Sustainable tourism and environmental restoration in areas affected by mining 2003-2005. LIFE02 ENV/E/000199

LAYMAN’S REPORT
Summary of project scope and objectives

A pioneering Project in the Sierra Minera of Cartagena-La Unión

The Jara Project is a pioneering initiative in an area traditionally damaged by mining, the Sierra Minera of Cartagena-La Unión. This project has joined a pioneering initiative to recover the facilities of a mine of great interest, the environmental restoration of spaces damaged by mining, and the set up of alternative ecological and cultural tourism activities, while at the same time trying to find a strategy of sustainable development for the area. This project has aimed to:

1. Link a strategy of environmental and cultural tourism, evaluation of risks and the environmental impact the area could bear.
2. Identify and promote the recovery of livestock pathways and public tracks. These constitute the network that will make possible the connection and tourist use of the places of natural or cultural interest in the area.
3. Create a pioneer experience of restoration and recovery of the mining heritage for sustainable tourist use.
4. Originate the organizational bases for an integrated tourist product of quality, with genuine respect for the environment.
5. Generate knowledge, methodologies and techniques that could be used in similar processes in the rest of the Sierra Minera and other places affected by an analogous set of issues.
Institutions involved and funding

The Sierra Minera Foundation is responsible for the project and is supported by three Ministries of the Autonomous Community Government of the Murcia Region: Environment, Culture and Tourism, as well as the Cartagena City Council and the CajaMurcia Foundation.

The project has taken place between January 2003 and June 2005, with a total cost of €1.102.908 of which 49% came from the LIFE Programme European funds and the remaining 51% from national partners.

Description of the actions implemented and results achieved

Task 1. Design and evaluation of strategies for the development of sustainable tourism in the Sierra Minera

This first task has included several studies and research, which have produced a fundamental diagnosis of the development possibilities for sustainable tourism in the area:

- **Stockcheck of biological and environmental resources in the Sierra Minera of Cartagena and La Unión.** It collects an exhaustive stockcheck of flora, fauna, landscape, plant formations and types of habitats of interest and protected zones in the area, defining a total of 29 zones of high environmental interest. From that starting point, 16 visitor tours have been designed for the development of sustainable, environmental and cultural tourism. These itineraries take place in the environmental interest areas defined, and coincide partly or fully with public tracks or livestock pathways, minimizing the segments going through geo-mining risk areas. They include cultural-historical elements of interest and can be connected with other tours nearby.

Visitor tour to Peña del Aguila
• **Integrated case study about environmental pollution and risk evaluation in the Sierra Minera of Cartagena-La Unión.** In this case study we make a complete stock check of mining structures, as well as an analysis of the different types of mining residues. We also evaluate the environmental impact of mining in land, flora, fauna, water resources, landscape and atmosphere. Environmental risks and pollution problems derived from mining structures and waste in the Sierra Minera are studied from that point of view. These include seismic risks and those created by wind and water erosion, collapse in mining areas or loss of stability in pools. We also make a detailed analysis of environmental risks existing in pathways selected for tourism use in the Sierra: mines without protection, open air mining areas and mining waste. Lastly, a series of corrective measures are presented to eradicate or minimise the existing environmental risks.

• **Study of environmental bearability of the area,** focused in the analysis of the paths and itineraries selected for the development of leisure, educational and nature activities. We study the possible environmental impact of ecotourism in this area, as well as preventive measures and the bearability capacity of the itineraries. We also suggest corrective measures and define environmental indicators that can compute the possible impact of the presence of visitors in the network of paths, establishing a simple evaluation of environmental sensitivity, pressure against the environment, tourism results and the human and biological consequences of the aforesaid use.

Moreover, a compilation of previous studies has been carried out to complete the stock check of resources suitable to be employed for tourism use, and a framework document has been drafted about strategies for the development of sustainable tourism in the Sierra Minera of Cartagena-La Unión, a document that will be presented to the different administrations and agents involved in a public participation congress to be held after the completion of the project.
Task 2. Recovery of livestock pathways and public tracks in the Sierra Minera area

Project Jara has started work to promote the recovery of livestock pathways and public tracks of eco-cultural interest. This network of pathways, until now forsaken and abandoned, is of public ownership. It is not only useful for tourism; it also acts as a net of natural tracks that connect and avoid isolation of the different natural locations that exist in the area. The following actions have been completed:

1. A full study of livestock pathways and public tracks in the Sierra Minera has been done. Compilation of historic data based on documented cartographic facts, as well as field work for locating the old ways has been carried out. A total of 14 classified livestock pathways have been identified, with a total length of 58km. Further 47 ways suitable for tourism use (for its educative content or possibilities for trekking) have been identified. These pathways amount to a total of 138.2km in length, along the whole of the Sierra de Cartagena and La Unión. A complete cartography of the existing pathways, in a scale of 1:10,000, has been drawn up.

2. The most interesting livestock pathways from the ecocultural point of view were selected from this study, and a request was filed to the Regional Government to demarcate them. From the seven tracks selected, one is already demarcated and signposted. As a first phase, the project of demarcation of the two most interesting ways has been carried out: the Colada del Cabezo Rajao and the Colada de Fontes, being the paperwork for its demarcation already submitted to the Regional administration.

3. Simultaneously, the public way of the Blanca and Las Matildes mines has been recovered and enhanced, widening and improving the road surface with compacted gravel, reinforcing vegetation on its sides and signposting it, to improve use and access to the new visitor centre.
Task 3. Las Matildes Mine restoration and environmental renovation of the area.

This is the most important action within the project because it proposes a pioneer experience which combines recovery of the mining heritage and environmental and landscape restoration of the area. Las Matildes mine is located in the mining area of El Beal, near the San Quintin or Blanca mine. Both mines have similar characteristics. Since the beginning of the XX century, water was extracted for drainage of this mining deep valley, although it is true that they were originally extracted lead from 1864 to 1871. They stand out for their great historical value, the beauty of its emblematic metal castles and the that of the landscape where they are located. In the vicinity we also find an old pool of mining waste with highly polluted soil.

The city council of Cartagena, through an agreement with its previous owners, has acquired ownership of this mine and has made a surrender of use to the Sierra Minera Foundation so it can develop the project.

![Image of Las Matildes Mine area and map]
Restoration of Las Matildes mine

This mine was in a deplorable state of neglect and plundering. Through the project total restoration of its buildings and castle has taken place. Due respect and emphasis to the mining elements as cultural interest items have been main criteria through its restoration, as well as energy saving measures, such as those towards the use of solar energy:

- The main space of the visitor centre is an ample rehabilitated building that used to be the first engine room of the mine’s initial stage. In this part the foundations and pipes of the original steam machinery have been unearthed, as industrial archaeology traces of great interest.
- Its metal castle has been restored and secure access to its 225m deep shaft has been granted.
- The second engine room used for water extraction in the beginning of the 20th century has been recovered, as well as its electrical machinery.
- The old pool has been conditioned and other outer buildings such as the storage room and toilets have been restored.
Environment and landscape restoration

Simultaneously, a restoration of environment and landscape of the area has been carried out, such as reforestation with native species, with of recuperation of typical plants from the area as one of the main criteria. These plants do not need much water and can grow in soil that, in different degrees, is still residually polluted by mining. In this way, architectural actions have been joined up with a global intervention for the restoration and use of this mining space, keeping and empowering its natural and cultural values.

Actions implemented in this sense include:

✓ Conditioning of exteriors and dump of Las Matildes mine, and planning of a great variety of species such as lygeum, lentisk, wolfbane, lavender, rosemary, palmetto, Phoenician juniper, olive tree, etc.

✓ Adaptation of the river bed of the dry watercourse of Las Matildes in the mine’s area and planting of species (tamarisk, lambsquarter, esparto grass) that fix the soil, in order to minimise the impact of floods through the watercourse as well as the dragging of polluted materials that would end up in the sea.

✓ Execution of a test experiment of environmental restoration of an old pool of mining waste with highly polluted soils. In a 700m2 surface the mining waste has been waterproofed in several stages, sealing it by adding and compacting a series of slate lifts. Then it was covered with vegetal soil and planted with native species. At the same time, an area of the old pool has been kept intact as historical and cultural proof of this human activity that is mining, and a viewpoint stand has been placed over it.

✓ Creation of an interpretative tour between this mine and the Blanca mine, with several signs and interpretation panels, that allow for an educational route in the area.
Task 4. Creation of a visitor centre and an integrated service for ecological and cultural tourism

The organizational bases for an integrated, high quality, environmentally friendly tourism product have been established, with a genuine ecological and cultural character. Moreover, resources, equipment and instruments have been created to facilitate knowledge of the Sierra, both from the recreational and educational viewpoint:

1. After the recovery of Las Matildes mine, it has been turned into a modern museum, the Visitor Centre of Mining and Environment of the Sierra Minera, and in particular the specificity of the drainage mines of the El Beal area. Through graphic interpretational panels, a model of the Sierra, educational games and audiovisual 3D projections, Las Matildes mine is a visitor centre where you can get acquainted in an educational and entertaining way with the different aspects of mining and the marks it has left in the landscape and idiosyncrasy of this region.

2. In the Visitor Centre, an integrated cultural and ecological service has been set up, with a wide offer of guided tours through the Sierra. Previously, a training course for guides specialised in ecological tourism was held. In this course the guides that have joined the program were trained.

3. We have promoted the project and disseminated information about this new tourism initiative in schools, associations and entities of the area, as well as the hotel and tourism sector, boosting the image of a different tourism product with a distinct ecological and cultural character.
Environmental benefits of the project

This project has been a beneficial step towards solving different environmental problems in the Sierra Minera of Cartagena and La Unión, with very positive results in the cost/benefit balance:

- First of all, environmental and landscape restoration of a space damaged by mining has been achieved. Its archaeological-industrial heritage has been recovered and the public path that crosses this space demarcated. This is a great environmental and economic benefit for the El Beal area of Cartagena, as well as for the Sierra Minera as a whole, as it creates an example of this pioneering initiative that can be reproduced, and boost the development of new recuperation and restoration projects of this area with public administrations.

- Secondly, an ecological and cultural tourism initiative has been created, an alternative to mass tourism prevailing in the Cartagena coast. This initiative has generated an wave of visitors towards the area from the opening of the Visitor Centre, and in the medium term it will boost a regulated growth of tourism flows in the Sierra Minera. This will have a positive impact in local economy and the tertiary sector, generating direct and indirect employment.

- Thirdly, a demarcation and recuperation process of livestock pathways has been started, and 14 specific itineraries have been designed for the development of ecotourism in the whole of the Sierra Minera.

- Lastly, case studies carried out contribute with useful knowledge for land planning based in environmental and sustainability criteria, by:
  - Creating a stock check of the environmental resources and defining a total of 29 areas of environmental interest.
  - Diagnosing risks and pollution problems arising from mining, and suggesting corrective measures to minimise them.
  - Drawing in an exhaustive manner the network of livestock pathways and tracks (more than 196km in total length) to be used as natural paths between the different existing areas of environmental and cultural interest.
  - Evaluating the bearability of these paths and tracks for the development of ecological tourism activities.

Transferability of project results

In order to facilitate projection and transfer of the results of this project, a diffusion effort has been carried out, to be prolonged even after project completion:

- A bilingual (English and Spanish) specific website has been created for the project, to give it diffusion over the internet: www.fundacionsierraminera.org/proyectos/jara/ . In addition, information and links to this page have been published in different institutional websites (Cartagena City Council, Murcia Regional...
Government) and tourism portals. On a later stage the website for the Visitor Centre created in Las Matildes mine will be activated.

- Different educational materials have been distributed (more than 70,000 units in total): informative leaflets about the project, DVDs, posters, and other information about the Visitor Centre and the ecocultural tourism service.

- Wide diffusion has been granted in the different media (press, radio, TV), in the local, regional and nationwide levels.

- After the completion of the project a conference will be organized. This conference will include the presentations of results obtained, which will be compared with similar European experiences and the debates about strategies for the development of sustainable tourism in the area.

**At regional and area levels** information produced by the project could be applied to all the territory of the Sierra Minera, the local coast and other mining areas of the Region, such as Mazarrón, in the framework of the existing planning instruments. In particular, pioneering mine and environmental recovery actions give solutions to problems that are common in this area, and can be a reference point and model for the restoration and recuperation of the whole of the Sierra Minera.

From the technical and organizational point of view, possibilities of reproducing this experience are guaranteed from the management of the project, as a Monitoring Committee has been created with the participation of three Regional Ministries of the Regional Government (Environment, Tourism and Culture), together with the Cartagena City Council, the CajaMurcia Foundation and the Sierra Minera Foundation itself, as the institution that draws together the social players of the area. This positive convergence experience facilitates the transference of the results of the project, as it has been a common project of the different governmental administrations, a financial institution, the Sierra Minera Foundation (representing the social players of the area), and the open cooperation with Murcia University and Cartagena Polytechnic University. In this way its results can be incorporated in plans for the future of the area, both in the short and medium terms:

- An important step forward in this sense is the recent creation of a Tourism Consortium of the Sierra Minera, with representatives of both City Councils (Cartagena and La Unión), together with the different areas of the Regional Government, and the Tourism Dinamization Plan just passed, which includes several proposals suggested by the Sierra Minera Foundation.

- The national Ministry of Culture is now drafting a Directive Plan of the Industrial Landscape of the Sierra Minera of Cartagena and La Unión. The Regional Government has started the paperwork to give the mining heritage of the Sierra the BIC (Area of Cultural Interest) protective denomination.

- From the national Ministry of Environment a dialogue process has been opened with the Regional Government, the City Council of La Unión and the social players of the area (including the Sierra Minera Foundation itself) for the creation of a final plan of for the regeneration of the bay of Portmán.

- In the local level, the Zoning Plans of Cartagena and la Unión are now in their drafting stage.

**At national and European levels**, the Project suggests a model of development that can be transferred to other areas damaged by mining. In this sense, we have exchanged information with the project developed by the Rio Tinto Foundation in Huelva, and in the short term a conference is planned to debate, exchange experiences and guidelines, and create future coordination possibilities with other entities that develop similar projects inside the European Union, both in the national territory and in other countries.