RE-USED LANDSCAPES
Case Study:
BALANGERO E CORIO
ASBESTOS MINE

MASTER THESIS
POLITECNICO DI MILANO

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1. Introduction

The landscape is witness of human actions as Pierce F. Lewis puts it “our human landscape is our unwitting autobiography. (Axioms for reading the landscape. Some guides to American scenes. Pierce F. Lewis. The Interpretation of Ordinary Landscapes. Geographical essays. Oxford University press.1979). If we review our history, we can easily read it in our landscapes: Let’s begin for example with the early industrial revolution, Tealsa and the energy demands, the first power plants were a completely new landscape. Shapes and forms appeared as it has never seen before: buildings in the shape of batteries connected by high and extensive cables that could cross the land. The steam engine created in 18….??? And the rail road and therefore the demands of Coal resulted in the first coal mines in Germany. The First World War and the demands of metals and industries brought Iron mines.

Therefore Germany is a good case study as its landscape reveals its history, reveals the character of a culture, the aims and aspirations, the dreams and fears. And we have the landscape to remind us. The Ruhr large mine developments left enormous mines in Westphalia, Lausitz. And Eldsdorf.

1800’s. Germany’s industrial revolution, the invention of the steam engine and its coal demands.

As Manuel Castells explains, the early industrial revolution is characterized by ….. Leaving behind the early landscapes characterized by…… The late Industrial revolution was characterized by ….. Leaving behind landscapes such as…..mainly defined by…..

1801 – The first (but still imported) steam engine used in the Ruhr mines was employed in removing water in the Zeche Vollmond in Werne (in present-day Bochum).The technician responsible, Franz Dinnendahl, founded a factory in Essen a few years afterwards and manufactured steam engines designed by himself.

1904 – The businessman Otto Heinrich Flottmann from Herne receives a patent for the pneumatic drill. The use of the new drill in the Ruhr mining areas increases extraction levels markedly.

These industrialization evolved into a Technological era (explain evolution as Castells does) This Technological era has brought us the demands of computers, cellphones and all kind of technological gadgets (place numbers of computer production in USA in 1970, 1980, 1990) Nowadays the average number of computer per capita is around of….
Computer and digital devised are composed by (MATERIALS)…. Resulting in a higher demand of (MATERIAL)-Mines. Not only the raw material for this Technological era is leaving new marks on the landscape, but also the energy all this devised demand results into new landscapes. Looking at Spain’s largest solar orchards we can start not imagining but seeing our future landscapes; such is the case of Andasol Solar Power Station of approximately 200 hectares in Andalusia, Spain.

Already from 1970’s where the environmental preoccupation rose, some policies of recovering mines and industrial plants started to appear. Such was the case in Germany of ???? Coal and steel plant in Duisburg, Germany (today one of the most influential pieces of landscape design). Many of the re-use strategies were at a point to convert open pits into landfill.
Nowadays the recovery of abandoned mines and plants is bigger than what the solutions we can provide. One of the main issues when it comes to recovery of what at a point were the most productive places on earth is as a result the matter of productivity. This question of productivity meets the energy demands, and the increasing lack of combustion energy (such as petroleum). Therefor many of these abandoned landscapes end up a very much characteristic landscape: what is nowadays called Energy capes.

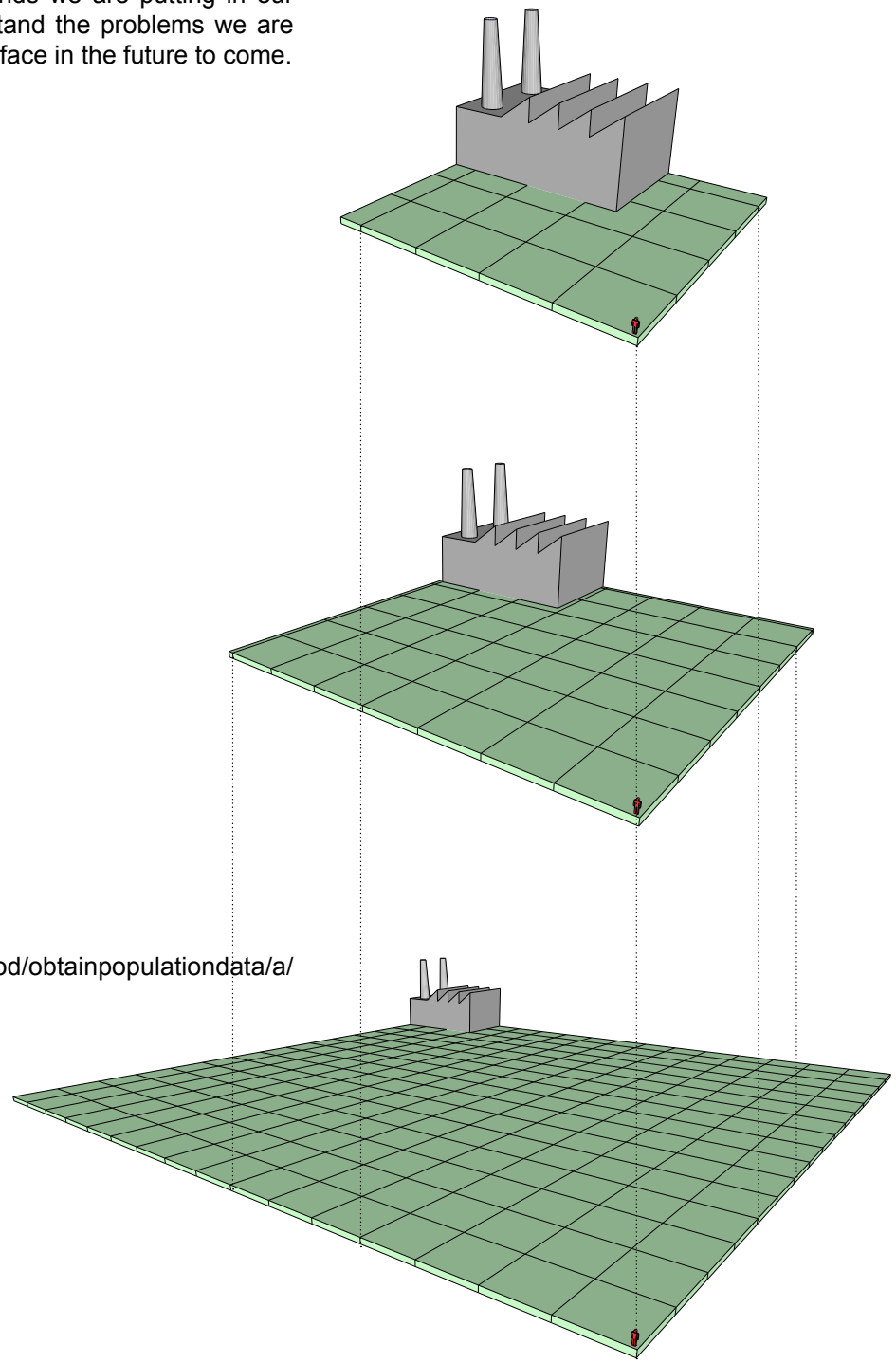
This scars can be seen from satellite images nowadays as drawing in the land, seem from the human eye they are scars in the shape of new topographies, new orography. These are new rivers, new mountains, new lakes, and new valleys, sometimes of colossal dimensions. These are the landscapes we are nowadays “beautifying” for our future generations.

Mining landscapes cannot be returned to the status quo ante, and it is usually impractical (or impolitic) to conceal their scars. Reclaiming the land therefore involves not only physical but mental interventions: new ways of seeing need to be cultivated in order to help the public engage with the new environment. This makes the Lausitz an experimental field both for landscape design and architecture and for landscape perception and use.”
World’s population has reached over seven billion inhabitants. The area of land available in the planet Earth is 148,940,000 (14.000 million hectares). The population is growing at a pace of 100.000 people per day, the demands of food, water and energy are increasing, but the land is not expanding. As we grow denser the public space and the landscapes become a more important issue.

It is clear that this density is not evenly distributed, as it is also clear that the availability of resources, the fertility of neither the land nor the industry is evenly distributed. But given the current levels of globalization it is to an extend reasonable to understand this matter in terms of square meters available per capita; not only to understand and think about our pace of consumption and our consumption culture, but also to introduce the matter of consumption-landscapes, production-landscapes, and energy-landscapes. It is important to visualize our planet in those 150x150 m of land each one of us entitled to. Let’s picture one block of Barcelona’s “Ensanche” of the Cerda Plan and lets fit in there all the rice fields we need for one kilo of rice, let’s try to grow here the cows, pigs, chickens, fishes and shrimps we want to eat; the corn fields and the wheat fields we need to fill up our dishes. Let’s request from this plot of 150m x 150m, the fuel, energy, heat and clean water that we need every day, and beyond these requirements, let’s demand for this land to be beautiful for our leisure and development.
By understanding the demands we are putting in our limited land, we can understand the problems we are facing and the challenges to face in the future to come.

Year	Population
1	200 million
1000	275 million
1500	450 million
1650	500 million
1750	700 million
1804	1 billion
1850	1.2 billion
1900	1.6 billion
1927	2 billion
1950	2.55 billion
1955	2.8 billion
1960	3 billion
1965	3.3 billion
1970	3.7 billion
1975	4 billion
1980	4.5 billion
1985	4.85 billion
1990	5.3 billion
1995	5.7 billion
1999	6 billion
2006	6.5 billion
2009	6.8 billion
2011	7 billion
2025	8 billion
2043	9 billion
2083	10 billion

http://geography.about.com/od/obtainpopulationdata/a/worldpopulation.htm



Clara Arango

2. MINING
History and extraction methods

noun
1. an excavation made in the earth for the purpose of extracting ores, coal, precious stones, etc.
2. a place where such minerals may be obtained, either by excavation or by washing the soil.
3. a natural deposit of such minerals.

Mining is the extraction of valuable minerals or other geological materials from the earth, from an ore body, vein or (coal) seam. The term also includes the removal of soil. Materials recovered by mining include base metals, precious metals, iron, uranium, coal, diamonds, limestone, oil shale, rock salt and potash. Any material that cannot be grown through agricultural processes, or created artificially in a laboratory or factory, is usually mined. Mining in a wider sense comprises extraction of any non-renewable resource (e.g., petroleum, natural gas, or even water).

Mining of stone and metal has been done since prehistoric times. Modern mining processes involve prospecting for ore bodies, analysis of the profit potential of a proposed mine, extraction of the desired materials and finally reclamation of the land to prepare it for other uses once the mine is closed.[1]

1_ Hartman, Howard L. SME Mining Engineering Handbook, Society for Mining, Metallurgy, and Exploration Inc, 1992, p3

Mine rescuer. Bain News Service,.[between 1910 and 1915]
No known restrictions on publication. Repository: Library of Congress, Prints and Photographs Division, Washington, D.C. 20540 USA,

2.1 History of mining

Since the beginning of civilization, people have used stone, ceramics and, later, metals found on or close to the Earth's surface. These were used to manufacture early tools and weapons, for example, high quality flint found in northern France and southern England was used to create flint tools. Flint mines have been found in chalk areas where seams of the stone were followed underground by shafts and galleries. The

mines at Grimes Graves are especially famous, and like most other flint mines, are Neolithic in origin (ca 4000 BC-ca 3000 BC). Other hard rocks mined or collected for axes included the greenstone of the Langdale axe industry based in the English Lake District.
The oldest known mine on archaeological record is the "Lion Cave" in Swaziland, which radiocarbon dating shows to be about 43,000 years old. At this site paleolithic humans mined hematite to make the red pigment ochre. Mines of a similar age in Hungary are believed to be sites where Neanderthals may have mined flint for weapons and tools.

Mining as an industry underwent dramatic changes in medieval Europe. The mining industry in the early Middle Ages was mainly focused on the extraction of copper and iron. Other precious metals were also used mainly for gilding or coinage. Initially, many metals were obtained through open-pit mining, and ore was primarily extracted from shallow depths, rather than though the digging of deep mine shafts. Around the 14th century, the demand for weapons, armour, stirrups, and horseshoes greatly increased the demand for iron. Medieval knights for example were often laden with up to 100 pounds of plate or chain link armour in addition to swords, lances and other weapons. The overwhelming dependency on iron for military purposes helped to spur increased iron production and extraction processes.[1]

2.2 Procedures and methods

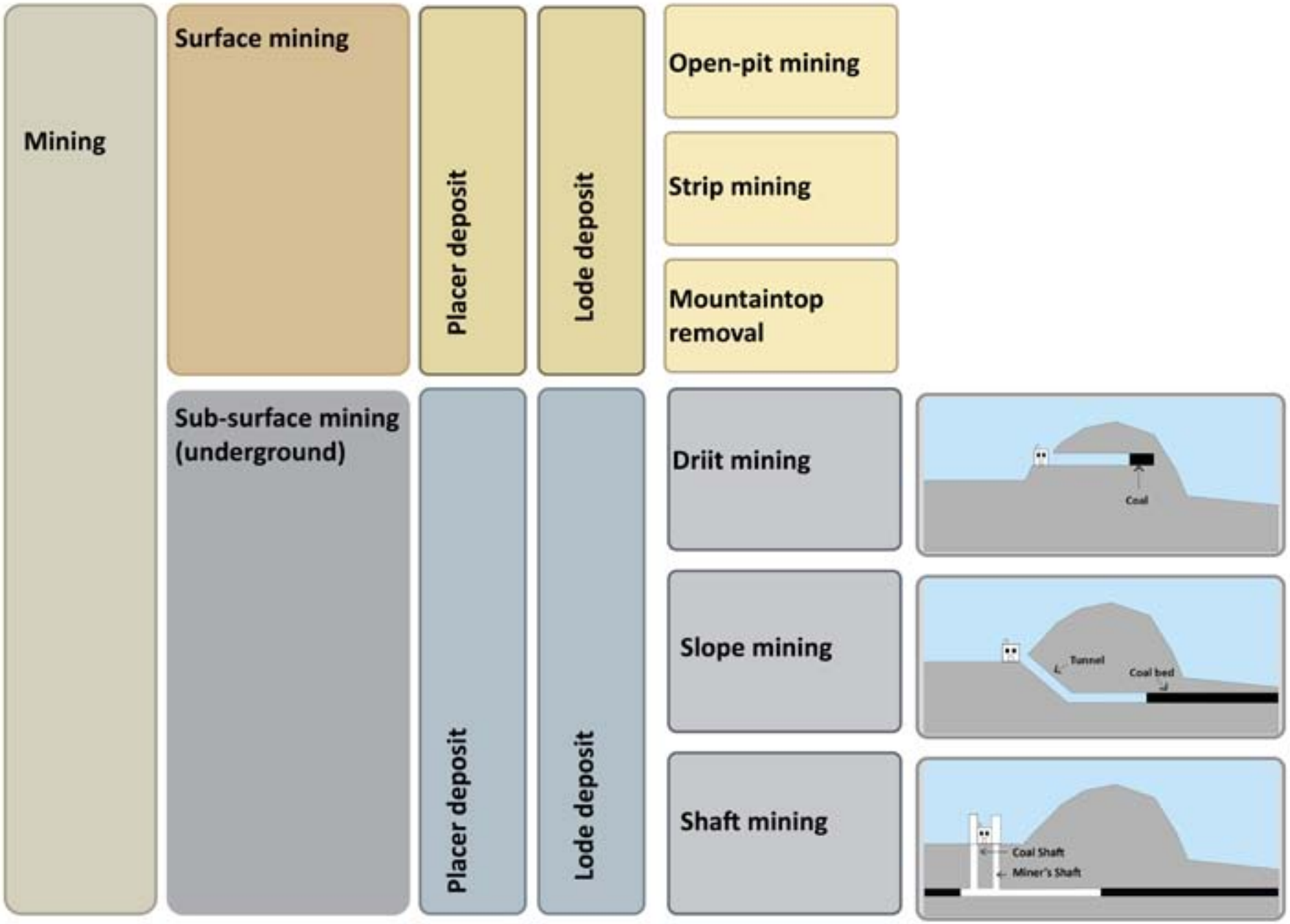
The process of mining from discovery of an ore body through extraction of minerals and finally to returning the land to its natural state consists of several distinct steps:
First is the discovery of the ore body, which is carried out through prospecting or exploration to find and then define the extent, location and value of the ore body. This leads to a mathematical resource estimation to estimate the size and grade of the deposit.
The next step is to conduct a feasibility study to evaluate the financial viability, technical and financial risks and robustness of the project.
Once the analysis determines a given ore body is worth recovering, development begins to create access to the ore body. The mine buildings and processing plants are built and any necessary equipment is obtained. The operation of the mine to recover the ore begins and continues as long as the company operating the mine finds it economical to do so. Once all the ore that the mine can produce profitably is recovered, reclamation begins to make the land used by the mine suitable for future use.

Ore Body: An ore is a type of rock that contains minerals with important elements including metals. The ores are extracted through mining; these are then refined to extract the valuable element(s).

1_ A culture of Improvement. Robert Friedel. MIT Press. 2007. Pg.81

Mir Mine. Russia.
Diamond open pit

2.3 Type of mining techniques



2.4 Mining techniques

Mining techniques can be divided into two common excavation types: ***surface mining*** and ***sub-surface*** (underground) mining.

Surface mining
is much more common, for example, 85% of minerals are extracted this way.
Targets are divided into two general categories of materials: ***placer deposits,*** which consisting of valuable minerals contained within river gravels, beach sands, and other unconsolidated materials; and ***lode deposits,*** where valuable minerals are found in veins, in layers, or in mineral grains generally distributed throughout a mass of actual rock. Both types of ore deposit, *placer or lode*, are mined by both surface and underground methods.
Processing of *placer* ore material consists of gravity-dependent methods of separation, such as sluice boxes. Only minor shaking or washing may be necessary to disaggregate (unclump) the sands or gravels before processing. Processing of ore from a lode mine, whether it is a surface or subsurface mine, requires that the rock ore be crushed and pulverized before extraction of the valuable minerals begins. After lode ore is crushed, recovery of the valuable minerals is done by one, or a combination of several, mechanical and chemical techniques.

Surface mining is done by removing (stripping) surface vegetation, dirt, and if necessary, layers of bedrock in order to reach buried ore deposits. Techniques of surface mining include; ***Open-pit*** mining which consists of recovery of materials from an open pit in the ground, quarrying or gathering building materials from an open pit mine, ***Strip mining*** which consists of stripping surface layers off to reveal ore/seams underneath, and ***Mountaintop removal***, commonly associated with coal mining, which involves taking the top of a mountain off to reach ore deposits at depth. Most (but not all) placer deposits, because of their shallowly buried nature, are mined by surface methods. Landfill mining, finally, involves sites where landfills are excavated and processed.

Open-pit mining or opencast mining refers to a method of extracting rock or minerals from the earth by their removal from an open pit or borrow.
The term is used to differentiate this form of mining from extractive methods that require tunneling into the earth. Open-pit mines are used when deposits of commercially useful minerals or rock are found near the surface; that is, where the overburden (surface material covering the valuable deposit) is relatively thin or the material of interest is structurally unsuitable for tunneling (as would be the case for sand, cinder, and gravel).
Open-pit mines are typically enlarged until either the mineral resource is exhausted, or an increasing ratio of overburden to ore makes further mining uneconomic. When this occurs, the exhausted mines are sometimes converted to landfills for disposal of solid wastes. However, some form of water control is usually required to keep the mine pit from becoming a lake. [1]

Sub-surface mining
consists of digging tunnels or shafts into the earth to reach buried ore deposits. Ore, for processing, and waste rock, for disposal, are brought to the surface through the tunnels and shafts.
Sub-surface mining can be classified by the type of access shafts used, the extraction method or the technique used to reach the mineral deposit. Drift mining utilizes horizontal access tunnels, slope mining uses diagonally sloping access shafts and shaft mining consists of vertical access shafts. Mining in hard and soft rock formations require different techniques.
Other methods include shrinkage stope mining which is mining upward creating a sloping underground room, long wall mining which is grinding a long ore surface underground and room and pillar which is removing ore from rooms while leaving pillars in place to support the roof of the room. Room and pillar mining often leads to retreat mining which is removing the pillars which support rooms, allowing the room to cave in, loosening more ore. Additional sub-surface mining methods include hard rock mining which is mining of hard materials, bore hole mining, drift and fill mining, long hole slope mining, sub level caving and block caving

1_ http://en.wikipedia.org/wiki/Open-pit_mining

Clara Arango

Middle peak quarry Middle-

Open-pit mining

Open-pit mining or opencast mining refers to a method of extracting rock or minerals from the earth by their removal from an open pit (hole in the ground, well, grave, pustule, pockmark) or borrow.
The term is used to differentiate this form of mining from extractive methods that require tunneling into the earth. Open-pit mines are used when deposits of commercially useful minerals or rock are found near the surface; that is, where the overburden (surface material covering the valuable deposit) is relatively thin or the material of interest is structurally unsuitable for tunneling (as would be the case for sand, cinder, and gravel). For minerals that occur deep below the surface—where the overburden is thick or the mineral occurs as veins in hard rock—underground mining methods extract the valued material.
Open-pit mines that produce building materials and dimension stone are commonly referred to as quarries. People are unlikely to make a distinction between an open-pit mine and other types of open-cast mines, such as quarries, borrows, placers, and strip mines.
Open-pit mines are typically enlarged until either the mineral resource is exhausted, or an increasing ratio of overburden to ore makes further mining uneconomic. When this occurs, the exhausted mines are sometimes converted to landfills for disposal of solid wastes. However, some form of water control is usually required to keep the mine pit from becoming a lake.

Extraction

Open-pit mines are dug on benches, which describe vertical levels of the hole. These benches are usually on four metre to sixty metre intervals, depending on the size of the machinery that is being used. Many quarries do not use benches, as they are usually shallow.
Most walls of the pit are generally dug on an angle less than vertical, to prevent and minimise damage and danger from rock falls. This depends on how weathered the rocks are, and the type of rock, and also how many structural weaknesses occur within the rocks, such as a fault, shears, joints or foliations.
The walls are stepped. The inclined section of the wall is known as the batter, and the flat part of the step is known as the bench or berm. The steps in the walls help prevent rock falls continuing down the entire face of the wall. In some instances additional ground support is required and rock bolts, cable bolts and shotcrete are used. De-watering bores may be used to relieve water pressure by drilling horizontally into the wall, which is often enough to cause failures in the wall by itself.

A haul road is usually situated at the side of the pit, forming a ramp up which trucks can drive, carrying ore and waste rock.
Waste rock is piled up at the surface, near the edge of the open pit. This is known as the waste dump. The waste dump is also tiered and stepped, to minimise degradation.

Ore which has been processed is known as tailings, and is generally a slurry. This is pumped to a tailings dam or settling pond, where the water evaporates. Tailings dams can often be toxic due to the presence of unextracted sulfide minerals, some forms of toxic minerals in the gangue, and often cyanide which is used to treat gold ore via the cyanide leach process. This toxicity has the potential to negatively impact on the surrounding environment.

3 REFERENCE PROJECTS

Landschaftspark
Duisburg, Germany

Location
Duisburg Nord, Germany

Dimensions
230 hectars

Original Use
Coal and steel production plant

Activities began
Around 1860

Activities ended
Abandoned in 1985

Project Designer
Latz + Partner (Peter Latz) 1991

Characteristics
Of public use, the park stands a representation of a new attitude towards the recovery of industrial sites. Latz allows the past be part of the present, introducing technologies for remediation, and allowing the structures to adapt new uses without mayor transformation of the architecture.

Description
At Duisburg Nord, the land development authority of North Rhine-Westphalia, supported by a real estate fund, purchased the grounds of the former Thyssen Steelworks manufacturing plant. Subsequently, the City of Duisburg changed its zoning to allow its conversion into a public park.

The project is divided in zones accordig to the existing conditions, the vegetation that was flowrishing and the programatic capabilities of the industrial infrastructure such as: Concrete walls are turned into climbing waals, bunkers host gardens, gas tanks are scuba diving schools, and main spaces are turned into piazzas and public spaces.

The project is filled of remnant patters of infrastructure and industrial relics which become an aesthetic of gigantic objects that function as landmarks and nourish the genius loci of the site.
This attitude is what makes this project so suitable as a reference: it recognizes memory and the abandomed industrial infrastructure as the *genius loci* of the site.

CRITICAL ANALYSIS

Clara Arango

On the site of a former industrial blast furnace, Latz + Partners have created a place of great beauty that will perpetuate the story of these industrial facilities for succeeding generations. At the same time, through a concerted program of bioremediation and on-site materials recycling, he design manages to neutralize or reverse much of the ecological damage done by those facilities. To complete he conversion of the site, the design also introduces a program of public activities which will allow it to develop new relevance in people's lives.[1]
Until the early 1970s, Germany's Ruhr area, particularly the Emscher District, was one of Europe's largest coal-mining and steel-manufacturing centers. The decline of these heavy industries, however, precipitated an economic and ecological crisis as well as social change and a loss of cultural significance in the region. Left behind was a bizarre landscape of rail beds, smokestacks, slag heaps, polluted soils, industrial ruins, and reengineered waterways.

Historic layers of use had left their physical marks through industrial imprints, altered conditions, and environmental contamination. However, the goal was to consider these disturbed and complex conditions for their creative potential rather than as a nuisance that should be erased or camouflaged.

1 Landschaftspark Duisburg Nord—Duisburg, Germany Latz + Partners

3 REFERENCE PROJECTS

Freshkills park
New York, USA

Location

New York, USA

Dimensions

Fresh Kills Park will be three times the size of Central Park.Original

Original use

New York Largest Landfill.

Begining

opened in 1947 as a temporary landfill.

End

closed on March 22, 2001
In October 2009, reclamation of the site began on a multi-phase, 30-year site development for reuse as Freshkills Park.

Project Designer

....

Characteristics

It became New York City's principal landfill in the second half of the 20th century, and it was once the largest landfill, as well as man-made structure, in the world [1]

A 2,200 acres, Freshkills Park will be almost three times the size of Central Park and the largest park developed in New York City in over 100 years. The transformation of what was formerly the world's largest landfill into a productive and beautiful cultural destination will make the park a symbol of renewal and an expression of how our society can restore balance to its landscape.

Description

The basic framework of the plan integrates three separate systems — programming, wildlife, and circulation — into one cohesive and dynamic unit.

Programming

Freshkills Park will host a variety of public spaces and facilities for social, cultural and physical activity, for learning and play. The site is large enough to support many sports and programs that are unusual in the city, possibilities of which include horseback riding, mountain biking, nature trails, kayaking, and large–scale public art.

Wildlife

Freshkills Park will also support richly diverse habitats for wildlife, birds and plant communities, as well as provide extraordinary natural settings for recreation. Through ecological innovation and creative design, new native plant communities will inhabit the site and connect the park to adjacent park sites on Staten Island.

Circulation

An expansive network of paths, recreational waterways, and enhanced access to and from the West Shore Expressway through a system of park drives will help to create an animated, inter–connected park. People will be able to experience the site by canoe, on horseback, on mountain bike, on foot, or by car.[2]

1 http://www.nyc.gov/html/dcp/html/fkl/fkl_index.shtml

2 http://www.nyc.gov/html/dcp/html/fkl/fkl_index.

CRITICAL ANALYSIS

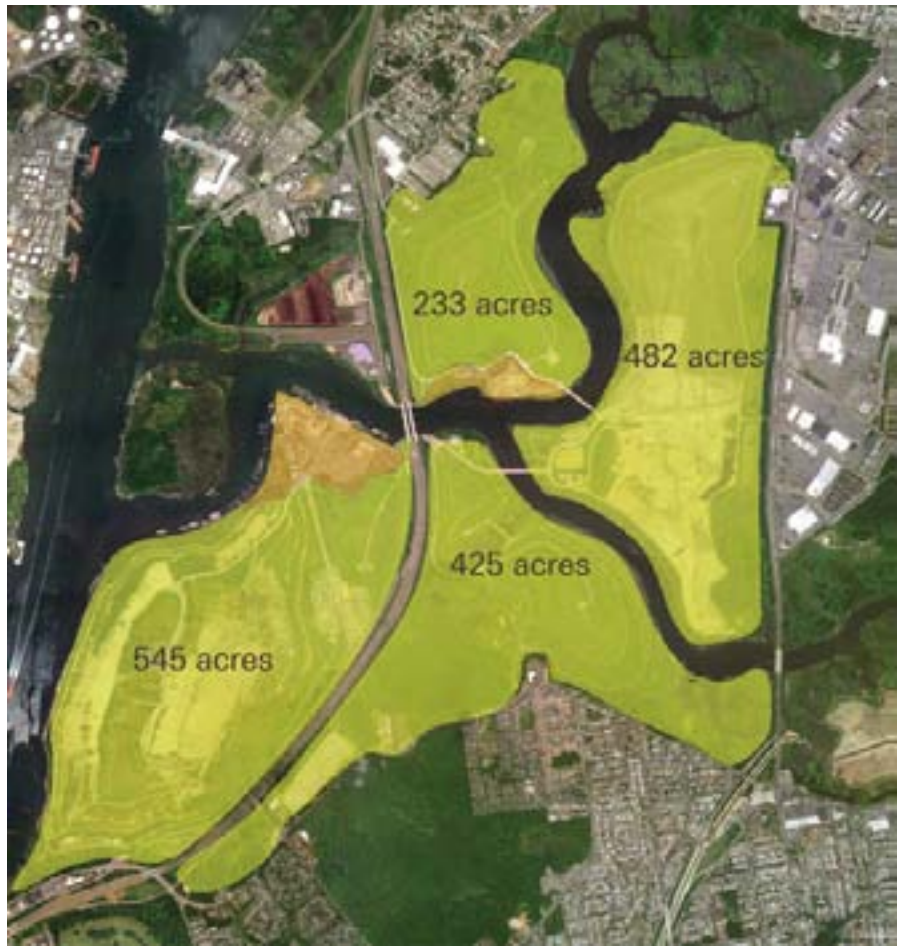
Freshkills is an important reference given its characteristics of abandomed, contaminated site, also for its size, even when several times bigger than Balangero, it represents sites that could host regional uses.

The main elements of comparison are: regional scale, environmental restoration, recovery of ruined landscapes and energyscapes.

Sustainable Energy
With the help of advanced landfill gas collection infrastructure throughout the landfill, the Department of Sanitation is already actively harvesting methane from the decomposing waste buried at Fresh Kills. This methane, enough to heat approximately 22,000 homes, is sold to National Grid and the city generates approximately $12 million in annual revenue from the sale of that gas. Gas recovery and sale will continue until the amount of gas produced by the landfill is small enough as to no longer be economically viable, at which point it will be burned off at flare stations onsite.

While maintaining the objective of minimizing energy consumption within new buildings and infrastructure systems onsite, DPR is also committed to building upon Sanitation's precedent in using emerging energy technologies to supply as much of the park's energy as possible. This commitment could include photovoltaic cells and wind turbines, using solar thermal cells in water heating systems, geothermal heating and cooling, and abiding green building principles. The City is also exploring opportunities to complement park development with demonstration space for newer renewable energy technologies.

Environmental Research
The City is interested in using Freshkills Park as a platform for generating knowledge applicable to a broad range of urban environmental issues, at this site and others: reforestation, habitat restoration, soil production, water quality, alternative energy generation, even attitudes toward park usage. The physical size and 30-year timescale of the park project ensure that much of its acreage will be undeveloped for the next ten to fifteen years. The City hopes to capitalize on this available land by collaborating on research plots and permitting access that is restricted to scientists, technicians and students. Initial projects are already underway with the United States Forest Service and CUNY Hunter. The Department of Parks & Recreation continues to seek partners in academia, museums, government and the private sector in the interest of refining and targeting research questions toward the advancement of study and the pursuit of funding opportunities.



Vall d’en Joan
Barcelona, Spain.

Location
Barcelon, Spain

Dimensions
85 hectars

Original Use
Landfill

Activities began
1974

Activities ended
....

Project Designer
Enric Batlle, Joan Roig, architects, Teresa Galí, agricultural engineer

Characteristics
Landscape reoovery.

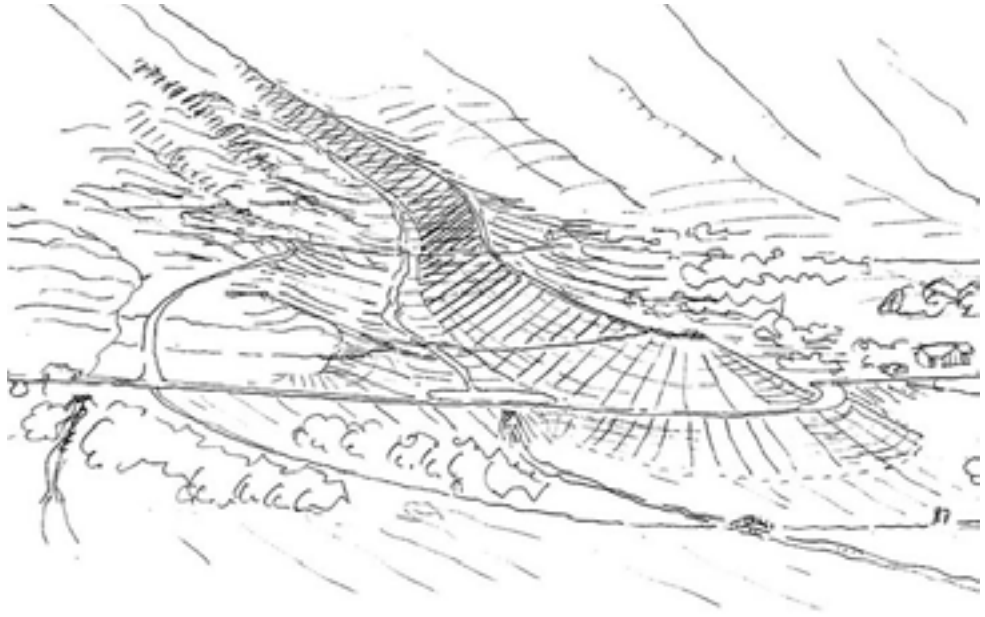
Description
Geo Photo. ....
Images. ....

CRITICAL ANALYSIS

The projects represents more than anything, what landfills can become. It is a clear and remarkable example of landscape design in balance with environmental restoration, management of wate and environmental engeneering.
It represents a “new beauty” , a new possibility of destroid landscapes and the manner these areas can be returned to the public enjoyment.

The main differences is the lack of program, since it stands almost only as a landscape. On the other hand the similarities with the dimensions of Balangero seem to suggest that places of such dimensions might only return to nature to its possibility, and return to being scenerie. This projects stands as a dignifying realistic future landscape.

3 REFERENCE PROJECTS



Avalanche protection structures
Siglufjordur, Iceland

Location
Siglufjordur, Iceland

Dimensions
146.000 sqm

Current use
Avalanche protection.

Project Designer
by Landslag ehf

Characteristics
O,.....

Description
The objective of the intervention is to protect the village from avalanches. By placing an artificial mountain ridge, the possible ice and snow that might hit the village is redirected. The poetics of the project are enhanced by a walk way all along the tip of the hill.

CRITICAL ANALYSIS

This project, in the scope of the present document, represents an elegant land intervention. The balance between green engeneering of pure funcionality and the beauty of the intervention is remarkable, reaching the qualities of Land-Art.

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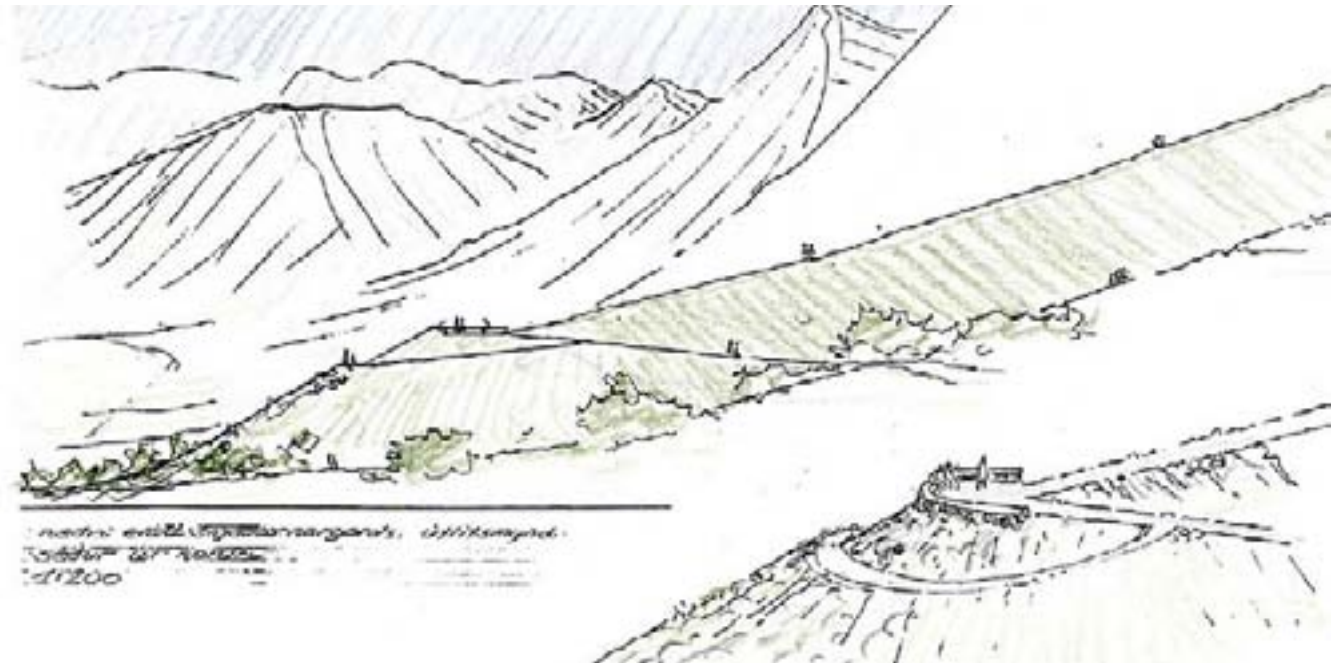

Horns Rev Offshore Wind Farm
North Sea, Denmark

Location
North Sea 14 kilometers west of Denmark

Dimensions
230 hectars

Original Use
Coal and steel production plant

Activities began
Around 1860

Activities ended
Abandoned in 1985

Project Designer
Latz + Partner (Peter Latz) 1991

Characteristics

Horns Rev Offshore Wind Farm is one of the world´s largest wind farms at sea. It comprises 80 efficient windturbines capable of producing 160 MW. Annual production of the windturbines corresponds to the consumption of 150,000 households using 4,000 kWh per year. Horns Rev Offshore Wind Farm is located in the North Sea 14 kilometers west of Denmark.

Description

CRITICAL ANALYSIS

The intervention stands far from the landscape intervention in the “landscaping” sense of the world. It is more of and engenieering achievement, representing human’s reach and power, and how these can modify our surrounding environment.
Standing far from the coast the wind mills appear as an illusion vanishing in the horizon, almost surrealistic.
They represent our obsetion for energy as each one of the towers’s price represents how much we need and how much we are capable of achive according to our demand of energy.

This intervention represents the hability of humans to provide, what is ar a given moment, fundamental for our development. In this case energy represents all our productive potential, our comunication skills and our evolving technologies.

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4.BALANGERO E CORIO

The industrial history of Balangero and Corio, which started since the ‘20s, grew up across the two World Wars to become, in the ‘70s, one of the most modern companies in the industry, with annual production of about 170,000 tons.

History and specifications

The area of the former asbestos mine of Balangero and Corio, is one of the reclamation sites of national interest identified by the Italian Law (L. 426/1998) at the end of the 1990s. It includes a highland region of about 400 hectares located 30 km north-west of Turin, and disused plants covering about 40.000 m2; there is now a lake inside the cave containing about 2 million c.m. of water. The industrial extraction of asbestos serpentine began during the 1920s and was developed during the post-war period with a gradual modernization of the processes, which brought the Mining Company to be one of the leaders in the international market during the 1970s.

The end of mining activities due to the Company’s financial problems, only shortly anticipates the Law n. 25, dated 27th march 1992 which states in art. 11 the need for environmental reclamation of sites such as the Balangero and Corio asbestos mine. The law contains punctual and operative instructions for environmental reclamation; RSA was set up as a public-capital enterprise” in house” controlled by the Piemonte Region. The economic and historical heritage represented by the whole asbestos mine is a unique and unrepeatable example of industrial archaeology.

The “development plan” includes the reclamation site directly involved and, at the same time, the whole territory of the Lanzo Valleys (Comunità Montana of the Valli di Lanzo). The final purpose is to build-up a mining geosite within the wider territory of the geomining park. The Ecomuseum trails fit into areas where new technologies of environ- mental reclamation are applied: from bioengineering techniques to requalification operations, from environmental monitoring to safety, protection and prevention items. The eco-museum becomes the frame within which activities are developed to relaunch the area, supported by power production through renewable sources, particularly with photovoltaic technology.[1]

1 Quaderni - Ambiente e Società 3/2011- RECUPERO E VALORIZZAZIONE DELLE MINIERE DISMESSE: LO STATO DELL’ARTE IN ITALIA. Geoitalia2009-VIIForumItalianodiScienzedellaTerra-Rimini9-11settembre2009

4.1 Balangero and Corio's mine
History and specifications

The former mine of Balangero and Corio is located 30 km from Turin. It is set on two sides of a mountain ridge that runs east-west direction and is divided into three peaks. The hollow is localized between the first and the second peak, with an approximate area of 50 hectars, the landfill is located between the second and the third peak. Its total extent is 310 ha, with an average production of about 150 thousand t/year of fiber. Back in the '70s this was the largest mine in Europe.

The mining activities began in 1918. The large increase in production began in 1959 with the passage of the mine's share group IRI, to the Group Manufactures Colombo and Eternit. It then formed a new society, of Amiantifera di Balangero Spa. During this year the method of extraction has also changed and after some years it gained its present configuration of large terraced amphitheater. In the following years the production increased significantly and some innovations in the type of work were also made.
In the sixties it went into the automation of some sectors with a significant reduction in the emission of dust also thanks to vacuum systems.

In 1983 the company underwent a further change of ownership and was bought by brothers Puccini. From this point a crisis that was resolved with the final closure in 1990 started, followed by the failure of the society Amiantifera di Balangero Spa.
In 1992 a program agreement between the Ministry of Commerce,Industry and Handicraft, the Ministry of Health, Piedmont Region, Val di Lanzo community, the towns of Balangero and Corio and the province of Turin, was signed. As a result of this agreement in 1994 the company RSA Ltd was founded (Society for the Rehabilitation and environmental development of the former mine). The RSA is a public owned company which includes the towns of Balangero and Corio, the Mountain Community of the Lanzo Valley, the province of Turin, Finpiemonte and IPLA.
The asbestos was mined from a serpentine rock, of chrysotile type, with an opencast mining (or open air casting). The equipment consisted of a series of sheds and facilities that occupied an area of 40,000 m2. The process plants were located in a series of warehouses that extended over an area of approximately 25,000 m2. According to the Decree 468/01 around the crater of extraction about 40 million cubic meters of material has been accumulated, of which 800,000 is free fiber.[1]

The landfill on the slopes of the Municipality of Corio, not only have a dramatic visual impact for the lack of vegetation, but are subject to instability due to the average accumulation of very steep slopes that in some cases exceeds 40 degree. Such instability produces over time about 500 thousand m3 of material slipping into the valley of the eastern sector of the slope. In addition, water flowing on the slopes of the landfill, causing erosion resulting in material transport and increase instability of the slopes themselves. To overcome this problem and to improve the stability of the slope, containment works by steps at the base of the slope were carried out.

1- La chimera delle bonifiche. L'urgenza del risanamento ambientale in Italia, i ritardi del Programma nazionale e le proposte di Legambiente
Roma, 10 maggio 2005. page 198

Richiamato il già citato art. 2 c. 5 lett. b) dell'Accordo di Programma (18.12.2007) laddove è prevista la "… definizione e realizzazione di un piano di sviluppo finalizzato al riutilizzo economico dell'area, tenendo conto della destinazione urbanistica di cui ai PRGC degli EE.LL. interessati che sarà recepito con successivo Accordo di Programma….", la cui realizzazione viene affidata ad RSA srl, si rende necessario preliminarmente individuare gli strumenti mediante i quali elaborare le proposte progettuali, ovvero, se si ritenga opportuno ricorrere allo strumento del Concorso di idee, disciplinato dall'art. 108 del D.Lgs. n.163/2006, al fine di integrare le più appropriate e convenienti proposte per la riqualificazione e lo sviluppo dell'area, con particolare
riferimento alla riconversione produttiva degli stabilimenti, nella prospettiva di qualificare il sito ai sensi dell'art. n. 252-bis D. Lgs. 03 aprile 2006, n. 152 come modificato con D.Lgs. 16 gennaio 2008, n. 4.

Il concorso di idee, da remunerare con il riconoscimento di un congruo premio, consente di acquisire in proprietà una proposta ideativa, eventualmente corredata da disegni sommari e schizzi, di livello inferiore al progetto preliminare, che può essere successivamente posta a base di un concorso di progettazione o di un appalto di servizi di progettazione.

In 2007 the R.S.A. S.r.l. reaches the finalization of the fisrt phase of activities, as the reclamation activities are achieves, as well as the security meassure, minimization of water risks and dust emmition. In general the geological and hidrological risks are tackled and a monitoring system is implemented.
Once this stage is finished he second phase of intervention begins with the forcasted expenditures of 1999.
In questa seconda fase vengono ad assumere una dimensione prioritaria gli interventi di messa in sicurezza e bonifica degli stabilimenti che si sostanziano nella realizzazione dei progetti approvati dalla Conferenza dei Servizi (ex art.14, c.2, Legge n. 241/1990), tenutasi a
Roma in data 06.11.2007, per un importo totale dei lavori pari a Euro 8.171.537,60 a valere sui finanziamenti assentiti con D.M. n. 468/2001, e nello sviluppo progettuale degli ulteriori interventi previsti per i quali risulta imprescindibile la preliminare definizione degli indirizzi di riqualificazione e sviluppo delle aree interessate.

In virtù del mandato affidatole, la società RSA ha stabilito di procedere alla raccolta di idee progettuali concernenti il riutilizzo dell'area mediante lo strumento del concorso di idee.
La Legge Regionale 14/2006 Norme per la valorizzazione del paesaggio ! nanzia i concorsi di idee o di progettazione «come utile strumento per il conseguimento delle migliori soluzioni progettuali mirate ad interventi
sulla qualità paesaggistica». Con Determinazione Dirigenziale n. 651 del 26.11.2009, la Direzione Programmazione Strategica, Politiche Territoriali ed Edilizia della Regione Piemonte ha stabilito il co!nanziamento del concorso di idee per la riquali!cazione e sviluppo del sito minerario di Balangero e Corio.
RSA srl, in attuazione della deliberazione del Consiglio di Amministrazione del 20.01.2010, ha conferito incarico alla Fondazione dell'Ordine degli Architetti PPC della Provincia di Torino per il coordinamento del

The problems which relate to the slope of Balangero are mostly of hydrological, since the network of collection of surface water has lost its efficiency giving rise to erosion. The movement of the soil seems very limited and free of substantial accelerations. The RSA still holds the side of Balangero under control for some time.

Other problems are represented by the settling tanks of fine material in the locality of Rio Nassfeld. They are mostly silt sediments, resulting from the recovery of fine-grained tailings, of which 30% were asbestos fibers and water washing of tailings with coarse earth. The accumulated volume is estimated at 15 thousand m3. In addition there are six other basins throughout the affected area whose deposits were estimated in 40.000 m3. With the insertion of the site and its subsequent perimeter to the National remediation program with the law 426/98, made in January 10, 2000, the investigation for the remediation of former mining area began. In addition to problems related to the accumulation of landfill on both sides of Balanagero and Corio, the master plan of reclamation has been identified a widespread contamination by asbestos dust in all areas of the plant.

Remediation have been entrusted to the company RSA. From 1995 to 2004, the company has brought forward the work of securing some parts of the mine, including the settling basins of rio Nassfeld, the area of the natural reservoir of the ex-mine and the side slopes of Corio.

Interventions mainly consisted in coating of adhesive (planting seeds) by helicopter on the side of Corio landfill to limit the dispersion of asbestos fibers. The installation and operation of a meteorological monitoring environment network (five stations), the ‘execution of major campaigns and inclinometer installation of five new inclinometers to monitor slope of the landfill, and the securing of a pile of asbestos fiber about 130 m3, which had been left open; internal roads to the site and related maintenance and safety measures for two silos containing asbestos dust of about 300 m3.

According to the survey of September 2004 performed by the Fifth Regional Commission, the status of the latest transactions was highlighted, including the fencing of the areas at higher risk, the advance of the first phase of reclamation on the safety of slopes of the landfill, in particular side Corio, where there is also a cable car was built to prevent the passage on the ground and the consequent raising of dust. Engineering interventions on natural streams and slope stabilization were performed. In the same survey it the dilapidated state of the plant and deposits for which emphasizes the ‘urgent need of remediation was noted. The problems stem more from the production plant, which was partly dismantled by some companies as mandated by the bankruptcy trustee, but now most of the plant still contains much asbestos remained in asbestos-treatment-machines since the Balangero company has stopped producing it.[1]

1- La chimera delle bonifiche. L’urgenza del risanamento ambientale in Italia, i ritardi del Programma nazionale e le proposte di Legambiente
Roma, 10 maggio 2005. page 198

5. Balangero e Corio

The competition

Recualification of the mining site

On the fisrt of October 2010 the RSA srl [1] launced a competition for the Remediation and Development of the mining site.

The site located at the entrance of the Valleys of Lanzo, is placed in a favorable position at the end of an ideal route, starting from the ancient capital of the Kingdom of Savoy leads to a source of natural resources: the areas of extraction of raw materials.

The competition requires the development of the following specific interventions:
a. proposal for the redevelopment and new proposed use of the industrial buildings and the office historic building.
b. proposal of an overlooking structure on the steps of the mini for the installation of indoor and outdoor multimedia infrastructures and the usability of the existing resultant lake.

The proposals submitted must be sustainable both in economic, financial and management, both from the environmental, energy and landscape character of integration with the local context, enhancing the historic character and identity that the site has for the local population.

Teaming with Agronomist and Landscape Designer Andrea Debosio, we summited the proposal the 21st of January that will be detailed further in this document.
In april 2011 the jury concluded on the 3 main proposals, specifiying the scors only on eighteen proposals that reached the minimun score to clasify and resulting in 3 main proposals:

1 Società per il Risanamento e lo Sviluppo Ambientale dell'ex miniera di amianto di Balangero e Corio, Society for Environmental Remediation and Development of the former asbestos mine of Bala and Corio

«Art. 5 – La società ha per oggetto l'attuazione operativa dell'Accordo di Programma (G.U. n. 74 del 30 marzo 1992) e successive integrazioni o modifiche del medesimo per la messa in sicurezza ed il risanamento della miniera di Balangero, così come previsto dall'art. 11 della Legge 27 marzo 1992 n. 257 e, anche a seguito di questo, la valorizzazione delle risorse economiche, turistiche, ambientali e culturali dell'area. La società costituisce lo strumento di supporto per le fasi propositive, programmatorie realizzative e gestionali indicate dagli enti ed organismi agenti in sede locale, nell'ambito delle linee di programmazione regionale e provinciale».

First Classified
Project code 5247HG37
Score: 78,2

Second Classified
Project code 32697542
Score: 76,5

Tird Classify
peoject code PARCOTEK
Score of 71,1

The Evaluation parameters, according to article 21 of the specifications of the competition were:

a. Redevelopment and proposed use of Industrial spaces and historical office building.

a.1 Architectonic and landscape integration with the context.

a.2 fuinctional compatibility of the usage indications of the proposal.

a.3 solutions for succeding the architectonical barriers.

b. Sustainability proposal- management plan.

b1. economical-finantial sustainability assessed on the basis of a) the proposed model of the site's general management, b) the cost estimates of the intervention and c) the minimized operation and maintanance costs.

b2. assessed on the basis of Energetic efficiency a) nergetic efficiency of building systems and building envelopes and b) proposals's production efficiency,

b3. environmental sustainability and technological innovation, evaluated on the basis of a) environmental impact and long-term sustainability of intervention recovery and business set up, b) of the technical innovation.

c. Overlooking structure on the miner steps for the preparation of media paths - solutions for the enjoyment of the lake.

c1. architectonic and landscape integration with the context and the valorization of panoramic characteristics.

c2. accessibility solutions for people with disabilities.

c3. accesibility and functionality of spaces for the cultural and turistic enjoyment,

d.Interventions in the context.

d.1 landscape aspects, assessed on the basis of a) component of the vegetation and wildlife: consistency and compatibility with the environment, b) quality of the proposed land-art c) accessibility, usability and value of the didacti and teaching characteristic of the tourist and naturalistic path.

d2. cultural component, evaluated on the basis of respect for the elements contained in the Article 3 of the competition specification ("Context Interventions")

Furthermore, point 5 of the competition requirements states 2 important elements to be developed:

"5. Specific interventions: this competition of ideas requires the development of the following specific interventions:
a. proposed redevelopment and intended use of industrial buildings and the historic building of offices;
b. proposed a structure overview on the steps of the mining operation for the installation of indoor and outdoor locations multimedia and contextual usability of the proposed lake."[1]

1- Concorso d'idee - Riqualificazione e svilupo del sito minerario di Balangero e Corio.Bando e disciplinare. page 5.

R.S.A. S.r.l. - Società a capitale pubblico per il risanamento e lo sviluppo ambientale della miniera di amianto di Balangero e Corio
Balangero (TO), Viale Copperi 15
www.rsa-srl.it

CONCORSO DI IDEE PER LA RIQUALIFICAZIONE E SVILUPPO DEL SITO MINERARIO DI BALANGERO E CORIO (Cofinanziamento Regione Piemonte - L.R. 14/2006)

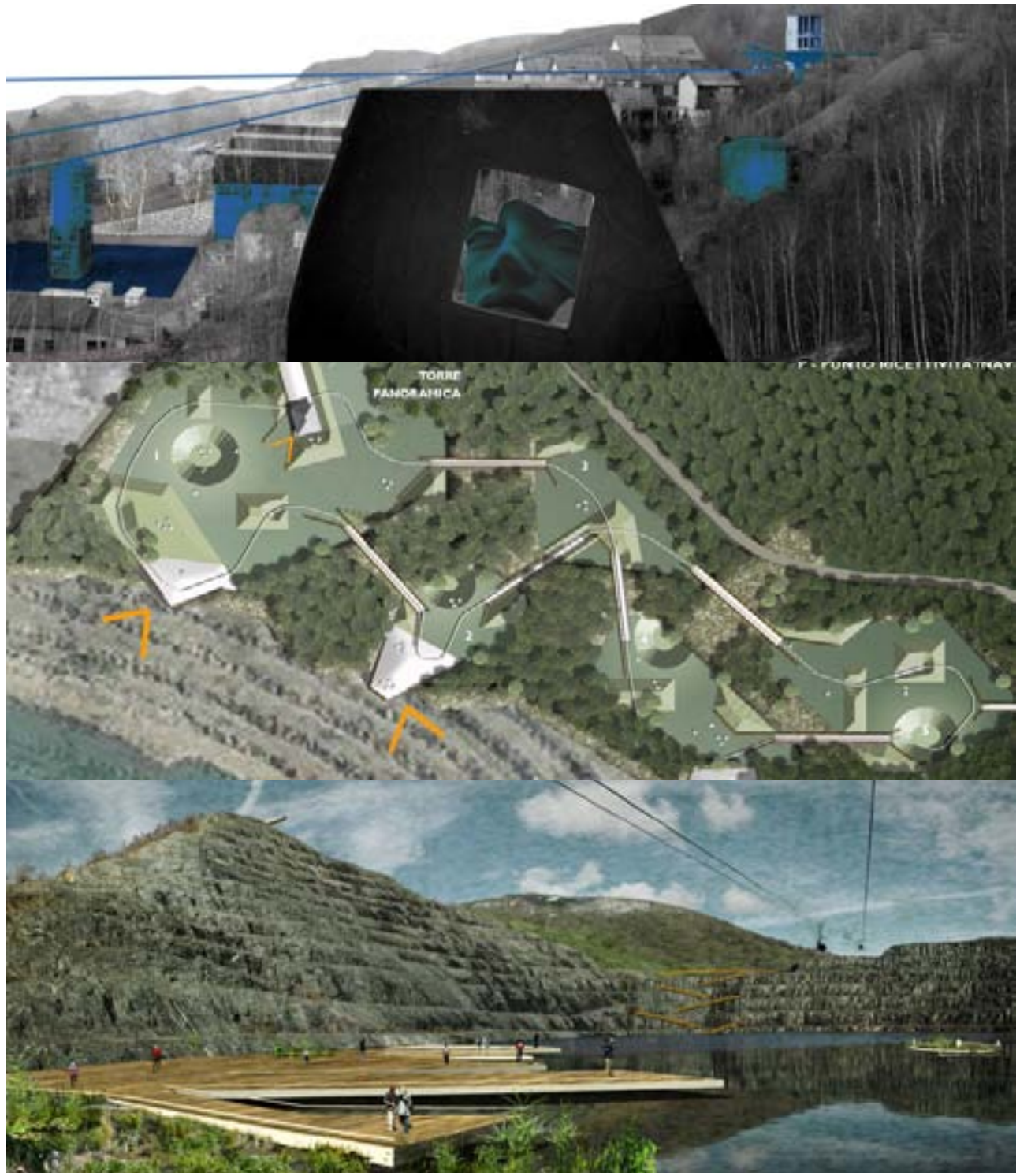
Riepilogo punteggi attribuiti e relativa graduatoria

(ai sensi dell'art. 21 del Disciplinare di Concorso non hanno accesso alla graduatoria le proposte concorsuali che non abbiano ottenuto un punteggio minimo complessivo pari a 70/100)

	Parametri di valutazione conformi quanto prescritto all'articolo 21 del disciplinare di Concorso	punteggio massimo	codice progetto RSA2011B	codice progetto LNCGMML2	codice progetto GAMEFFA90	codice progetto 240640SA	codice progetto PARCOTEK	codice progetto 0123VALE	codice progetto 9UP28TO1	codice progetto CMAPAM1EM	codice progetto F1BOP4F4	codice progetto ABBFGLSS	codice progetto 5247HG37	codice progetto BTLV0001	codice progetto MGFEFEMN	codice progetto N2O2ARNE	codice progetto CC13VT11	codice progetto 32697542	codice progetto IGFA1223	codice progetto H2OSBEST
a	Riqualificazione e destinazione d'uso degli spazi Industriali e della palazzina storica degli uffici	32,0	16,4	13,6	10,8	10,8	25,8	11,8	0,0	19,2	17,4	25,8	25,8	18,2	19,2	22,0	13,6	23,0	16,4	19,2
1	integrazione architettonica e paesaggistica con il contesto	18,0	9,0	7,2	5,4	5,4	14,4	5,4	0,0	10,8	9,0	14,4	14,4	10,8	10,8	12,6	7,2	12,6	9,0	10,8
2	compatibilità funzionale alle indicazioni di destinazione d'uso proposte	10,0	5,0	4,0	3,0	3,0	9,0	4,0	0,0	6,0	6,0	9,0	9,0	5,0	6,0	7,0	4,0	8,0	5,0	6,0
3	soluzioni per l'abbattimento delle barriere architettoniche	4,0	2,4	2,4	2,4	2,4	2,4	2,4	0,0	2,4	2,4	2,4	2,4	2,4	2,4	2,4	2,4	2,4	2,4	2,4
b	Sostenibilità della proposta - piano di gestione	30,0	12,9	13,2	16,8	9,9	18,9	22,2	0,0	14,1	11,4	16,8	24,0	17,7	15,0	21,9	15,9	21,3	11,4	13,8
1	sostenibilità economico-finanziaria, valutata sulla base a) del modello generale proposto per la gestione del sito, b) della stima dei costi dell'intervento e c) della minimizzazione dei costi di gestione e manutenzione	12,0	4,8	6,0	9,6	3,6	7,2	9,6	0,0	6,0	6,0	6,0	9,6	6,0	6,0	8,4	6,0	9,6	6,0	4,8
2	efficienza energetica valutata sulla base a) dell'efficienza energetica degli involucri edilizi e degli impianti e b) dell'efficienza produttiva della proposta	9,0	3,6	3,6	3,6	2,7	6,3	5,4	0,0	3,6	2,7	6,3	7,2	6,3	4,5	6,3	4,5	5,4	2,7	4,5
3	sostenibilità ambientale e innovazione tecnologica, valutata sulla base a) dell'impatto ambientale e sostenibilità nel lungo termine degli interventi di ricupero e delle attività insediate, b) dei contenuti tecnologici innovativi	9,0	4,5	3,6	3,6	3,6	5,4	7,2	0,0	4,5	2,7	4,5	7,2	5,4	4,5	7,2	5,4	6,3	2,7	4,5
c	Struttura panoramica sui gradoni della cava mineraria per l'allestimento di percorsi multimediali - soluzioni per la fruibilità del lago	26,0	16,2	13,8	10,4	13,0	20,8	10,4	0,0	9,0	13,6	10,4	20,8	12,4	11,6	13,6	12,8	23,4	11,0	11,6
1	integrazione architettonica e paesaggistica con il contesto e valorizzazione delle caratteristiche panoramiche	14,0	8,4	8,4	5,6	7,0	11,2	5,6	0,0	4,2	7,0	5,6	11,2	7,0	5,6	7,0	5,6	12,6	5,6	5,6
2	soluzioni per la fruibilità da parte di soggetti diversamente abili	6,0	3,6	2,4	1,2	3,0	4,8	2,4	0,0	2,4	3,6	2,4	4,8	2,4	3,0	3,0	3,6	5,4	2,4	3,0
3	funzionalità e accessibilità degli spazi ai fini della fruizione turistico-culturale	6,0	4,2	3,0	3,6	3,0	4,8	2,4	0,0	2,4	3,0	2,4	4,8	3,0	3,0	3,6	3,6	5,4	3,0	3,0
d	Interventi contestuali	12,0	7,2	6,0	4,0	4,0	5,6	6,0	0,0	4,8	6,0	5,2	7,6	6,0	3,6	9,6	5,2	8,8	5,2	6,0
1	aspetti paesaggistici, valutati sulla base a) della componente vegetazionale e faunistica: coerenza e compatibilità con il contesto, b) della qualità artistica della proposta di land-art e c) dell'accessibilità, fruibilità e valenza didattica dei percorsi turistico-naturalistici	8,0	4,8	4,0	2,4	2,4	3,2	4,0	0,0	3,2	4,0	3,2	4,8	4,0	2,4	6,4	3,2	5,6	3,2	4,0
2	componente culturale, valutata sulla base del rispetto di quanto enunciato all'articolo 3 del disciplinare ("Interventi contestuali")	4,0	2,4	2,0	1,6	1,6	2,4	2,0	0,0	1,6	2,0	2,0	2,8	2,0	1,2	3,2	2,0	3,2	2,0	2,0
	totale	100,0	52,7	46,6	42,0	37,7	71,1	50,4	0,0	47,1	48,4	58,2	78,2	54,3	49,4	67,1	47,5	76,5	44,0	50,6
	ORDINE GRADUATORIA						3						1					2		

Score table,
from the website: http://www.rsa-srl.it/AREACI/CI_2010_punteggi.pdf

6.Balangero e Corio
The 3 proposals



Proposal 5347HG37

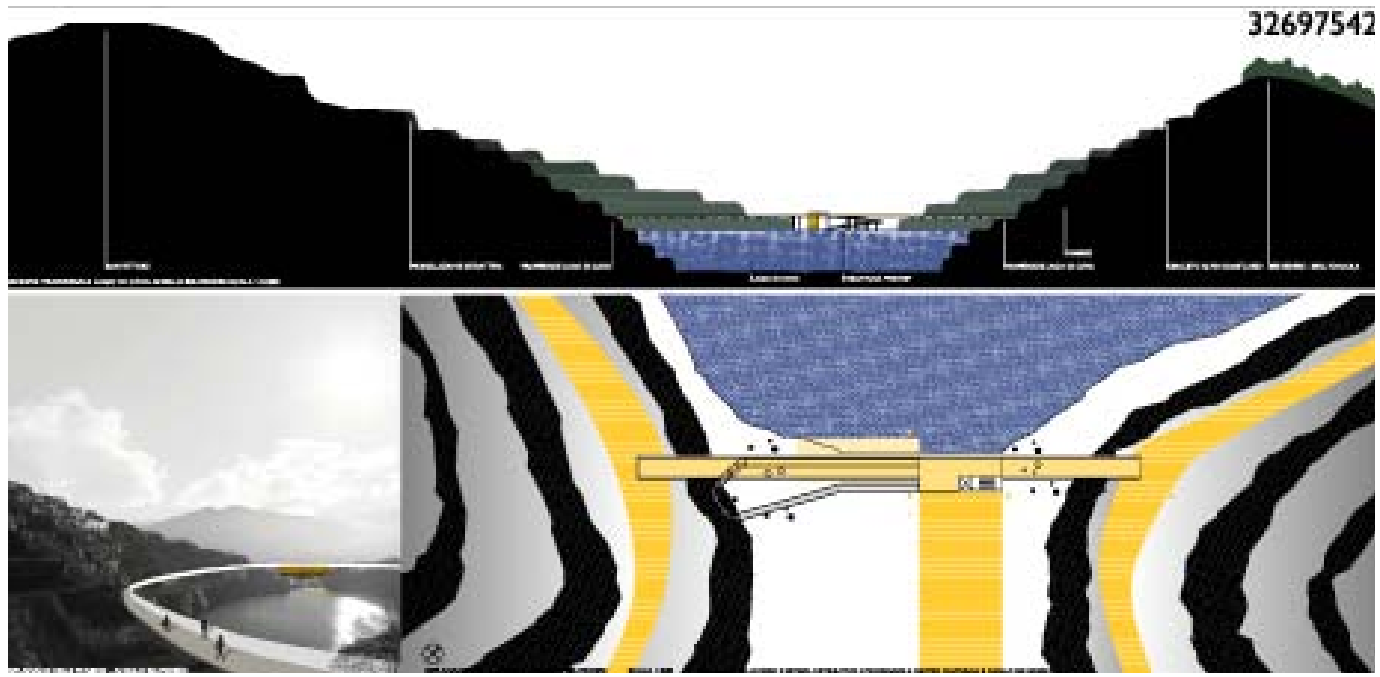
First clasify

in the competition of Ideas

Blah, blah blah

Proposal 32697542
Second Clasify
in the competition of Ideas

Blah, blah blah



parcotek
Third proposal
in the competition of Ideas

Blah, blah blah

7 PARCOTEK

THE MINING SITE OF BALANGERO AND CORIO

INTRODUCTION

The following is a description of the design decisions taken, reasons and strategies to implement the rehabilitation and development of the mining site of Balangero and Corio.

7.1. THE REGIONAL CONTEXT

The mining site in Balangero and Corio is located along the urban axis from the city of Turin leads to Lanzo and then to the Piedmontese Alps. The housing settlements and main network of infrastructure along this axis has been structured trough the years to serve the mining operations.
Today, this network of connections, related to a much wider catchment area of only the capital of Piedmont, is the potential for a new life and revitalization of the mining site and its natural and scenic interest. The roads that come from the south leading to the northwest, and then come up the territory of Balanagero, which converge at the site of action in a natuvral funnel due to orography of the area, favoring the easy reach and visibility.
Along such axis, in an enclosed area with a radius of around 15 km, the are already several organized and structured natural realities such as the Regional Park of La Mandria, the Vauda Nature Reserve, Protection Zone of the Stura di Lanzo, the Nature Reserve Belmonte and Mount Arpone.

The inclusion of the mining site of Balangero and Corio, and in particular its areas of Most natural interest into this network of scenic areas is of great of emergency. Far from utopian, this inclusion can be achieved through targeted interventions (detailed below) and a careful management program to execute over the years.

These qualities illustrated above represent the cornerstones of the project and the guidelines followed for the preparation of this proposal. To confirm this fact: the area is already densely crossed by a network of nature trails dedicated to hiking, which branches off from the residential areas that gravitate around the mine, reaching the tops of the mountains and the unique elements of the surroundings. In the immediate context there are already existing overlooking points that allow the enjoyment of the great scenerie of the plains of Turin. But also there is a rich surrounding context in terms of culture and history, which are: the Chapel of St. Victor, St. James Church, the Museum ethnographic Valley Malone, the Living Museum of Mining in Balangero and Corio, and the chapel Cudine.

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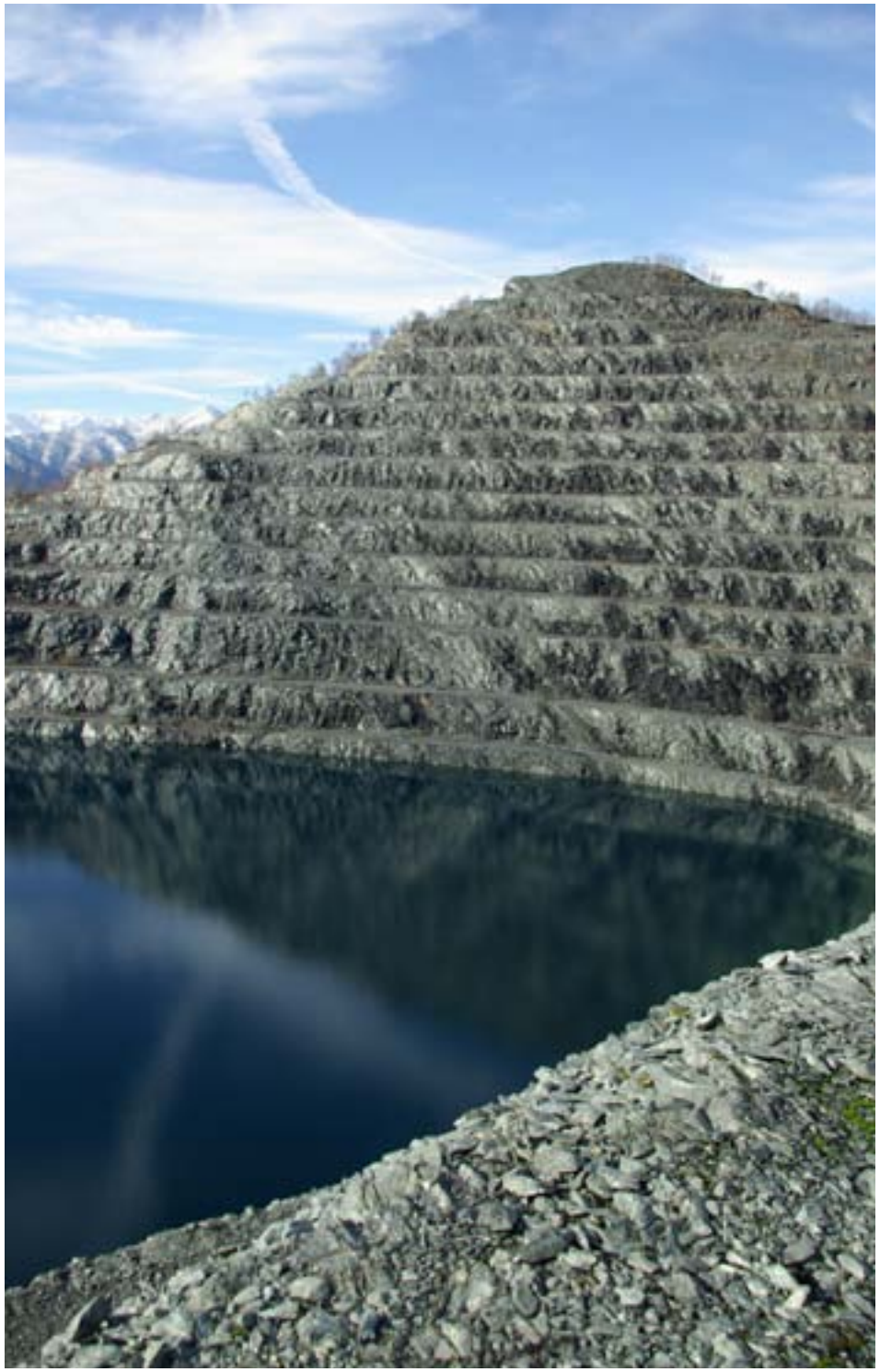


7.2. READINGS AND INTERPRETATION OF PLACE

In detail analysis of the subject site, a marked directionality is noted; first physical but also and above all visual perception: The mine becomes the focal point of convergence: Rivoli, Turin, Volpiano, and continuing to move east to Fogliano, San Giugliano Canavese, Canavese and Rivarolo Cuorgnè find their natural axis of perspective at the north end in the mine.
As a backdrop of this astonishing perspective there is the mountain chain of the Piedmontese Alps, which accentuate and frame the powerful and meaningful gesture left in the landscape by the extractions of the mine. Our aim is to interpret this gesture as an added value to this landscape rather than a scar to be masked.

For the particular conformation of this landscape, the mine has in fact an almost constant visibility from afar: from the Po and the Stura Turin until the peaks of the surrounding mountains. This element represents an important and particularly interesting element of design that characterizes the area and the interventions that are implemented in it as an important landmark of the territory. This is a landmark that tells the history of the development of this territory, of its social and economical structures.
It also true that from the mining site you are able to dominate the landscape, enjoying cones and visual perspectives that embrace the Alps to the north and west, the urbanized plains Turin to the hills on the south, and the agricultural areas of Vauda with its nature reserve to the east.

It is therefore possible to recall and read in the territory the reflections of the passing years left on the land by the mine and the extracting activities related to it: with a different degree of penetration and incidence, dentations and scares with variable intensity in the territory, its people and landscape. To date, these signs are still easily be found and read.

From reading of the immediately surrounding, the identification of a limit is an evident element of analysis, and subsequently an element to the design strategy. In this analysis not only refers to a tangible or physical limit, to the legal limit of the mine, but rather a “membrane” that controls the permeability of the area, defining interventions, and requiring the interpretation of what happens in the nodes, and the points of contact between this threshold and the circulation.

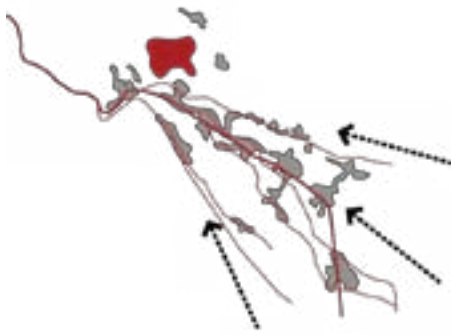
In this context one of the design strategies to this proposal, is not only that the site should be returned to be used by man, but also more widely returned to nature so it can regain possession unperturbed but always supervised by man.

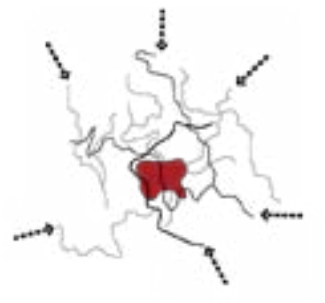
7.3. IDENTITY AND SYMBOLIC ASPECTS

A good landscape has two essential characteristics: it is beautiful, that it produces for its harmony, variety or uniqueness an effect of pleasantness; and it identifies the place in which it appears; therefore it has a value of identity. A landscape that is nice, but lacks identity, is incomplete. It is perceived as anonymous and cannot be considered an exemplary landscape. A strong identity increases the value of a landscape so as to classify it among the absolute landscapes worthy of preservation.

In this sense we can consider mine Balangero and Corio as a landscape of exceptional value that must be preserved and, paradoxically, not expect modifications. But obviously, this restriction makes sense to circumscribe certain well-defined areas of the mine, while with regard to the area with a greater degradation it is, however, very useful to intervene and restore the conditions prior to the farming activities (or establish an equilibrium model inspired by ecosystems present in the neighborhood, but this is discussed more fully below).

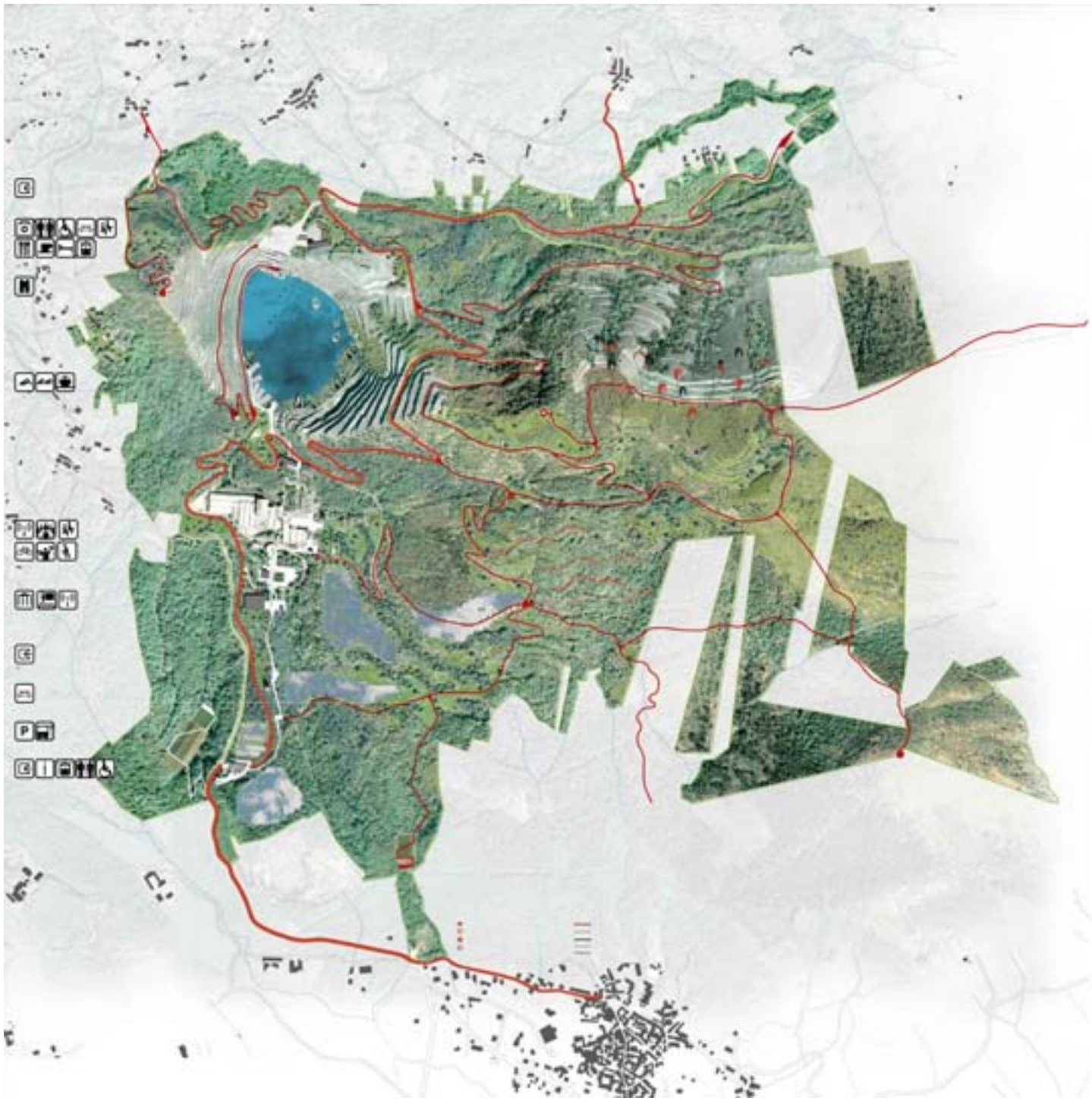
This proposal, recognizing the strong identity and symbolic value of the mine, especially the extraction crater with its terraced structure now partially occupied by a pool of water, therefore, tends to the preservation and enhancement of such unique architecture. In addition we provide assistance to ensure the enjoyment of an upgraded environment, fun activities related to the lake and surrounding nature, activities of educational training and production activities located in the old industrial buildings and related the production of energy.





7.4. PLANNING STRATEGIES

This proposal seeks to give backto the people the free use of the area by integrating parallel aspects of ecological restoration of the environment.
The project strategies are then briefly summarized as follows:
- Identification of uses and activities to different surfaces with different functional purposes;
- Creation of a main axis that reaches up to the multifunctional events plaza that crossing trough the different restored building articulates the different new programs.
- Creation of a network of nature trails (natural, archaeological, scenic, etc..) ensu ring mobility and connectivity within the nuclei of new program;
- Scheduling recreational activities related to the lake;
- Allocation of certain surfaces to produce energy through renewable sources (Solar and wind);
- Creation of a cable car for the connection between the main entrance and the multifunctional events plaza to ensure accessibility even to population of limited mobility;
- Adaptation of the buildings on the basis of the new uses proposed (educational, didactic, cultural, etc);
- Programming of interventions of ecological restoration to the mine and its surroundings;
- Adaptation of the place with all the amenities for comfort and user-friendliness.



7.2. STRUCTURE OF THE PROPOSAL

7.2.1. POINTS OF INTEREST

- The new entrance to the Technology Park of Balangero and Corio, is not only the portal to the area but also the starting point of the cable car, the info-point to the park and its facilities and other additional services;

- Different spaces and plazas are located by the rehabilitated buildings and along the main axis; these spaces will be provided with the necessary facilities and properly equipped.

-A system of paths and informative walkways will guide the visitor trough a series of interest points of industraial archeology,

- Two piers or decks situated at either extreme south and north of the lake: the first more extensive and detailed for recreational enjoyment of the lake (swimming, kayaking, leisure, scuba diving lessons) and the second as a docking point along the north side where ramps connect the events plaza above;

- It also provides for the implementation of certain floating islands, structures (anchored at the bottom of the lake but still with a certain freedom of movement) on which the people can moor small boats and relax, observing the aquatic vegetation that grows in their center. This is possible thanks to a system designed ad-hoc which allows the presence of substrate for the growth and rooting of the plants on the floating islands. This plants are selected to maintain biodiversity and quality of the water in the lake.

- To allow the connection between the level of the lake and the new multi-purpose piazza a connection trough a ramp system (with a maximum gradient of 4%) allowing mobility from terrace to terrace. On each terrace a mobility control system is provided to guarantee safety, allowing for the resting and contemplation of the landscape and of the crater at different height levels;

- Strategically located in a position of dominance on the extraction crater , the lake, the surrounding mountains and the valley in direction to Turin the new Multi-purpose events Piaza is localized. This space, which is connected to the main entrance due to the cable car, but also through the driveway, is given a proper paving and a group of buildings to accommodate a wide range of public events (bar and restaurant, services, a multipurpose building for educational and recreational purposes, over-night accommodation for hikers or visitors who visit the area or those who wish to stay overnight with the view of most large quarry asbestos never existed in Europe). The area of the plaza will be able to accommodate events for the general public: concerts, theater, cinema, exhibitions, and sport events;

-On the side of the Piaza, a “lunar scenario” (an area of stones and rocks, with very little herbaceous vegetation and moss emerald green) hosts the new Planetary Observatory. This space, designed for contemplation of the sky and the stars is equipped with a certain type of furniture (rotating around a central pin and designed in such a way that the user you can comfortably lean on) located privileged highest terrace where no city lights disturb the wonderful observation of stars.

- In addition to the main entrance located across the street from the Cave of Balangero, two further entrances are provided: one from the side of the Corio along the driveway, the other along a walkway that connects the town of Balangero with the mining site.

- With regard to the production of energy from renewable sources (for which reserves a specific treatment in the management plan), other 4 lots of solar panels is expected along with the realization of an energy production station by means of wind-kite-generators located in the east of the property and on top of the mountain created with the accumulation disposed extraction materials.

7.2. THE CONNECTIVITY

The mobility within the area is ensured by a network of paths, largely represented by existing routes, as well as new, that allows the visitor and learn in a complete and safe visit to the area. If certain areas are allowed a free access, others are limited to avoid any potential risks associated with use of the area by the public. Access to these areas must be limited and controlled by different systems (Railings and paving of various kinds). The trails allow guests to reach and experience the different areas of the park to discover the nature and the landscape in forested areas, learn about the extraction and the history of the mine in an educational sequence, as being confronted with the splendid magnitude of the man made works, or admire the engineering works and the enormous movements of material produced over the years, resulting in a vast lake and the creation of a new debris material mountain.

The proposal is therefore adopted the following classification of paths:
- Adequation of the main driveway: designed for vehicular access connecting the inlet with educational and production buildings, passing through the multipurpose events piazza (allowing the transport of material and people up to that point), reaching the entry by side of Corio. Along this path a shuttle service will be moving between the two inputs (Balangero side and Corio side) and the multipurpose events piazza in the shape of small buses.

- Nature trails: Are those developed in the areas of highest natural and environmental aspects, allowing knowledge of the Alpine foothills (of its flora and fauna) crossing the photovoltaic panels, wooded areas, open spaces for the resting and leisure areas, trails, view points, all the way up to the wind generators, creating a full scenic and educational experience.
- Route of industrial archeology: the path starts at one end in the square behind the old industrial buildings. It narrates in its itinerary the activities of mining activities, its importance and its history over the years. Several illustrative moments are placed along this path passing through the most representative points of the mine and its facilities up to one of the galleries (appropriately restored to safe conditions), in which are installed interactive light panels that narrate the stories of families and the mine workers, illustrating all the aspects of the mine, from the economical flourishment of the community to the health issues that the workers and the families faced. After learning this information along the dark, long, rocky gallery the visitor exists to a platform cantilevering over the water overlooking the insides of a mountain that was transformed in material.

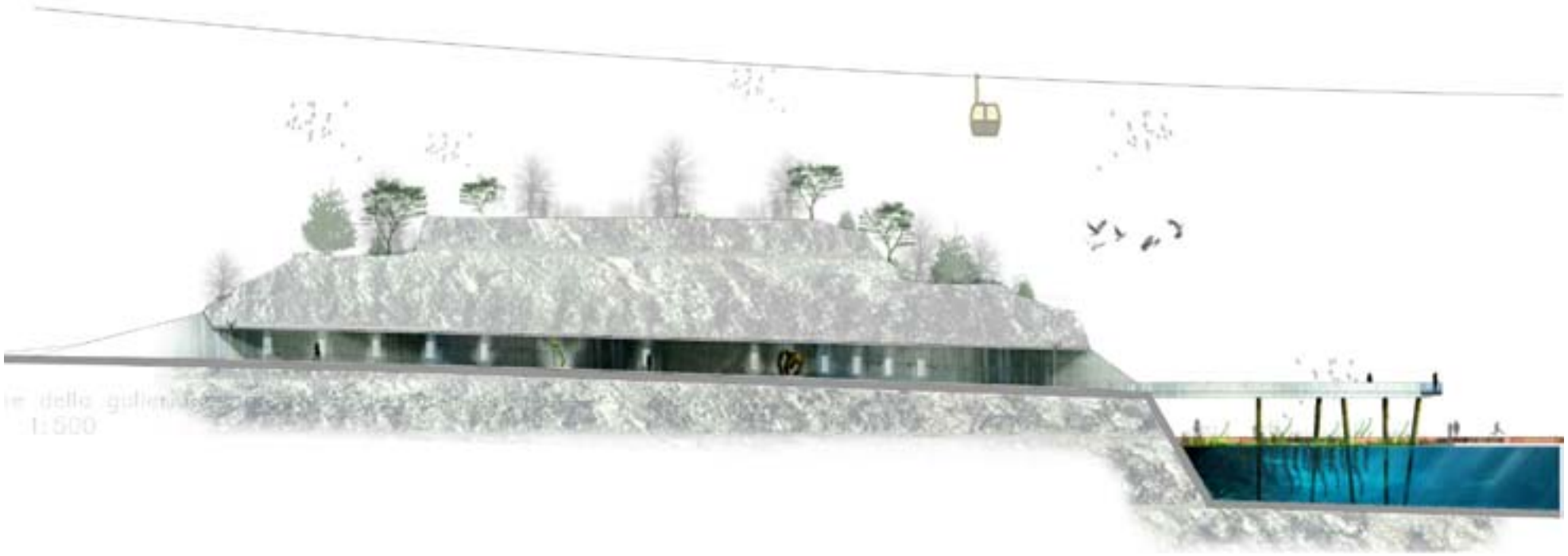
This experience that aims to highlight the activities of extraction of the mountain and the great movement of material produced over the years to come until the situation today, is reinforced by an installation on the form of land art, which my laser lights located in diverse locations can project on the mist or floating clouds the no-longer existing profile of the mountain before the extraction.

- Scenic route on the steps: taking advantage of the unique architecture created the activity of extraction of the mine, two paths along the panoramic terraces are created on two different heights. A first level near the water allows the connection made between the two piers on the lake, a second level much higher allows the connection between the wharf area to the south of the lake and the square multi-purpose events. It is necessary ensure safety in these two terraces by the realization of a mobility control system (side railings).

Path to the extraction observatory: starting from the multifunctional events piazza, trough a scenic route that moves in the border area between steps and the natural contours of the mountain visitors will come to an observatory located on Bric Forcolo hill at an altitude of about 960 meters. At this height the visitor can enjoy a incredible view of the quarry and the current lake, as well as on buildings and on the valley that opens in the direction of Turin, to better enjoy the view it is foreseen that the concrete cantilever structure will have its final part of the pavement and the final parapet made of glass.

"A blast furnace is not only an old furnace. It is a menacing 'dragon' frightening men and rising above its surroundings,"

Peter Latz



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7.3. BUILDINGS

The following is the detailed description of the intervention to the existing architectural heritage and related redevelopment projects that will make them part of the new scenario of the Technology Park of Balangero and Corio:

- Main entrance building (with info point and auxiliary services to the introductory knowledge and management of the park) with the cable-car station;

- Art and Culture Gallery: set in a fascinating context of industrial archeology;

- New EcoMuseum of Mining Activities of Balangero e Corio: This space is composed of an exhibition on the history and works on the asbestos extraction illustration of such history through the exhibition of photographs, a model of the site, the artifacts and data of asbestos and mining activities.

- Exhibition building - New educational center on the recovered landscape of the mine Balangero and Corio. This space will carry out testing activities and will also be administrative and management center, monitoring and protecting the environment and the recovery activities.

- The old industrial buildings will be dedicated to new uses hosting the new Technology Center of Balangero and Corio, By the creation of a space dedicated to research and experimentation. The buildings will be structured so as to contain the modular spaces of different sizes (Possibly broken down into sub-units or modular in larger units). These spaces will be rented to businesses, research institutions, universities and companies devoted to testing alternative products and eco-friendly technologies. The new center will host only activities dedicated to the preservation and respect for the environment, and those that can prove their eco-compatibility as the research or production of products and technologies to help the environment. This space will also be equipped with rooms and common areas for meetings, conventions and conferences, meals, and other services.
- Building for educational workshops on industrial and mining activities, asbestos mining and the extraction of other metals from the soil; and the new material development with a more sustainable approach. The aim is to learn from past mistakes.
- Overnight accommodation on the fringes of the multi-purpose events piazza and the arrival station of the gondola;
- Restaurant and Bar and a multipurpose building connected with the events that take place on open space.

by vegetation that will facilitate on the one hand the consolidation of the material but at the same time the re-naturalization of such surfaces. In this type of intervention the re-vegetation of the material stone currently present along the east wall of the crater is also inserted, which is very problematic in relation to the high content of asbestos fibers and the high costs of handling in case of moving the material. (These areas are referred to as “pioneer vegetation” VP.)

7.4. CONTENT

The project can be summarized in the following programmatic macro-areas:

- Areas used for energy production from renewable sources such as solar panels and wind power generators.
- Buildings for teaching and illustrative.
- Areas and buildings for rent such as laboratories, offices and research centers.
- Areas for the enjoyment of the recreation, combination of sporting and business.
- Ecological zones for environmental restoration. (These areas are designated by the letter N).

Clara Arango

7.5 NATURE AND LANDSCAPE

This paragraph is not intended to illustrate the strategies of the ecological restoration program, but rather to list the different types of macro-proposed measures on existing vegetation and areas subject to transformation and interventions:

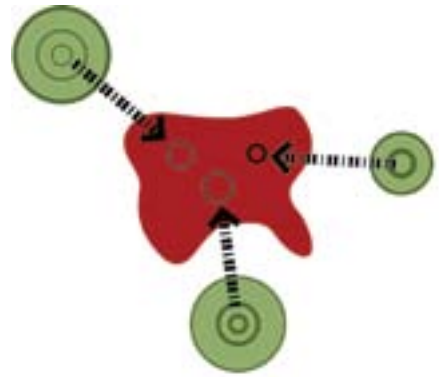
- In areas less affected by the activity of extraction (where the natural and environmental potential is currently greater) there will be pursued to environmental restoration according to ecological principles and strategies described below.

- Along the main axis, in the new spaces of aggregation close to buildings and multipurpose space for events another type of vegetation is used with a more anthropogenic approach (To be used by man and not designed directly the environmental restoration).

- In order to naturalize the lake and to facilitate the establishment of ecosystems (Currently not yet present), planting of selected species is provided with technology that will be better described below and are presented in the drawings. (These areas are indicated as “Aquatic vegetation” VA);

- In areas that for years have served accumulation of material of small dimensions, where it is not possible to make ground movements, there is a fertile land and will be mainly concentrated for flood control reinforced

description



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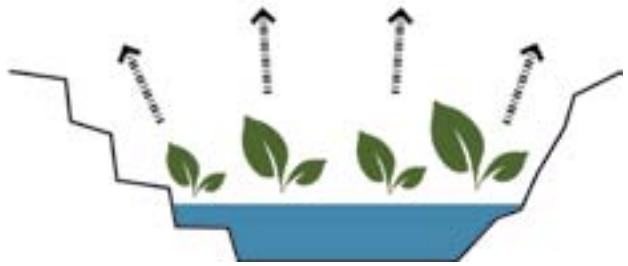

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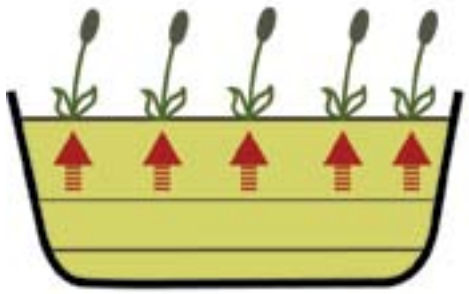


7.5. INDUSTRIAL AREAS AND HISTORIC OFFICE BUILDINGS

The recovery of the former mine of Balangero and Corio involves the redevelopment of the landscape from a new urban structure, served by infrastructure and versatile and multifunctional spaces offering new uses.

New multipurpose areas for scientific research appear in the form of laboratories “green chemistry” and micro - production entities and educational entities. The architectural design is made up of a new roofing structure, which overlaps the old industrial buildings structure creating flexible spaces within the same space. This allows for flexibility of use and space rental.
Inside the new buildings much of the existing is retain in order to preserve the memory of the place. The large space is also equipped with internal patios that improve the comfort environment such as natural light, as well as represent systems suitable for accessibility to people with reduced mobility and integrated into the urban system of the park.
The large shed, thanks to its modularity and flexibility offers the option to be rented to businesses or entities interested in sustainable energy policies and research. Together with laboratory space for lease in the old industrial building, auxiliary services and common use spaces will also be made: the administration offices, the auditoriums, multipurpose areas and other areas with remarkable versatility. Looking for a greater integration of new buildings and its architecture with the landscape and the environment surrounding the project proposes an extended cover that has the ability to serve a support for photovoltaic panels, the cover in developed in prefabricated modular panels made of recycled concrete. All this is thought in order to reduce the environmental impact by generating conscious alternatives such as sustainable source of energy for the building.

The extensive coverage that makes the new spaces (Highly innovative technological solution) is composed of a completely modular structure, which allows different finishing solutions, different system implementations according to requirements. This system can be prefabricated and to less intervene with the surrounding environment.
In addition to multipurpose laboratory space, the proposal includes the recovery of some of existing buildings on the site given their architectural and historical qualities. The historical office building will be inaugurated as Ecomuseum of Balangero and Corio, as well as additional services. The building is retrained and inserted actively becoming an important element in the proposal for the historical memory of the mine. These new programs aim to promote the north of Italy as a hub for sustainable smart technologies. Similarly, the existing building behind the new museum is designed and upgraded to the museum / workshop on nature and landscape, as well as offices for administrative management of the two museums. For both buildings the façades are preserved, suitably restored to maintain their original appearance, accompanied of internal structures that are functional to the new proposed uses.

THE MUSEALIZATION OF BALANGERO AND CORIO PROS AND CONS

The Chapters **3.a** and **3.b** from the general document stating the competiotion requirements are very clear when highlighting the values that make the ex-mining site so fitable as an ecomuseum:

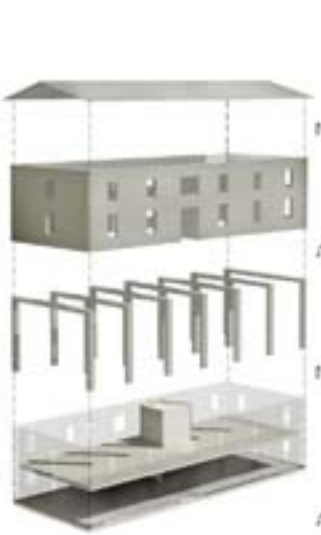
“a. the wealth of economic history represented by the former mine as a whole constitutes a unique example of industrial architecture and unique place that is full of purpose in ecomuseum structures, framework within which to develop activities and form part of the revival of interest tourism and culture;
b. the former testifies amiantifera an impressive work of man over nature. For this reason, the morphological character and historical evidence of the site must be valued and preserved consistent with the solutions of retraining! Application and development that will be identified;”[1]

This raises the issue of the “musealization” of industrial and mining sites. The reasons for this specific site are clear not only on the competition requirements but become obvious when experiencing the site and studying its history. Therefore two main values are defined for this specific site: The physical values of the site and the historical value of the site.

The firs was made obvious when the mandatory visit to the site took place. A wonderfull suny day highlighted all the massive and surprinsingy charming charachteristics to this site: The crater can be observed from the distance as one approaches the area trough the local roads; it shows itself as a deep scar in the mountaing revealing an intreaging deep green. As one apporaches the excavation crater already within the property, its proportions are unclear to a human eye, still disguised by the distance. This proportions and unveiled as one steps on the Balangero side of the crater were, at water level the anphiteather can be enjoyed. The nature of the stone is revealed by light in dramatic claro-oscuro produces by the morning site. The colors observed in the distance are enriched by detailed chances from shiny white to dark deep blues and greens. The Asbesto’s fibers can be easily found in the conformation of the rock with a bizarre beauty. the light yellow of the fiber remind of horse hair. The rock raiss above the lake level in huge steps of about 10m reaching about _____m untill the top of the mountain. The water reflects all this monumantal characteristics doubeling them as in a mirror. This expericnes highlights the absence of a once existing, but remoeved mountain top.

1. Concorso d’idee - Riqualificazione e svilupo del sito minerario di Balangero e Corio.Bando e disciplinare. page 4.

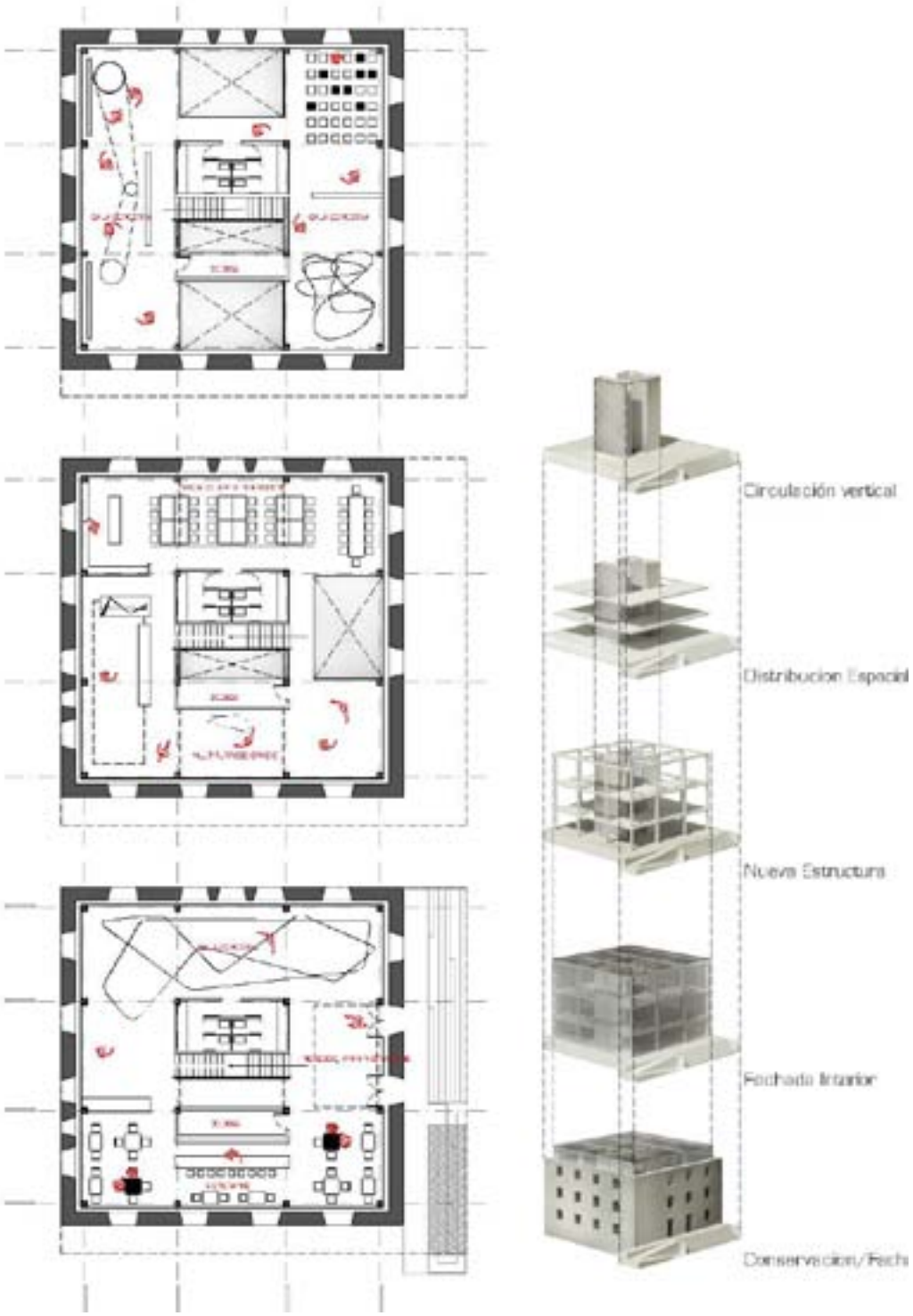
PLANIMETRIA GENERALE
AREAS COMPLEMNETARIAS 1_250



SCHEMI
Complemntos del museo

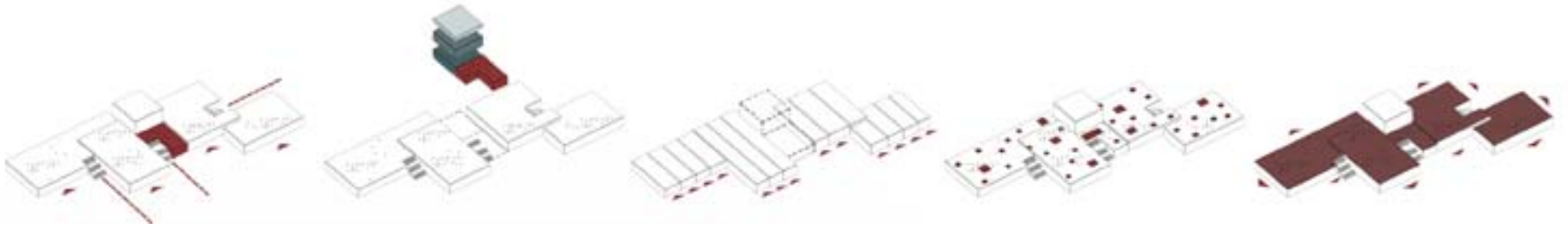
AUDITORIUM
POLO SCIENTIFICO 1_500

AMMINITRAZIONE
POLO SCIENTIFICO 1_500



The other value that is properly mention by the competition requirements is the economical history that is represented by the mine. An important range of industrial architecture stiles is displayed amoung the different industrial buildings, some of them of higher architetural value, but all with strong characteristics that in silence narrate the working activities that once hosted.

By learning about the history of the “Cava di san Vittore” later to become “Amiantifera di balangero e Corio”, one can understan the role that this mine had on the economical development of the reagion and its importance on a national and international level. All the stories and situations that this mine can narrate are an important value when evaluating the posibility of the musealization of such site. Many stories need to be told, many lessons need to be learned. The current site is in our view a perfect opprotunity for hosting an eco-Museum devoted to archeology of mining.



PLANIMETRIA GENERALE
LABORATORI 1_500

SEZIONE GENERALE LABORATORI 1_500

7.6. THE ENVIRONMENT AND THE NATURAL LANDSCAPE

Ecological restoration is a voluntary activity that starts or accelerates the recovery of ecosystem in regard to its health, integrity and sustainability. An ecosystem requires a process of restoration when it is degraded, damaged, transformed or destroyed beyond repair as a result of direct or indirect anthropogenic activities.

In the case of Balangero and Corio's mine is possible to identify portions of territory where the ecosystem was completely eliminated (the extraction crater and its e terraces and heaps of stone) along with areas where the wounds were less deep and consequently more or less recoverable.

The following paragraphs will explain the objectives to be achieved for recovery of the natural wealth of the area, the strategies to be adopted and the proposed specific actions.

It is important to emphasize that ecological restoration has as main purpose to help and establish the recovery process, continued by subsequent operations of handling to ensure the continued well-being of the restored ecosystem.

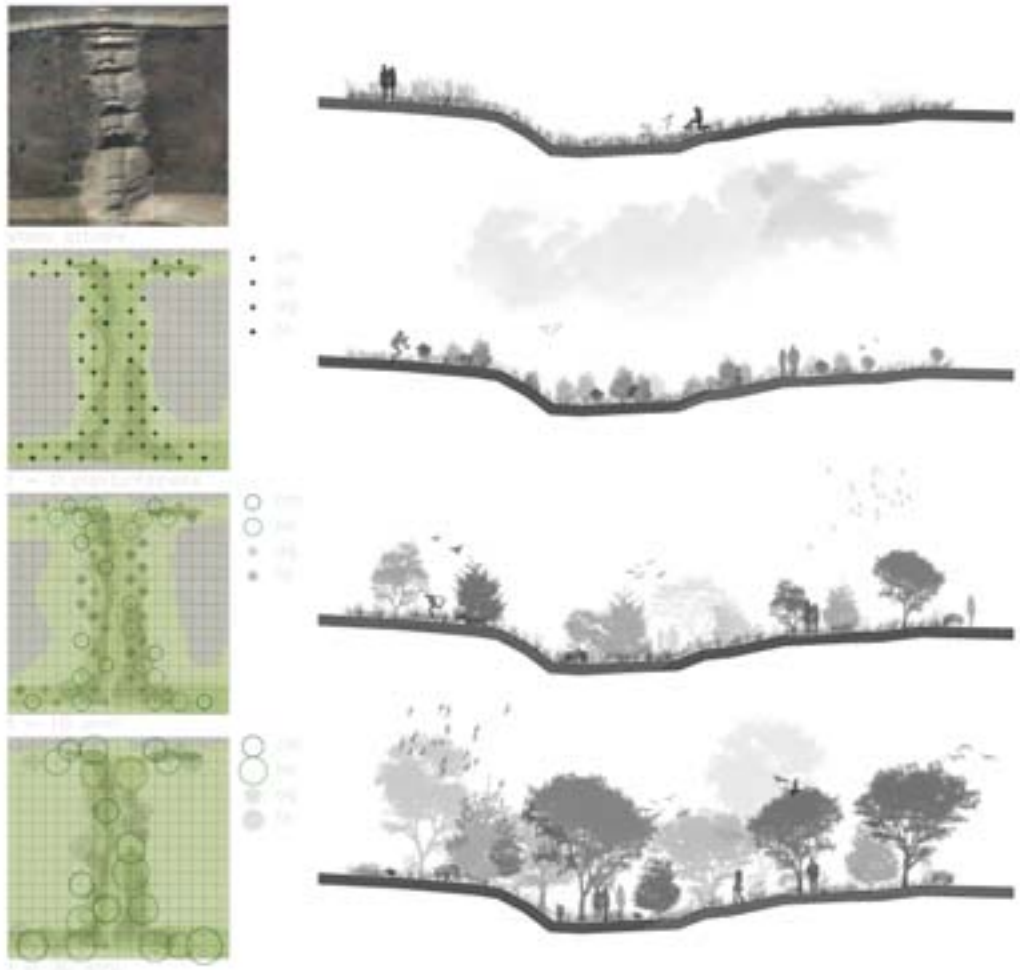
7.6.1. OBJECTIVES

In general terms, the objective of the proposed interventions is the ecological restoration. This project aims to provide ecosystems in the territory of the former asbestos mine sufficient resources (biotic and abiotic) so that they can continue on their own process of recovery and subsequent development without further additional external support.

At that stage the ecosystem will be sufficiently recovered and integrated with its surroundings and with the ecological landscape matrix, enough to interact with these continuous flows through and exchanges of genetic material.

This results in concrete increase of the green cover surfaces of the individual areas affected by mining, and in increase of the gene pool present in the area. This is reached with different strategies to suit the degree of degeneration of the detected ecosystems.

In other words, for each degraded area an ecological trajectory has been drawn to describe the specific paths of development of the ecosystem over time. This path begins with the ecosystem that is yet not restored and evolves towards the desired state of development and recovery in the explicit objectives of the project and that is looming in the ecosystems of reference.



7.4.2. STRATEGIES

The degraded ecosystem allows a certain degree of manipulation of the habitat in order to promote the establishment of forest species of interest. This improvement has severe limitations both physical and economic, and logically a careful choice of plant and species should be made, so that they work along with the features and limitations of the habitat.

The first step is represented by the selection of species based on the current ecological environment: especially as regards to the climate and the soil characteristics.

In the introduction of species in a degraded ecosystem the role played by the existing vegetation should always consider: the interactions between the existing ecosystem and the introduced species can be competitive or of symbiotic support. Obviously in highly degenerate soil and very limiting climate, the existing vegetation will be less relevant. In this project one cannot draw a unique choice of vegetation to take over the whole area because the diverse areas are profoundly different from each other and so should the interventions, methods and materials to introduce.
With regard to the macro-strategies that have been adopted in the interventions of ecological restoration and re-naturalization of areas outlined in this project the following guidelines can be observed:

- Identification of one or more reference ecosystems to plan interventions in the subject of site restoration and to evaluate the results obtained. These references are usually a late stage of development one wants to achieve. These are normally constituted by an existing place immediately around the subject area or in some cases by historical memory (Based on historical photographs);
- Use of gutter lines, collection and channeling of existing water lines as a source of biodiversity and regeneration (the gradient of humidity generates the accumulation of water transfer and promote survival of the species and, and generate dynamic interchange of the ecosystem planted by the gradient itself).

COPERTURA ARBOREA

0 %	11 - 20 %	31 - 40 %	51 - 60 %	71 - 80 %
1 - 10 %	21 - 30 %	41 - 50 %	61 - 70 %	81 - 90 %

Solar enery in Balangero

The S.R.A. slr has developed for over a decade a series of projects and interventions to bring the area to geological and environmental stability. Among other projects, five areas have been designated for the development of photovoltaic fields; this five areas sum up to an area of XXsqm that are clearly defined in the maps

Point 3.e of page 4 of the competition requirements states that “the planned activities must be characterized by careful ecological footprint to sustainable development by identifying solutions for the realization of ***a technology platform for producing energy from renewable sources*** and innovative architectural solutions in terms of energy efficiency;” and the point 3.f of the same page states that “the mode of energy supply must be the basis to support any proposed development of the territory concerned; the energy issue is related themes of competitiveness, environmental protection and enhancement of the vocation of the territory itself and, ultimately, social cohesion, taking account the economic and social benefits arising from the development of the energy system;”

In the competition documents is also sated that “The functional integration within the Territorial Plan of Integrated Lanzo and the proximity to important realities of territorial transformation, such as the Clean Tech Park included in the PTI NETWORKS 2011, allowing the site to promote an important functional role in the development of technologies for energy production from renewable sources”[1] this fragments of the requirements are important reasons to inlcude interventions on photovoltaic fields, Nevertheless we consider that the implementation of photovoltaic fields need to be consious, careful and limited, since what today seems like an energetical solution can soon become a mayor landscape problem.

As shown before in this document, the massive implementation of solar orchards is fastly transformation very valuable landscapes in very short time. If we keep our pace for energy demand, and the fast spread of such fields, we are soon going to limit what today are Europe’s important landscapes such as the Spain’s landscapes.

If we could asset the value of landscapes such as the Andaluz landscapes and the Italian landscapes, lets take Tuscany for instance, we would not only have to measure the value of its aestetics and its historical and cultural values, but also the economical values that they represent: This values come not only from the agricultural activities that for centuries have developed into high quality products wich represent highly profitable businness, as tuscany wine or spanish olives, But also from the incomes from tourism that these landscape values bring to Europe and that for years have been considered of patrimoni of all human kind.

By interpretating the strong position of the S.R.A. slr towards the implementation of the already projected solar fields, we decided to go along with the required areas designated for such use. Neertheless we believe this interventions could, and MUST reach further values in order to lower the impact on the landscapes. Not because of the fact that solar energy is more efficient that the energy sources we have used for decades and that the public oppinion therefore feels more possitive and attracted to these kinds of intervention, means they will not bring devasting consequences for our landscapes.

If we observed the landscapes that we have producing for the last decades by our energy obsesion, like Germany coal mines and we take in consideration that “solar thermal plant can produce 18 gigawatt hours per acre of land; whereas a coal-fired power plant will generate 15 gigawatt hours per acre of mined land” we can already pronosticate a considerable surface of our planet devoted to energy production; no matter how renuable the source is.

Therefore this proposal tries to do the best with what is an already designated area for solar panels. In this case the shape and the support of the panles are modified in order to meet a methafor: sunflowers. For one side the mechanism should move seaking for the highest sun exposure imitating the mitical sunflower heliotropism (sun turnig), but the methafor remains as the buds and the leaves do rotate towards the sun. We believe that the strengh of the methafor lays on making reference on how plants are dependant on the energy of the sun to grow and flouris. By imiteting flowers trough a simplified gemetry we try to imitate the relation of life to the Sun’s energy. The posibility of growing and developing by the means of solar energy.

Andasol Solar Power Station
Aproximately 200 ha
Andalusia, Spain

1- GUIDELINES FOR THE REHABILITATION AND DEVELOPMENT OF FORMER MINING OF ASBESTOS AND CORIO Balangero, ABSTRACT. page 18.2008.

8. Critical Analysis of the 3 Proposals

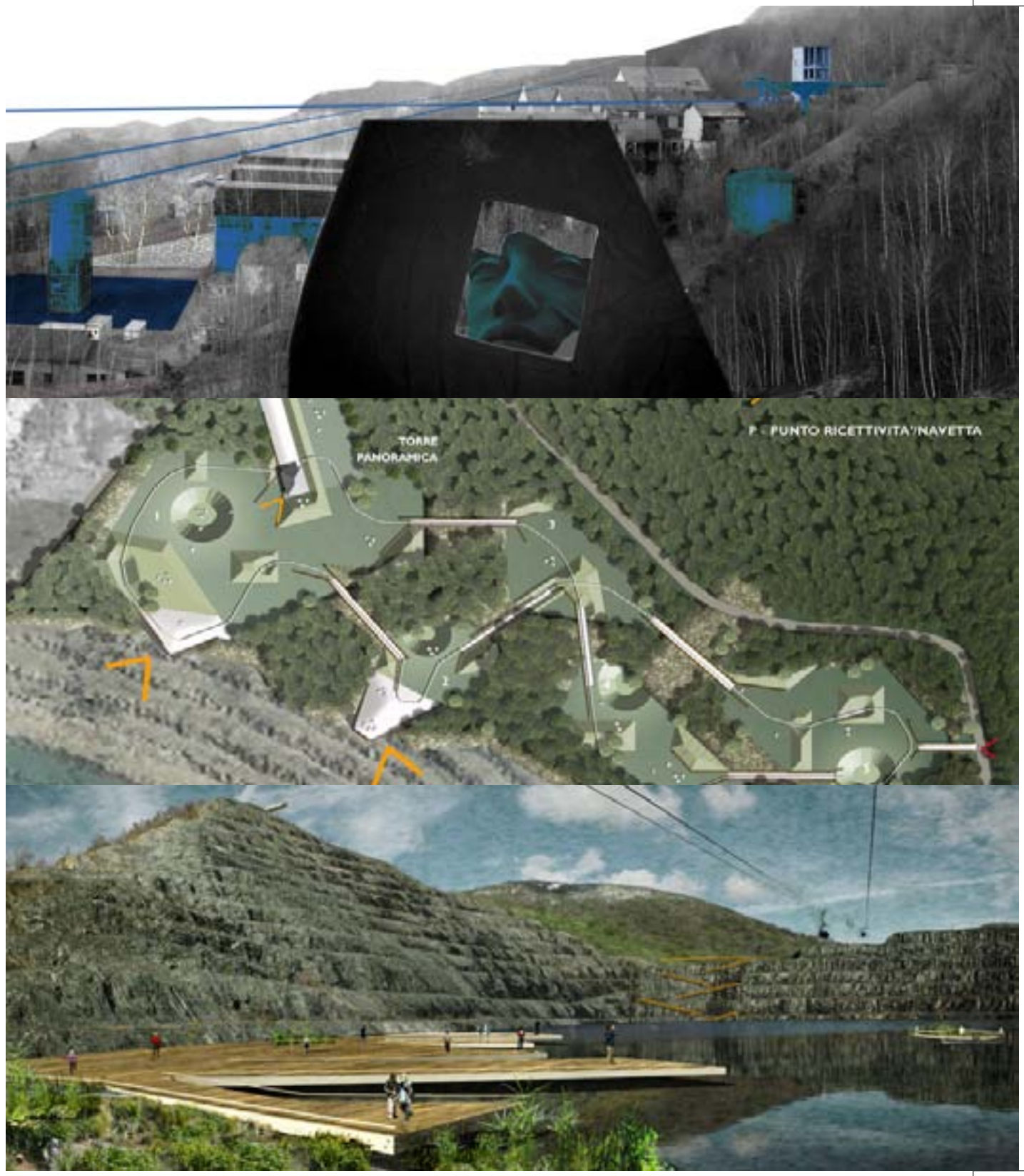
As mentioned before the RSA sol granted three prices to the first three projects that scored higher on the evaluation criterion defined a priori. Only these three proposals scored above the minimum number to be evaluated. One of the requirements was to deliver a short description of the proposals. This analysis starts by those short descriptions as follow:

The first proposal has a big emphasis on re-appropriation of the landscape and highlighting the ability of nature to recover. It intends to make evident this phenomenon of re-appropriation as well as showing the former mining activities with a retrospective and annalistic view. It aims to involve the public on a productive and didactic use of the land.

The second proposal seems to reveal an approach that leans towards the productivity and energy issues. With what they call their pillars of the project: energy, companies, wood and leisure, the project aims for a full profitability of the land trough the means of renewable resources. Its view towards landscape is more simplistic: “the forest will re-cover all” and the concept of accelerating or intervening on this process is vague.

The third proposal, trying to be as impartial as possible, reveals a deep attention on the intangible qualities of the landscape such as the symbolic and Identity values. It is deeply descriptive on the experience that the proposal offers the public and the landscape recovery intentions being less punctual on the strategies for the economical productivity of the land.

As shown in the evaluation chart, there were 4 main subjects of evaluation: A, regarding the re-development of the industrial spaces; B, regarding the Sustainability proposals and the management plan,



The most valuable criteria with 32 points regarded the fruition of the existing industrial spaces with the value of 32 points.
The second most important criteria (b) with 30 points was the sustainability of the proposal and the management plan specifically in economical sustainability, cost efficiency, management coast, business models and technological innovation.
The third criteria (c) were regarding the fruition and enjoyment of the lake, accessibility and landscape integration.
The last one (d) regarded landscape aspects like vegetation, environment and the strategies in the natural landscape.

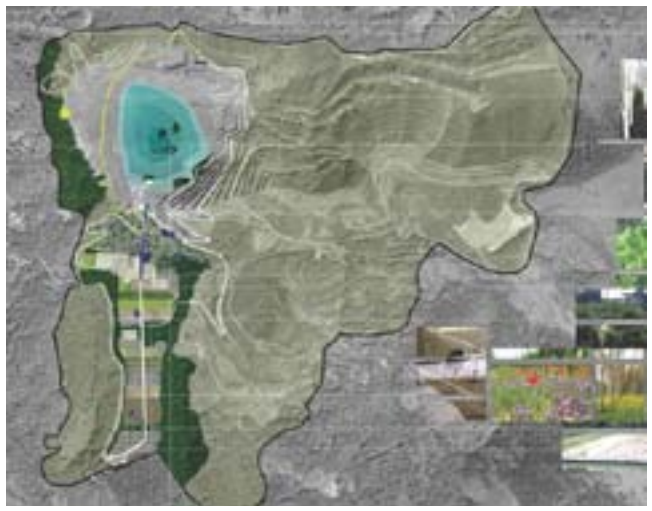
Each evaluation criteria had a different value that all summed to 100 points. For criteria (a) both First (5347HG37) and Third (parcotek) proposals reached 25, 8. It is clear in both proposals that attention is put on the idea of the buildings. The First proposal (5347HG37) kept the matter of the buildings in a very conceptual level: It mentioned the desired character and materiality, but it did not reveal mayor abilities to turn these very conceptual elements into architectural realities. The Second proposal (parcotek) was different: It presented real spatial schemes, space distribution, technologies, composition, character and materiality, the proposal revealed the architectural realities that could host the program proposed. It can be concluded, that the competition as a part of the recovery of Balangero and Corio ex-mining site at the current phase, cares little about the architectonical solutions, which to an extend is contradicting to the scoring being this criteria the most valuable in points.

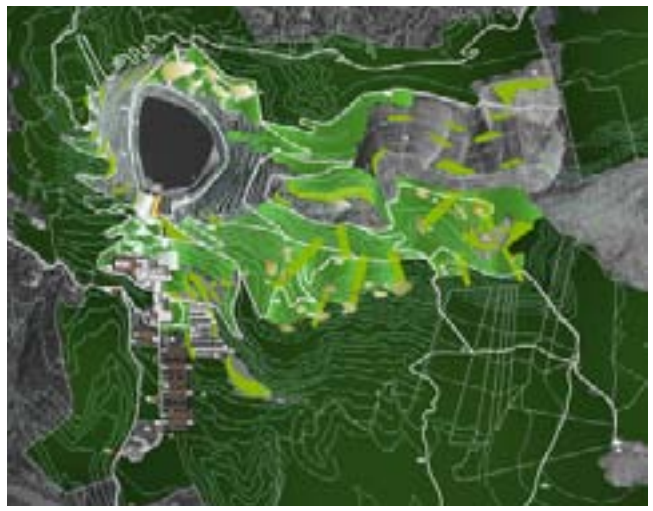
The second most important criteria with 30 points was the sustainability of the proposal and the management plan specifically in economical sustainability, cost efficiency, management coast, business models and technological innovation. The highest score to the criteria was given to the Frist proposal (5347HG37) with 24 points which is indisputably a well-rounded proposal of management and sustainability. The proposal reveals the expertise of the projecting team in these matters. It was a clever, innovative, sustainable proposal: all the proposes strategies were coherent to each other, making each of the very clever proposals much stronger. The next was proposal 2 (32697524) with 21,3 points, on the other hands, regardless of the detailed description did not much but to deepen and explain how the sustainability and management concepts already proposed by the competition (SRA) itself was to function. On one hand it is important that the team reveals the expertise to fulfill the SRA requirements, but as a proposal it lacked creativity, innovation and a real concept of sustainability since the different components of the proposals were not clearly linked.

The third criteria (c) were regarding the fruition and enjoyment of the lake, accessibility and landscape integration. On these criteria both the second (32697542) and the third proposal (parcotek) scored evenly (20, 8). The second proposal describes a circular platform that goes around the lake revealing a contemplative attitude towards the resulting landscape.
The Second proposal shows that most of the interventions are developed around the concept of enjoying the landscape around the lake as lookouts; public space, platforms and stair are implemented in the very heart of the mine complemented by environmental recovery interventions. Much superior was the scoring of proposal 1 (5347HG37) with 23, 4 points revealing a contemplative attitude enriched by artistic interventions in the landscape as well as technology of environmental recovery.

The last one regarded landscape aspects like vegetation, environment and the strategies in the natural landscape. For this matter the second proposal (32697542) scored the highest reaching 8,8 points. This was probably assigned given the proposal of integrated spaces on the north side of the mine and the integration of recreational, technical and productive activities as a whole, making it become a theme park. The proposal shows a weaker relation with the existing characteristics of the mine and the lake, as it limits its relation to two platforms that overlook the lake. The first proposal on the other hand emphasizes the lake as the climax of a series of paths and experiences, and enhances its proportions and characteristics with the inclusion of big floating islands. The Third proposal also includes the floating islands and links the surrounding proposed program to the spatial characteristics of the lake trough the inclusion of platforms at the south of the lake to link the main programs of museums and recovered industrial buildings, just as it links the main event plaza of events in the north of the mine through a series of ramps that enhances the views proposed by the huge steps.

In terms of representation???

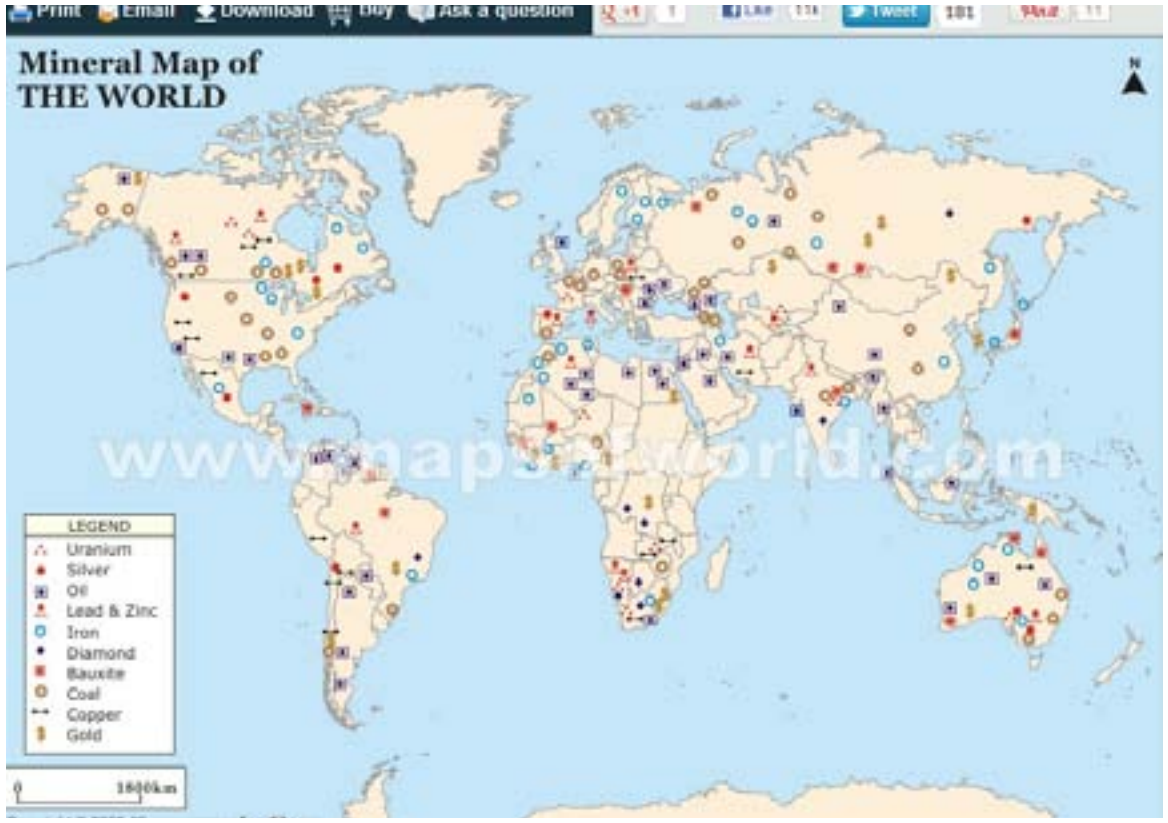




9. A POSIBLE FUTURE OF MINING

http://205.254.135.7/countries/cab.cfm?fips=CO

Colombia is one of the world's largest coal exporters.
According to the World Energy Council, Colombia had 7,436 million short tons (MMst) of recoverable (mostly bituminous) coal reserves in 2008, the largest in South America. These deposits are concentrated in the Guajira peninsula in the north and the Andean foothills. Colombia's coal is relatively clean-burning, with a sulfur content of less than 1 percent. Colombia produced 80.87 MMst of coal in 2009, while only consuming 6.69 MMst. The country exports most of its production – in 2009 it was the fourth-largest coal exporter in the world.



Production

Colombian coal production, which is exclusively carried out by private companies, has nearly doubled since 2000. Preliminary estimates of 2010 production place Colombia's coal output at 82.78 MMst – well short or the country's goal of 90 MMst, but still a record for national production. Massive rains caused by the el Niño phenomenon in the latter part of 2010, which disrupted transportation networks and open-air mine operations, contributed to this shortfall. The Colombian government aspires to double production by 2019.

Se pueden generar normativas o sistemas de extraccion donde se programe un paisaje que es mas bonito o productivo en el futuro???

Como en la descarga de material residuo, se pueden generar paisajes nuevos... que se recuperen mas facilmente.

Buscar tecnicas de ingenieria naturalistica que ermitan extracciones mas sencibles.

Glosary.

Afforestation is the establishment of a forest or stand in an area where the preceding vegetation or land use was not a forest.

Reforestation is the reestablishment of forest cover, either naturally or artificially, that usually maintains the same forest type and is done promptly after the previous stand or forest was removed.

MSW: Municipal Solid Waste

WEEE: Waste Electrical and Electronic Equipment

Free cooling is an economical method of using low external air temperatures to assist in chilling water, which can then be used for industrial process, or air conditioning systems.
When the ambient air temperature drops to a set temperature, a modulating valve allows all or part of the chilled water to by-pass an existing chiller and run through the Free Cooling system, which uses less power and uses the lower ambient air temperature to cool the water in the system.
This can be achieved by installing an air blast cooler with any existing chiller or on its own. During low ambients a processor can by-pass an existing chiller giving energy savings of up to 75%, without compromising cooling requirements.

Batter: The inclined section of the wall in a quarry.

Bench: The flat part of the step in a quarry. It is also known as or berm. The steps in the walls help prevent rock falls continuing down the entire face of the wall or berm.

Tailings:Ore which has been processed is known as

TRAER TODO EL PROCESO DE BUSQUEDA,...
MAQUETA 3D,
DOCUMENTOS, ETC..
LIBROS Y REFERENCIAS.

RESEARCH TOPICS:

-MINING AND MINERAL EXTRACTION

The extraction of open cast mines is much less complex and less costly than in the case of undergorund mines [1]. This has resulted in vast areas of the planet that have been left as scars from the area of industrialization. This scars are reminders not only of the economical flourishment but also of the side consequences societies went trough.

-MINING IN ITALY

-THE EXTRACTION OF ASBESTOS

The word asbestos comes from the ancient Greek ἄσβεστος, meaning “unquenchable” or “inextinguishable”[2]

Asbestos mining began more than 4,000 years ago, but didn’t start large scale until the end of the 19th century. The world’s asbestos mining peaked around 1975, when asbestos was being mined in some 25 countries, but is today less than half of what it was in the mid 1970s. For a long time, the world’s largest asbestos mine was the Jeffrey mine in the town of Asbestos, Quebec.[3]

By the mid 20th century uses of Asbestos included fire retardant coatings, concrete, bricks, pipes and fireplace cement, heat, fire, and acid resistant gaskets, pipe insulation, ceiling insulation, fireproof drywall, flooring, roofing, lawn furniture, and drywall joint compound.

The first documented death related to asbestos was in 1906. In the early 1900s researchers began to notice a large number of early deaths and lung problems in asbestos mining towns. The first diagnosis of asbestosis was made in the UK in 1924. By the 1930s, the UK regulated ventilation and made asbestosis an excusable work related disease, followed by the U.S about ten years later.[4] The term mesothelioma was first used in medical literature in 1931; its association with asbestos was first noted sometime in the 1940s.

Asbestos can be found naturally in the air outdoors and in some drinkable water, including water from natural sources. Studies have shown that members of the general (non-occupationally exposed) population have tens of thousands to hundreds of thousands of asbestos fibers in each gram of dry lung tissue, which translates into millions of fibers and tens of thousands of asbestos bodies in every person’s lungs.

All types of asbestos fibers are known to cause serious health hazards in humans. While it is agreed that amosite and crocidolite are the most hazardous asbestos fiber types, chrysotile asbestos has produced tumors in animals and is a recognized cause of asbestosis and malignant mesothelioma in humans.[5]

Mesothelioma (or, more precisely, malignant mesothelioma) is a rare form of cancer that develops from transformed cells originating in the mesothelium, the protective lining that covers many of the internal organs of the body. It is usually caused by exposure to asbestos.[6]

Mesotheliomas have been observed in people who were occupationally exposed to chrysotile, family members of the occupationally exposed, and residents who lived close to asbestos factories and mines.[7] The most common diseases associated with chronic exposure to asbestos include: asbestosis and pleural abnormalities (mesothelioma, lung cancer). Asbestosis has been reported primarily in asbestos workers, and appears to require long-term exposure, high concentration for the development of the clinical disease. There is also a long latency period (incubation period of an infectious disease, before symptoms appear) of about 12 to 20 years.[8]

Other asbestos-related diseases

- Asbestosis: Progressive fibrosis of the lungs of varying severity, progressing to bilateral fibrosis, honeycombing of the lungs on radiological view with symptoms including rales and wheezing. Individuals who have been exposed to asbestos via home, environment, work should notify their doctors about exposure history.
- Asbestos warts: caused when the sharp fibers lodge in the skin and are overgrown causing benign callus-like growths.
- Pleural plaques: discrete fibrous or partially calcified thickened area which can be seen on X-rays of individuals exposed to asbestos. Although pleural plaques are themselves asymptomatic, in some patients this develops into pleural thickening.
- Diffuse pleural thickening: similar to above and can sometimes be associated with asbestosis. Usually no symptoms shown but if exposure is extensive, it can cause lung impairment.

Place data cregarding Italy of North Torino or balangero specific cases.

1-Aleksandar Ivancic, Editorial Gustavo Gili, SL. 2010. “Energyscapes. Land & Scape Series”. 48. 2010
2-Alleman, James E., & Mossman, Brooke T (July 1997). “Asbestos Revisited”. Scientific American: 54–57. Retrieved 26 November 2010
3-http://en.wikipedia.org/wiki/Asbestos
4- “What is asbestos?”. American Cancer Society. Retrieved 2010-01-12.
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6- Cancer research UK. http://cancerhelp.cancerresearchuk.org/type/mesothelioma/about/mesothelioma-risks-and-causes
7- Marbbn, C.A. (2009). “Asbestos Risk Assessment”. The Journal of Undergraduate Biological Studies: 12–24.
8- Mossman, BT; Churg, A (1998). “Mechanisms in the Pathogenesis of Asbestosis and Silicosis”. American journal of respiratory and critical care medicine 157.

- WIND ENERGY

Clara Arango

“Formerly, the energy of the wind was used in-situ for agricultural or industrial ends. It was the first source or renuable energy man used in a massive way at the mid and large scale. Today, the electrical energy produced by the wind is the most economical of all renewable energies.”... “ During the last decade wind farms have experienced an extremely rapid growth in size and power”[1]

1- Aleksandar Ivancic, Editorial Gustavo Gili, SL. 2010. “Energyscapes. land & Scapes Series. 59.