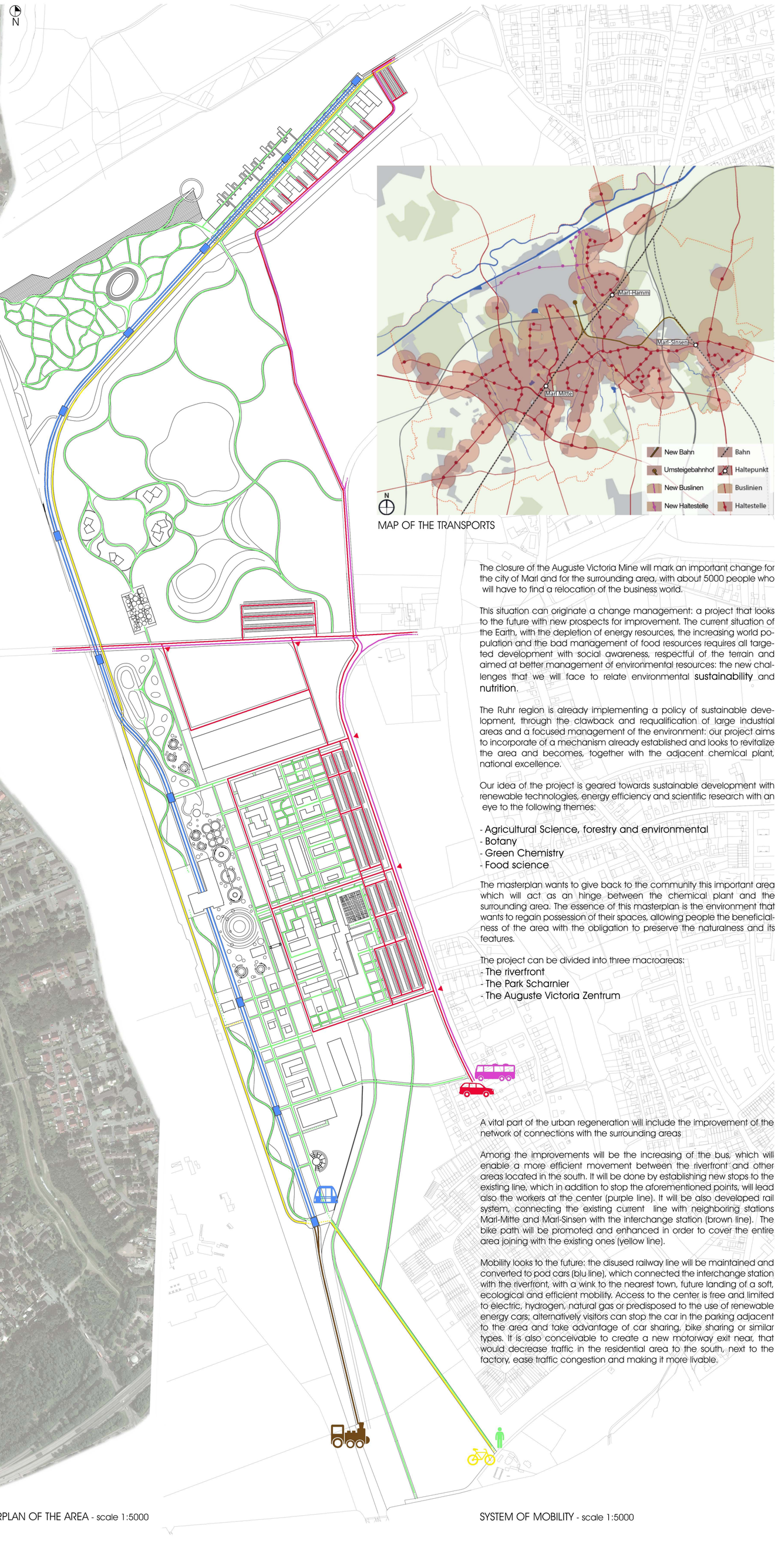
MASTERPLAN OF THE AREA - scale 1:5000



MAP OF THE TRANSPORTS

SYSTEM OF MOBILITY - scale 1:5000

The closure of the Auguste Victoria Mine will mark an important change for the city of Marl and for the surrounding area, with about 5000 people who will have to find a relocation of the business world.

This situation can originate a change management: a project that looks to the future with new prospects for improvement. The current situation of the Earth, with the depletion of energy resources, the increasing world population and the bad management of food resources requires all targeted development with social awareness, respectful of the terrain and aimed at better management of environmental resources: the new challenges that we will face to relate environmental sustainability and nutrition.

The Ruhr region is already implementing a policy of sustainable development, through the clawback and requalification of large industrial areas and a focused management of the environment: our project aims to incorporate of a mechanism already established and looks to revitalize the area and becomes, together with the adjacent chemical plant, national excellence.

Our idea of the project is geared towards sustainable development with renewable technologies, energy efficiency and scientific research with an eye to the following themes:

- Agricultural Science, forestry and environmental
- Botany
- Green Chemistry
- Food science

The masterplan wants to give back to the community this important area which will act as an hinge between the chemical plant and the surrounding area. The essence of this masterplan is the environment that wants to regain possession of their spaces, allowing people the beneficialness of the area with the obligation to preserve the naturalness and its features.

The project can be divided into three macroareas:
- The riverfront
- The Park Scharnier
- The Auguste Victoria Zentrum

A vital part of the urban regeneration will include the improvement of the network of connections with the surrounding areas

Among the improvements will be the increasing of the bus, which will enable a more efficient movement between the riverfront and other areas located in the south. It will be done by establishing new stops to the existing line, which in addition to stop the aforementioned points, will lead also the workers at the center (purple line). It will be also developed rail system, connecting the existing current line with neighboring stations Marl-Mitte and Marl-Sinsen with the interchange station (brown line). The bike path will be promoted and enhanced in order to cover the entire area joining with the existing ones (yellow line).

Mobility looks to the future: the disused railway line will be maintained and converted to pod cars (blu line), which connected the interchange station with the riverfront, with a wink to the nearest town, future landing of a soft, ecological and efficient mobility. Access to the center is free and limited to electric, hydrogen, natural gas or predisposed to the use of renewable energy cars; alternatively visitors can stop the car in the parking adjacent to the area and take advantage of car sharing, bike sharing or similar types. It is also conceivable to create a new motorway exit near, that would decrease traffic in the residential area to the south, next to the factory, ease traffic congestion and making it more livable.

COMPONENTS OF THE PROJECT

VIEW OF THE MASTERPLAN

THE RIVERFRONT

1 - PARK AND OUTDOOR ARENA
2 - VIEWPOINT ON THE WESEL DATTEL CANAL (AUGE FLUSS)
3 - FLOATING WHARF
4 - COMMERCIAL AND LEISURE BUILDINGS

THE PARK SCHARNIER

5 - GREENHOUSES
6 - FACULTY OF AGRICULTURAL SCIENCES, FORESTRY AND ENVIROMENTAL
7 - GRUN HILLS

THE AUGUSTE VICTORIA ZENTRUM

8 - NATURAL PATH
9 - SPACE FOR EVENTS OR CONCERTS
10 - NORTH GATE
11 - SILOS WONH
12 - SILOS ZENTRUM
13 - COVERED PLAT
14 - NEW ECOSOSTENIBLE BUILDINGS
15 - PRINCIPAL GATE
16 - UNIVERSITARY LIBRARY
17 - UNIVERSITARY PLANT OF CHEMISTRY AND FOOD SCIENCE
18 - UNIVERSITY SQUARE
19 - AUGUSTE VICTORIA MUSEUM
20 - CULTURE SQUARE
21 - FITNESS AREA
22 - SPORT TOWER
23 - CUBES SPACE
24 - GRAVITY TOWER
25 - FRUIT AND VEGETABLE MARKET
26 - CHILDREN SQUARE
27 - SOUTH GATE AND INTERCHANGE STATION

ELEVATION OF THE RIVERFRONT - scale 1:1000

1 - THE OUTDOOR ARENA AND THE PARK

After a long time, the city regains the riverbank expanding and changing the area to a new point of its life.

Here two entities with different vocations, will join into a single solution of continuity.
This area is essentially divided into two parts: in the west there is a large park with an outdoor arena and a new viewpoint leaning on Wesel Dattel Canal (Auge Fluss); in the east the promenade is lined internally by commercial and leisure buildings, while on the river is planned a floating wharf.On the floating wharf in some areas of leisure and entertainment, we have planned of biolakes, in order to mitigate and regenerate aquatic environments at the time severely undermined, some of which will recreate existing aquatic environments while others will be available to the public.

South of the riverfront there is Park Scharnier, green lung of the area. Paths run through the park and allow visitors the opportunity to take advantage of a previously abandoned and deprived of services. The distinctive features of the park include the creation of biolakes, along which you can to pause, to relax and to enjoy contact with nature.

The principal idea underlying this project is to overcome the public garden closed within its borders to achieve a leap on scale, with the formation of simple and large green systems. It is the idea of the "urban forest". The park will host the future university of agricultural sciences, with innovative educational greenhouses recreating the main biomes and, on the ex area "power station", in memory of the preexisting, the creation of curvilinear hills, like to recall the past of coal deposit: these hills, with the forest, "protect" the park from pollution and urban confusion.

Along the natural path linking the Park Scharnier and the Auguste Victoria Zentrum there are the combination of water and plants games, which will make walk pleasant and relaxing: from here will be possible to reach the adjacent area of the coal mixture hall, will host events and concerts and, if necessary, could host trade shows, or to reach the square placed in front the entrance to the coal mixture hall, with an efficient system of recovery of rainwater, "North gate" of the Auguste Victoria Zentrum.

N

2 - THE VIEWPOINT ON WESEL DATTEL CANAL (AUGE FLUSS)

3 - THE NEW RIVERFRONT

4 - THE FACULTY OF AGRICULTURAL SCIENCES AND THE PARK SCHARNIER

The buildings of the Faculty of Agricultural Sciences are connected through a particular coverage: the structure is the set of components in a circular shape, inside which will find space photovoltaic panels, for energy requirements, some used for tanks of water recovery for irrigation and for water and sanitation. In front the presence of green panels will help to stabilize the climate of buildings during the seasons.

Greenhouses, guardians of biodiversity, are a great showcase, ideal section of the globe that degrades from the equator toward the poles. The most favorable conditions for life, with plenty of moisture and high temperatures that allow the growth of the rainforest, to the most extreme conditions, where the cold and low humidity make life almost impossible. The project involves the use of glass and steel, while the sloping roof will allow the recovery of water and solar energy.

5 - THE SILOS ZENTRUM

The Silos Zentrum is become the new cornerstone of the area: the whole complex constituted by processing plant, conical silos and purification tanks, has been retained and converted. The ex processing plant has maintained the original structure of the building that has been enhanced through the wise use, inside and outside of sustainable components such as privacy protection or green panels. The only addition made to the existing structure is the inclusion of a body that juts south, reaching out to the Culture Square that serves as a link between the multi-purpose center, the museum and the main access road to the area. Inside the building it has been planned an entire area devoted to food production called "Landleben".. The purification tanks have been retained and converted in public spaces that can accommodate routes and activities of various kinds. A wire mesh along the outer perimeter of the tanks, it will serve as the structure for the growth of climbing plants that will mitigate and beautify the landscape, redesigns an only path and will allow the visitors to move from the square to the silos. The old silos have been designed as a single structure, divided into 4 levels and the upper walkway, a new public space of meeting, from which you can observe the whole area.

6 - THE UNIVERSITY SQUARE

The first restyling concerned the old entrance to the factory, which has become the main avenue of the area, with the new University Square, the meeting point of the young students of the great university of chemistry and food science, took office in the ex administrative buildings. Here, also, it will be located the new university library in Marl.

MASTERPLAN OF THE AREA - scale 1:5000

The Auguste Victoria Zentrum, the heart of culture, will welcome several interconnected sectors located in various areas. The central buildings of the area will be maintained and requalified: some will host the Auguste Victoria Museum, where visitors can learn the history of the Auguste Victoria Mine, trying the experience of life in it, as modern Indiana Jones, through workshops and educational tours and some in new sports area, including the old water tower. The new "Sport Tower" will have new life, as a symbol of "Fitness Area", will be used externally as a climbing tower, while through the scale and/or the panoramic lift, you will reach the old tank, used as an observatory; which together with the "Gravity Tower," his sister highest, located on the west side of the area will serve as privileged panoramic views, where few visitors booked will be pampered by tastings and will be kidnapped by special events, always different in a breath-taking location.

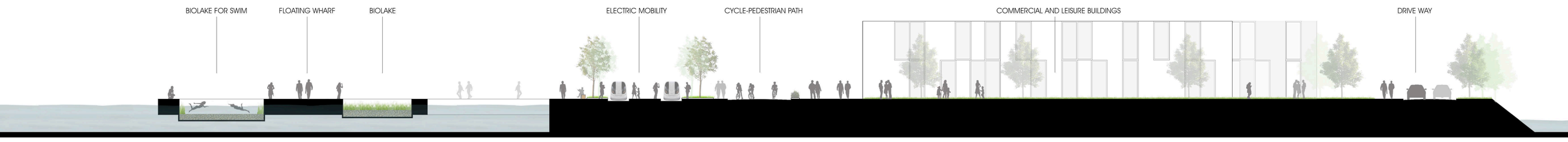
To the north is located the multipurpose complex "Silos Zentrum", where they were recovered and requalified buildings and constructions present. This complex includes a farm, a research center, study rooms, laboratories, conference rooms, restaurants, public spaces and a new habitable silos. The Silos Wohn has been maintained in the outer circular structure but redesigned as a building that can accommodate mainly residences and, if necessary, small offices. It will be entirely covered with photovoltaic panels, for energy requirements, and green panels that serve as supports for the vertical garden, which together with the roof garden on the top, will mitigate the visual and environmental impact. Centrally are positioned two large covered plates, places which can hold commercial and cultural functions, where the interior spaces, easily modified as needed, will house shops, companies and fairs.

South of the center Auguste Victoria, in an ex warehouse redeveloped, the new fruit and vegetable market is going to interface with the surrounding area, where the new facilities will house functions and services related to the agri-food sector. The space called "Cubes space" will become the new flagship of the area, the facilities with high energy efficient and aesthetic appeal, will draw the attention of the big brands that time-limited or on a permanent basis will encourage research, study and work.

At "South gate" of the Auguste Victoria Zentrum, there is the interchange station, from which depart, electric bus (pod cars) that will run through the area to the riverfront. In this area is planned a big semicircular square, which framed by the green, it will place fun and entertainment for children and allow the meeting between families away from the urban confusion and in complete safety.

7 - THE CUBES SPACE

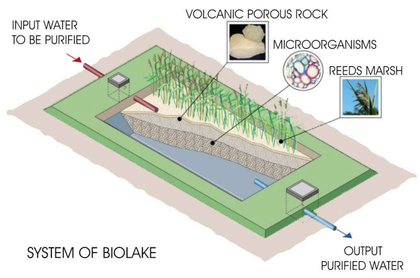
8 - THE SOUTH GATE AND CHILDREN SQUARE



SECTION OF RIVERFRONT - scale 1:250

BIOLAKE

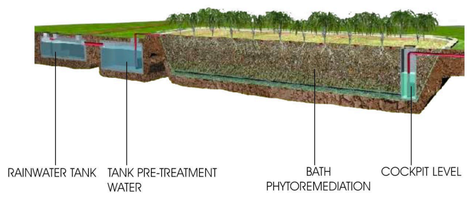
In the process of "re-naturalization" will be re-created biolakes, ornamental basins and swimming pools, integrated perfectly with the surrounding ecosystem. In this artificial bodies of water in which the purification do not occur with artificial systems and traditional water treatment, but through the use of natural elements, mainly plants and gravel, able to make bathing waters. This type of treatment avoids the use of chemical compounds such as chlorine and, consequently, avoids the spillage of such pollutants in the sewer system or in the surrounding land. Usually the area of phytoremediation is placed slightly higher bathing area in such a way that the water, crossing the area in which are inserted plants and gravel, purifies it and, falling, reaches bathing area. The biolake will offer the possibility of refreshment fully compatible with nature and the surrounding landscape and will minimize the environmental impact of this kind of human activity. The water, in addition, is continuously sent back from swimming pool to that purification area by reducing in this way the need of groundwater or from the aqueduct.



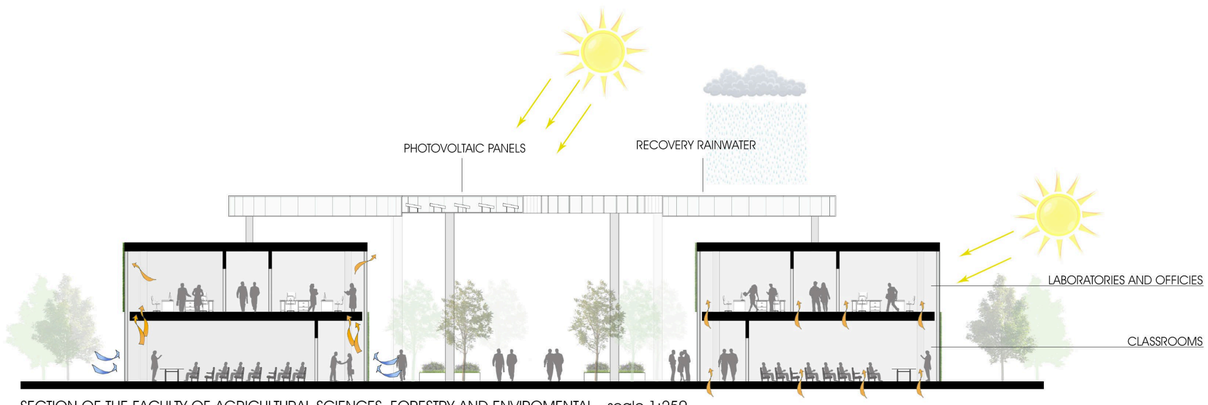
SYSTEM OF BIOLAKE

PHYTOREMEDIATION

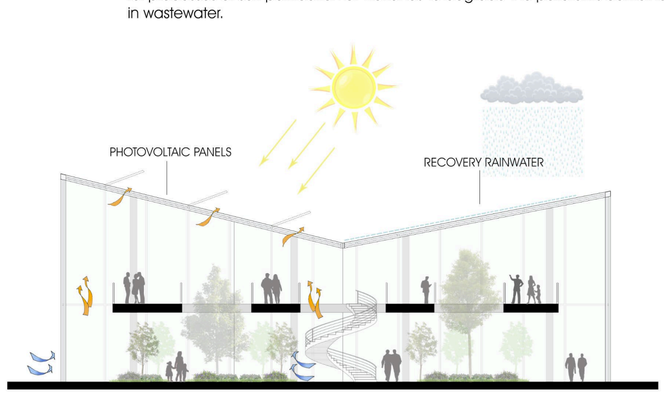
Given the high pollution present in the groundwater in the area, it was thought to use techniques of natural purification for the treatment of waste water which now represents a choice widespread worldwide. The natural treatment systems will represent an appropriate solution for the treatment of wastewater coming from universities, various offices and scattered and, in small and medium users, where the choice of the plant configuration to be taken does not show problems with implementation of technological systems. The phytoremediation systems are damp environment artificially propagated in ponds waterproofed, crossed, with different flow regimes, from wastewater appropriately connected. Such systems are characterized by the presence of plant species typical of wetlands (macrophytes hydric), rooted to a growth substrate or floating on the water. They are also defined "natural systems" as they tend to reproduce in a controlled environment the processes of self-purification that occur in natural wetlands, in which they are involved, in addition to the plant species, also micro-organisms associated, for the treatment of waste water. In such environments are realized the natural processes of self-purification of wetlands to degrade the pollutants contained in wastewater.



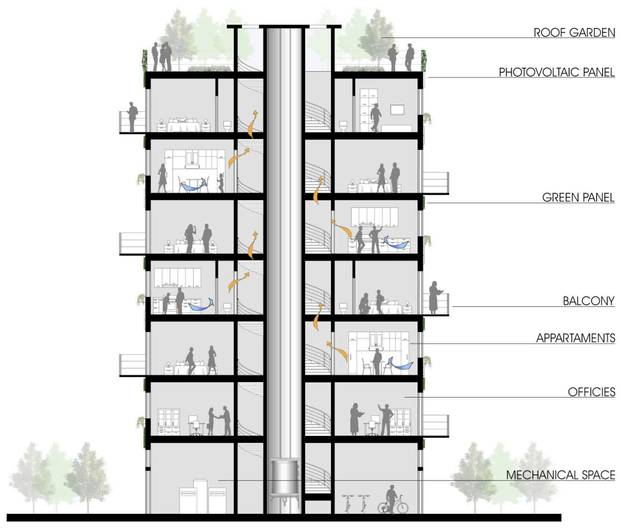
SYSTEM OF PHYTOREMEDIATION



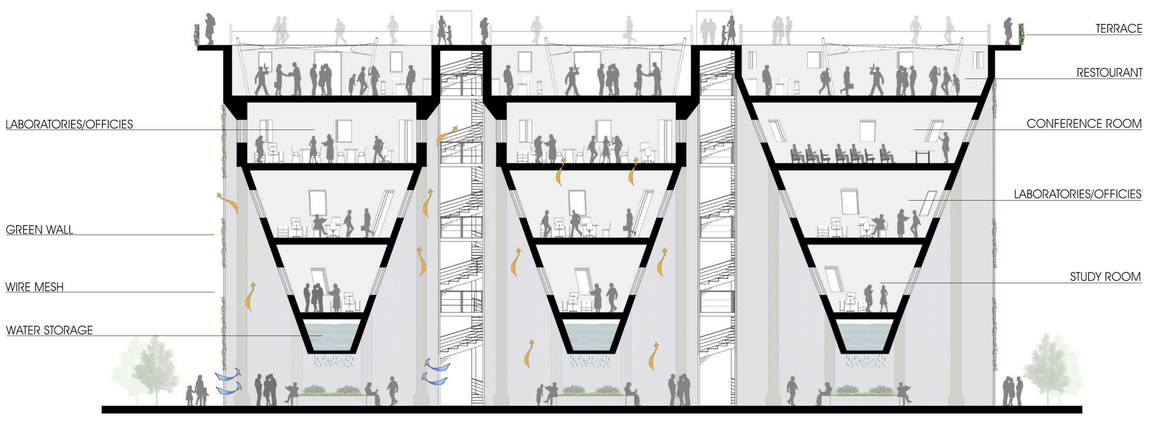
SECTION OF THE FACULTY OF AGRICULTURAL SCIENCES, FORESTRY AND ENVIROMENTAL - scale 1:250



SECTION OF THE GREENHOUSE - scale 1:250



SECTION OF THE SILOS WOHN - scale 1:250



SECTION OF THE SILOS - scale 1:250

PLANT SPECIES

In order to preserve the naturalness and authenticity of the park, you will not be imported species or plants which cause harm or imbalance to the natural environment, avoiding competition in the already delicate ecological niches and structured. The botanical essences thought in the site under study, are all autochthonous and many of which are already protected.Only the greenhouses will have within them a variety of plants typical of the biomes that will represent.

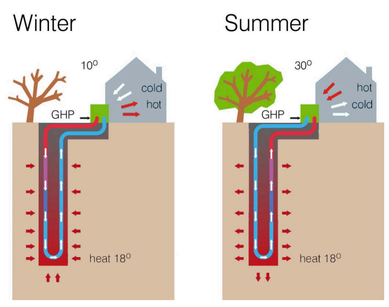
ENERGY SYSTEMS

Within the structures it will be planned of systems for a rational use of energy and water, as well as systems capable of generating and co-generating, in order to reduce emissions of pollutants and waste. They will be planned the use of photovoltaic panels, connected to a storage system for energy produced, solar panels, for the production of hot water, use of microgenerators wind, well integrated into the environment in order not to create visual and environmental impacts and a highly efficient trigeneration system. In addition to this systems it was thought to be able to exploit the soil for heating and cooling buildings using geothermal energy. The thermal probes will exchange heat with the soil in depth, which remains at a constant temperature ideal to serves for comfort. The systems in geothermal heat pump, well dimensioned, are autonomous and able to satisfy 100% the requests of a building.

STRATEGIES IN WINTER:
- solar contribution
- rainwater recovery
- green panels

STRATEGIES IN SUMMER:
- passive ventilation
- photovoltaic panels
- green panels

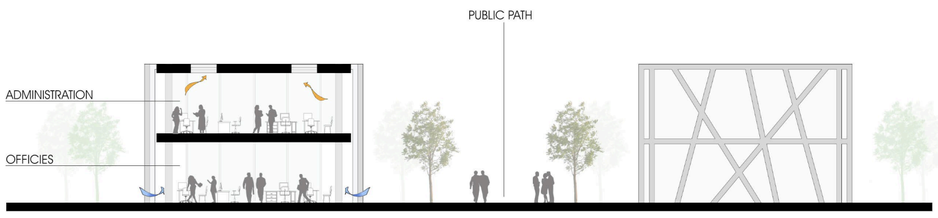
SECTION OF THE EX PROCESSING PLANT - scale 1:250



SYSTEM OF GEOTHERMAL ENERGY

SYSTEM OF MINIEOLIC ENERGY

SECTION OF THE COVERED PLAT - scale 1:250



SECTION OF THE CUBES SPACE - scale 1:250

POSSIBLE CUSTOMIZATION OF THE IMPORTANT BRAND

SECTION OF THE NEW MARKET - scale 1:250

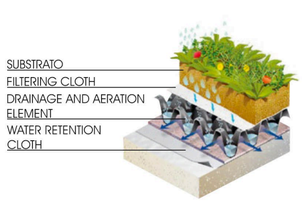
GREEN ROOF

All the roofs are designed "green", the system is useful because it allows to recover the excess rainwater stored in tanks and reused for sanitation and fire, both because it allows to reduce the costs of management climate control.

For roofs are designed three types of planting: the extensive, semi extensive and green viable and livable by the population. Green roofs extensive will be characterized by a layer of vegetation like the spontaneity of nature and low maintenance. For this reason they will use plants that adapt easily to the climatic conditions and are self-healing to be able to withstand the most extreme conditions present on the roofs. Among mosses, succulents and grasses there are many species that meet these requirements and who have a high covering effect.An extensive green then assumes the function of a protective layer ecologically and economically effective, for example in place of a protection gravel. Also it has the right solutions on pitched roofs and gabled.

The semi extensive green roofs will consist of succulent plants combined with small shrubs and herbs. The extensive green roofs are natural processes while in the case of semi extensive these will be defined by the customer. Normally for these green roofs will recommend a maintenance, even if not frequent, to ensure the aesthetic effect required from the customer and the functionality of irrigation and drainage as well as the characteristics of the substrate and the plants.

The green roofs are used more frequently to create walkways and public space of meeting. For long life of themselves, will be essential to adopt the correct technique: they require structures capable on the one hand continuity of the functions of the roof, such as waterproofing, drainage, the thermal and acoustic insulation, other resistance to the horizontal forces generated by its use.



SECTION OF GREEN ROOF

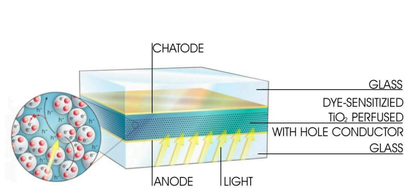
MATERIALS

It was planned to use mainly steel, stone and glass.

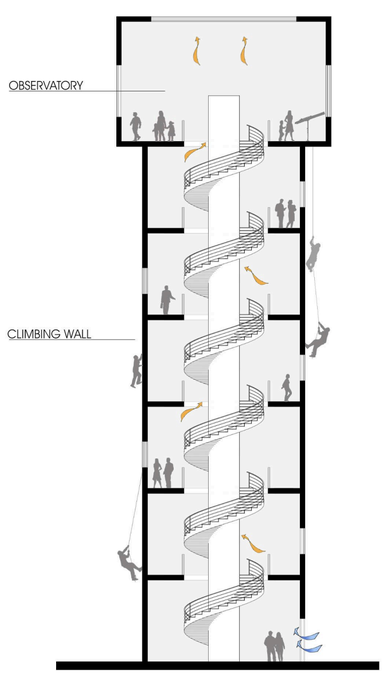
All materials will be treated with the nanoparticle Photocatalytic TiO2 anatase, which as its main peculiarity plays photocatalytic activity stimulated by sunlight or lamps, as well as suck dirt after redox surface, cleaning the surrounding air. This action remains active forever. Its main positive features include anti pollution -anti-fouling - anti bacterial - self-cleaning - anti odor; it performs a protective function against salt, limestone, phosphating, etc. This treatment can be applied with different specific composition of solar panels, glass, ceramic and clinker, painted walls, and many more.

Among other materials that it was planned to use it is worth mentioning the Tourmaline (Natural Mineral):Its main action consists of the emission of negative ions and FIR, which make the air cleaner and purer substituting common electric ionizers with the advantage that the Tourmaline does not consume energy. It is activated at temperatures above -5 °. It also represents a valid barrier against the adhesion of any organic and inorganic particles and in particular of the dirt. In addition mixed with varnish and paint provide a series of positive benefits such as: increased thermal insulation and acoustic, better inside heat distribution, cost reduction of heating, high resistance to atmospheric agents, smog, acid, salt, ozone and to UV, elimination of thermal bridges and condensation, protection against infiltration and the formation of fessure, rapid evaporation of the surfaces.

Also cements and asphalt that will be used, will be added with coatings containing TiO2, which will help to reduce pollution, making better air quality.



PHOTOVOLTAIC PANEL WITH TiO_2 TREATMENT



SECTION OF THE SPORT TOWER scale 1:250