural Heritage lmartinez@jccm.es

MUNICIPALITY OF ALMADEN
- **Emilio García Guisado**, Mayor, alcaldia@ayto-almaden.com
- Miguel Oviedo Segador, Head of the Department of Culture, miguel.oviedo@almaden.es
- Ismael Mansilla Muñoz. Head of the Urban Planning Department,

* Leading positions in bold letters

Ismael.mansilla@ayuntamiento.es
- Julia Cano, Head of the Tourism Department, mjulia.cano@almaden.es

ALMADEN MINES (Mining Society of Almaden and Arrayanes, MAYASA)
- **Eduardo Martínez** (President of MAYASA, presidencia@mayasa.es)
- Javier Carrasco Milara (Director of the mine of Almadén), fcojavier.carrasco@mayasa.es
- Antonio Simarro López, Director of Finances, asimarro@mayasa.es
- Manuel Ramos Pino. Director of Commercial Affairs, almaden@mayasa.es

SCHOOL ON MINING AND INDUSTRIAL ENGINEERS OF ALMADEN (University of Castile-La Mancha)
- **Luis Mansilla Plaza,** Director of the School of Mining and Industrial Engineering of Almadén (EIMIA/UCLM), luis.mansilla@uclm.es
- María José Delgado Aguilera, Secretary of the Geological and Mines Engineering Department, jdelgado@uclm.es
- Alejandro Matarredona, Informatics' technical expert. Geological and Mines Engineering Department, alejandro.matarredona@uclm.es

STEERING GROUP
- **Ministry of Culture** (Ángeles Alastrué, angeles.alastrue@mcu.es)
- **Regional Government of Castile-La Mancha** (Luis Martínez García, lmartinez@jccm.es)
- **Municipality of Almadén** (Emilio García, alcaldia@ayto-almaden.com)
- **Almadén Mines** (MAYASA) (Eduardo Martínez, presidencia@mayasa.es)
- **School of Mining and Industrial Engineers of Almadén** (Luis Mansilla, luis.mansilla@uclm.es)
- **School of Mines of the Polytechnic University of Madrid** (Benjamín Calvo, direccion.minas@upm.es)
- **Dossier Coordination:** María Rosa Suárez-Inclán, buzon@esicomos.org

WORKING GROUPS

ALMADEN MINES (MAYASA)
- **Eduardo Martínez,** President. presidencia@mayasa.es
- Javier Carrasco Milara, Director of the mine of Almadén, fcojavier.carrasco@mayasa.es
- Antonio Simarro López, Director of Finances, asimarro@mayasa.es
- Manuel Ramos Pino. Director of Commercial Affairs, almaden@mayasa.es

ALMADEN FOUNDATION, MUSEUMS AND INTERPRETATION CENTRES
- **Almadén Francisco Javier de Villegas Foundation**
  - Eduardo Martínez López, fundacion@mayasa.es
  - Antonio Simarro López, asimarro@mayasa.es
- **Almadén Mining Park**, www.parqueminerodealmaden.es
  - Javier Carrasco Milara, Director of the Mine of Almadén, mina@mayasa.es
- **Mercury Interpretation Centre,** www.parqueminerodealmaden.es
  - Javier Carrasco Milara, Director of the Mine of Almadén, mina@mayasa.es
- **Technological National Centre of Mercury Decontamination**
  Website in preparation
  - Javier Carrasco Milara, Director of the Mine of Almadén, mina@mayasa.es

- **San Rafael Royal Hospital for Miners** (Museum of Miners) www.parqueminerodealmaden.es
  - President: Eduardo Martínez López, fundacion@mayasa.es
  - Vice-president: Antonio Simarro López, asimarro@mayasa.es
- **Fco. Pablo Holgado Historic Mining Museum**. **School of Mining and Industrial Engineers of Almadén.**
  - Luis Mansilla, Director EUPA/UCLM, luis.mansilla@uclm.es
- **Interpretation Centre at the Royal Enforced Labour Prison** (Real Cárcel de Forzados). School of Mining and Industrial Engineers of Almadén.
  - Luis Mansilla, Director EIMIA/UCLM, luis.mansilla@uclm.es
- **Biochemistry of Heavy Metals Laboratory.**
  - Dr. Pablo Higueras Higueras, pablo.higueras@uclm.es
- **Research Institute on Applied Geology of Castile-La Mancha**, created by the Governing Council of the University of Castile-La Mancha in July 2010
  - Dr. Pablo Higueras Higueras, pablo.higueras@uclm.es
- **Almaden Bullring Museum**
  - Miguel Oviedo, Director. miguel.oviedo@almaden.es (Plaza Waldo Ferrer, s/n. 13400 Almadén. Ciudad Real. Spain. Tel. (++34) 926 26 43 33).
- **Ethnographic Museum in Chillón**
  - Luis Toledano, luis.toledano@chillon.es
- **Waldo Ferrer Museum at the Elementary and Grammar School of Almadén for Children of Workers.**
  - Ana Isabel Gallego-Preciados Algora, agalle16@hotmail.com (Museo Waldo Ferrer. Avenida de la Libertad, 1. 13400 Almadén (Ciudad Real) Tel & Fax (++34) 926 710424

RIOS EVA MANCOMMUNITY TOURIST OFFICE
www.comarcadealmaden.com
Miguel Ángel Romero Campos. turismo@comarcadealmaden.com

HISTORICAL ARCHIVES
- **Historical Archive of Almadén Mines**, fundación@mayasa.es
- **San Rafael Royal Hospital for Miners** (Archive of Almadén) fundación@mayasa.es
- **Historical Archive of the Municipality of Almadén** ayuntamiento@almaden.es

  Historical Archive of the School of Mining and Industrial Engineers of Almadén, www.uclm.es/cr/eup-almaden.

  General Archive of Indias. Seville. www.mcu.es/archivos/
- **General Archive of Simancas. Simancas.** www.mcu.es/archivos/
- **Archive and Library of Castile-La Mancha**, biblioteca@uclm.es
- **General Archive of the University of Castile-La Mancha**, www.uclm.es/archivo/

CULTURAL HERITAGE CONSERVATION ISSUES
- **Directorate-General for Fine Arts and Cultural Assets**. Ministry of Culture of Spain.
  - Director General: Ángeles Albert de León
  - Deputy Director of Heritage Preservation: Ángeles Alastrué Campo, angeles.alastrue@mcu.es
- **Directorate-General for Cultural Heritage of Castile-La Mancha.**
  - Director General: Luis Martínez García, lmartinez@jccm.es

- **Institute of Cultural Heritage of Spain (IPCE)**
  - Deputy Director: Alfonso Muñoz- Cosme, alfonso.munoz@mcu.es
- **ICOMOS/Spain**
  - **María Rosa Suárez-Inclán,** President, buzon@esicomos.org
  - José María García de Miguel, Vice president, josemaria.garciad@upm.es
- **The Spanish Society for the Defence of Geological and Mining Heritage (SEDPGYM)**
  - **Enrique Orche García,** President. eorche@uvigo.es
  - José María Mata Perelló, Honorary President, mata@emrn.upc.edu

MANAGEMENT PLAN AND RISK PREPAREDNESS

- **Mining Society of Almaden and Arrayanes, MAYASA** www.mayasa.es
  - Eduardo Martínez (President of MAYASA, presidencia@mayasa.es)
  - Javier Carrasco Milara (Director of the mine of Almadén, mina@mayasa.es and fcojavier.carrasco@mayasa.es)
  - Antonio Simarro López, Director of Finances, asimarro@mayasa.es
- **Municipality of Almadén:**
  - Emilio García Guisado, Mayor, alcaldia@ayto-almaden.com
  - Miguel Oviedo Segador, Head of the Department of Culture, miguel.oviedo@almaden.es
  - Ismael Mansilla Muñoz. Head of the Urban Planning Department, ismael.mansilla@ayuntamiento.es
  - Julia Cano, Head of the Tourism Department, mjulia.cano@almaden.es
- **Almadén Francisco Javier de Villegas Foundation**
  - Eduardo Martínez López, President, fundacion@mayasa.es
  - Antonio Simarro López, Vice-president, asimarro@mayasa.es
- **School of Mining and Industrial Engineers of Almadén (EIMIA).**
  - Luis Mansilla Plaza, Director of the EUPA and member of the SEDPGYM Board of Directors, luis.mansilla@uclm.es
- **UNESCO-ICOMOS/SPAIN Chair on Industrial and Mining Heritage (CUIEP) at the School of Mining Engineers of the Polytechnic University of Madrid**
  - José María García de Miguel, Director of the UNESCO-ICOMOS/SPAIN CUIEP and Vice president of ICOMOS-Spain, josemaria.garciad@upm.es

SCIENTIFIC CONTRIBUTIONS OF EXPERTS

- Miguel Ángel Álvarez Areces (industrial heritage)
- Javier Carrasco Milara (preservation of mining heritage)
- Manuel Castillo Martos (history of science)
- Marta Coto Sauras (risk analysis)
- Rafael Dobado González (economic sciences)
- José Luis Gallardo Millán (geological risks)
- José María García de Miguel (mining and industrial heritage)
- Ángel Manuel Hernández Sobrino (geology and mining history)
- Patricia Hevia and Germán Esteban (archaeology and rock art)
- Pablo Higueras Higueras (mercury uses and environment)
- José María Iraizoz Fernández (operating methods in the mine)
- Luis Mansilla Plaza (mining, training, history and managment)
- José María Mata Perelló (mining and geological heritage)
- Alfredo Menéndez Navarro (history of medicine)
- Luis Miguel Montes Oviedo (ethnography)
- María Isabel Navarro Segura (history)

• Enrique Orche García (mining and history)
• Fernando José Palero Fernández (geology, mining deposits)
• Octavio Puche Riart (history, mining and geological heritage)
• Julio Sánchez Gómez (Spanish-American history)
• María Rosa Suárez-Inclán Ducassi (legal issues)
• Rafael Sumozas García-Pardo (arts and architecture)
• Cristina Villar Díez (archives)

8.b Official Local Institution/Agency

Provide the name of the agency, museum, institution, community or manager locally responsible for the management of the property. If the normal reporting institution is a national agency, please provide that contact information.

Organization: Municipality of Almadén

Address: Plaza de la Constitución, 1.
13400 Almadén (Ciudad Real). Spain.
Tel: (++34) 926–710–052
Fax: (++34) 926-712-077
E-mail: alcaldia@ayto-almaden.com
Web address: http://www.almaden.es.org

Organization: Mining Society of Almaden and Arrayanes, MAYASA

Address: Cerco de San Teodoro s/n
13400 Almadén (Ciudad Real). Spain.
Tel: (++34) 926–265–002
Fax: (++34) 926-265-008
E-mail: mina@mayasa.com
Web address: http://www.mayasa.es

Organization: Directorate-General of Fine Arts and Cultural Assets. Ministry of Culture of Spain.

Address: Ministry of Culture. Plaza del Rey, 1
28071 Madrid. Spain
Tel: (++34) 917-017-035
Fax: (++34) 91 701 73 81
E-mail: angeles.alastrue@mcu.es
Web address: http://www.mcu.es

Organization: Directorate-General of Cultural Heritage of Castile-La Mancha.

Address: Trinidad, 8
45071 Toledo. Spain
Tel: (++34) 925 26 74 19
Fax: (++34) 925 26 74 63
E-mail: lmartinez@jccm.es
Web address: http://www.jccm.es/cultura/

8.c Other Local Institutions

List the full name, address, telephone, fax and email addresses of all museums, visitor centres and official tourism offices who should receive the free World Heritage Newsletter about events and issues related to World Heritage.

Almadén Francisco Javier de Villegas Foundation
President: Eduardo Martínez López
Vice-president: Antonio Simarro López
Address: Plaza del Doctor López de Haro, s/n
13400 Almadén (Ciudad Real). Spain
Tel: 926 26 45 20
Fax: 926 26 45 08
Email: fundacion@mayasa.es
asimarro@mayasa.es

Almadén Mining Park
Manager: Javier Carrasco Milara
Address: Cerco de San Teodoro s/n
13400 Almadén (Ciudad-Real). Spain
Tel: 926 265002
Email: mina@mayasa.es

Mercury Interpretation Centre
Manager: Javier Carrasco Milara
Address: Cerco de San Teodoro s/n
13400 Almadén (Ciudad-Real). Spain
Tel: 926 265000
Email: mina@mayasa.es

Technological National Centre of Mercury Decontamination
Acting Manager: Javier Carrasco Milara
Address: Cerco de San Teodoro s/n
13400 Almadén (Ciudad-Real). Spain
Tel: 926 265000
Email: fcojavier.carrasco@mayasa.es

San Rafael Royal Hospital for Miners
(Museum of Miners and Archive of Almadén)
Vice-president: Antonio Simarro López
Address: Plaza del Doctor López de Haro, s/n
13400 Almadén (Ciudad Real). Spain
Tel: 926 26 45 20
Fax: 926 26 45 08
Email: fundacion@mayasa.es

Fco. Pablo Holgado Historic Mining Museum.
School of Mining and Industrial Engineering of Almadén (EIMIA)
Director: Luis Mansilla Plaza
Address: Plaza de Manuel Meca nº 1
13400 Almadén (Ciudad-Real). Spain
Tlf. 926 264007
Fax: 926 264401.
Email: luis.mansilla@uclm.es

Interpretation Centre at the Royal Enforced Labour Prison (Real Cárcel de Forzados).
School of Mining and Industrial Engineering of Almadén (EIMIA)

Director: Luis Mansilla Plaza
Address: Plaza de Manuel Meca nº 1
13400 Almadén (Ciudad-Real). Spain
Tlf. 926 264007
Fax: 926 264401.
Email: luis.mansilla@uclm.es

Biochemistry of Heavy Metals Laboratory.

Director: Dr. Pablo Higueras Higueras
EIMIA/UCLM
Address: Plaza de Manuel Meca nº 1
13400 Almadén (Ciudad-Real). Spain
Tlf. 926 264007
Fax: 926 264401.
Email: pablo.higueras@uclm.es

Research Institute on Applied Geology of Castile-La Mancha, created by the Governing Council of the University of Castile-La Mancha in June 2010

Director: Director: Dr. Pablo Higueras Higueras
EIMIA/UCLM
Address: Plaza de Manuel Meca nº 1
13400 Almadén (Ciudad-Real). Spain
Tlf. 926 264007
Fax: 926 264401.
Email: pablo.higueras@uclm.es

Almaden Bullring Museum.

Director: Miguel Oviedo Segador
Address: Plaza Waldo Ferrer, s/n.
13400 Almadén. Ciudad Real. Spain.
Tlf. 926 26 43 33.
Email: miguel.oviedo@almaden.es

Ethnographic Museum in Chillón

Luis Toledano
Address: Avenida de España s/n
13412 Chillón (Ciudad-Real) Spain.
Tlf. 926 711301
Fax: 926 712049
Email: ayuntamiento@chillon.es

Waldo Ferrer Museum of the Elementary and Grammar School for Almadén workers' Children

Ana Isabel Gallego-Preciados Algora
Museo Waldo Ferrer
Avenida de la Libertad, 1
13400 Almadén (Ciudad Real)
Tel & Fax (++34) 926 710424
Email: agalle16@hotmail.com

8.d Official Web address

Please provide any existing official web addresses of the nominated property. Indicate if such web addresses are planned for the future with the contact name and e-mail address.

www.mayasa.es
Contact name: Eduardo Martínez López
E-mail: presidencia@mayasa.es
E-mail: fundación@mayasa.es

http://www.almaden.es/
Municipality of Almadén
Contact name: Emilio García Guisado
E-mail: alcaldia@ayto-almaden.com

http:// www.comarcadealmaden.com
Ríos Eva Mancommunity Tourist Office
Contact name: Ángel Romero Campos.
Email: turismo@comarcadealmaden.com

(002) Idrija

8.a Preparer

Provide the name, address and other contact information of the individual responsible for preparing the nomination

1) Individual responsible for preparing the nomination

Name: **Špela Spanžel***
Title: Undersecretary
Address: Ministry of Culture, Maistrova 10
City, Province/State, Country: SI-1000 Ljubljana, Slovenia
Tel: + 386 1 3695953
Fax: + 386 1 3695902
E-mail: spela.spanzel@gov.si

2) Group responsible for preparing the nomination

MINISTRY OF CULTURE
- **Stojan Pelko,** State Secretary, stojan.pelko@gov.si
- Damjana Pečnik, Director-General, Directorate for Cultural Heritage damjana.pecnik@gov.si
- Špela Spanžel, Undersecretary, National Coordinator for UNESCO Cultural Heritage, spela.spanzel@gov.si
- Ksenija Kovačec Naglič, Secretary, Head of the INDOK Centre ksenija.kovacec@gov.si
- Dušan Kramberger, Secretary, National Coordinator for UNESCO Cultural Heritage (till March 2010)

MUNICIPALITY OF IDRIJA
- **Bojan Sever**, Mayor bojan, sever@idrija.si
- Bojan Režun, Vice Mayor bojan, rzs.idrija@s5.net
- Maja Majnik, Head of the Social Affairs Department, maja.majnik@idrija.si
- Mojca Remškar Planinc, Head of the Spatial Planning and Environment Protection Department, mojca.planinc@idrija.si

STEERING COMMITEE
- **Samo Bevk**, Deputy of the National Assembly of Slovenia, samo.bevk@dz-rs.si
- Marko Cigale, Director of the Idrija Mercury Mine
- Marjutka Hafner, Head of the Office of the Slovenian National Commission for UNESCO
- Ivana Leskovec, Director of the Idrija Municipal Museum
- Stojan Pelko, State Secretary of the Ministry of Culture
- Bojan Sever, Mayor of the Municipality of Idrija
- Marko Stokin, President of the ICOMOS/SI

WORKING GROUP FOR THE PREPARATION OF THE NOMINATION FILE
- **Ivana Leskovec**, Idrija Municipal Museum ivana.leskovec@muzej-idrija-cerkno.si
- Tatjana Dizdarevič, Idrija Mercury Mine
- Dušan Kramberger, external expert, member of the Slovenian National Commission for UNESCO

* Leading positions in bold letters

- Maja Majnik, Municipality of Idrija
- Bojan Režun, Idrija Mercury Mine
- Špela Spanžel, Ministry of Culture
- Emil Ferjančič, Ministry of the Environment and Spatial Planning (till November 2010)
- Tanja Bakan Rožič, Ministry of Economy (till November 2010)

- **Dossier Coordination:** Bojan Režun, bojan.rzs.idrija@s5.net

WORKING GROUPS

IDRIJA MERCURY MINE
- **Marko Cigale**, Director, rudnik.idrija@s5.net
- Bojan Režun
- Uroš Eržen
- Martina Peljhan
- Tatjana Dizdarevič

IDRIJA MUNICIPAL MUSEUM
- **Ivana Leskovec**, Director, ivana.leskovec@muzej-idrija-cerkno.si
- Mirjam Gnezda
- Darko Viler
- Anton Zelenc

HISTORICAL ARCHIVES LJUBLJANA, Unit in Idrija
- **Mira Hodnik**, mira.hodnik@guest.arnes.si

CULTURAL HERITAGE CONSERVATION ISSUES
- **Institute for the Protection of Cultural Heritage of Slovenia**
  - **Jelka Pirkovič**, Director-General, zvkds@zvkds.si
  - Robert Peskar (till January 2009)
  - Damjana Pečnik (from January 2009 till August 2009)
  - Maja Oven (till August 2007)

- **Cultural Heritage Conservation Group**
  Institute for the Protection of Cultural Heritage of Slovenia
  - **Jovo Grobovšek**, jovo.grobovsek@zvkds.si
  - † Robert Červ
  - Darij Humar
  - Tadej Brate

- **ICOMOS/SI**
  - **Marko Stokin,** President, icomos@icomos-zdruzenje.si
  - Jovo Grobovšek (till July 2008)

MANAGEMENT PLAN
- **Regional Development Agency ICRA** Ltd, info@icra.si
- Andreja Trojar Lapanja
- Tadeja Bezeljak
- Rafael Bizjak
- Milena Marega
- Andra Marinko
- Dare Ravnikar
- Mirka Rupnik
- Aleksandra Torbica
- Michal Vanek

EXTERNAL EXPERTS

- Uroš Bajželj (mine and technology history)
- Marija Bavdaž (natural history)
- Jože Čar (geology)
- Milena Horvat (ecology)
- Ivica Kavčič (technology history)
- Janez Kavčič (history)
- Alfred B. Kobal (occupational medicine)
- Slavica Pavlič (history of education, history)
- Tomaž Pavšič (history)
- Emil Pelhan (natural history)
- Danijel Rojšek (nature)
- Martina Stupar (nature)
- Rafael Terpin (history)

8.b Official Local Institution/Agency

Provide the name of the agency, museum, institution, community or manager locally responsible for the management of the property. If the normal reporting institution is a national agency, please provide that contact information.

Organization: Municipality of Idrija

Address: Mestni trg 1, 5280 Idrija
Tel: + 386 –5–37-34-500
Fax: + 386 –5–37-34-531
E-mail: obcina.idrija@idrija.si
Web address: http://www.idrija.si/

8.c Other Local Institutions

List the full name, address, telephone, fax and email addresses of all museums, visitor centres and official tourism offices who should receive the free World Heritage Newsletter about events and issues related to World Heritage.

Občina Idrija
Municipality of Idrija
Mestni trg 1, SI-5280 Idrija

Rudnik živega srebra Idrija, d. o. o. - v likvidaciji
Idrija Mercury Mine, Ltd. - in liquidation
Bazoviška 2, SI-5280 Idrija

Mestni muzej Idrija
Idrija Municipal Museum
Prelovčeva ulica 9, SI-5280 Idrija

Idrijsko – Cerkljanska razvojna agencija ICRA d. o. o.
Regional Development Agency ICRA Ltd.
Mestni trg 1, SI-5280 Idrija

Turistično informacijski center Idrija (TIC Idrija)
Tourism Information Centre in Idrija
Vodnikova ulica 3, SI-5280 Idrija

Zgodovinski arhiv Ljubljana, Enota v Idriji
Historical Archives Ljubljana, Unit in Idrija
Prelovčeva ulica 2, SI-5280 Idrija

Ministrstvo za kulturo, INDOK center
Ministry for Culture INDOK Centre
Metelkova 4, SI-1000 Ljubljana

Zavod za varstvo kulturne dediščine Slovenije
Institute for the Protection of Cultural Heritage of Slovenia
Metelkova 4, SI-1000 Ljubljana

Zavod za varstvo kulturne dediščine Slovenije, Območna enota Nova Gorica
Institute for the Protection of Cultural Heritage of Slovenia, Regional Unit Nova Gorica
Delpinova 16, SI-5000 Nova Gorica

Center za idrijsko dediščino
Idrija Heritage Centree
Mestni trg 1, SI-5280 Idrija

Informacijski in raziskovalni center za živo srebro
Information and Research Centre for Mercury
Bazoviška 2, SI-5280 Idrija

8.d Official Web address

Please provide any existing official web addresses of the nominated property. Indicate if such web addresses are planned for the future with the contact name and e-mail address.

http:// www.idrija.si/

Contact name: Maja Majnik, maja.majnik@idrija.si
Bojan Sever, cid@idrija.si

Chapter 9

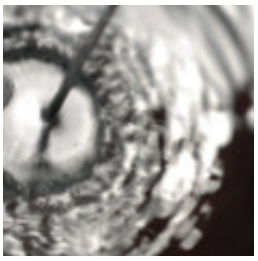
Signatures on behalf of the States Parties







Spain



Slovenia

Ángeles Albert
Director General of Fine Arts
and Cultural Assets.
Ministry of Culture
of Spain

H. E. Mrs. Veronika Stabej
Ambassador Extraordinary and
Plenipotentiary of the Republic of
Slovenia to France, Permanent Delegate
of the Republic of Slovenia to UNESCO