POLITECNICO DI MILANO SCUOLA DI ARCHITETTURA E SOCIETÀ

TESI DI LAUREA MAGISTRALE --- DICEMBRE 2011

GREEN RIDGE: LAMBRO RIVER GREENWAY

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List of drawings

Abstract

The green revolution inspired us to rethinking the relation between human and nature. The study explores the possible for the application the good example for water landscape to the Lambro River inside Milan. Lambro River drains a very densely populated and heavily industrialized zone, especially a significant portion of the Milan metropolitan area. It spans 9,000 meters inside the Milan city. Due to the pollution issue and inaccessibly, the site had been neglected for a long time. This study aims to integrate this landscape infrastructure into the fabric of city. The greenway could interconnect the system of parks and provide essential ecological function to protect biodiversity .The bikeway and walk path integrate with series of water ponds, which are used as storm water collection and water purification wetlands. The large abandoned space under the highway would be changed into an attracting landscape area. The more space would be left for the river to provide opportunities for environmental ecological education and public recreation.

Questo studio mira a integrare questa infrastruttura paesaggio nel tessuto della città. La greenway può interconnettere il sistema di parchi e di fornire funzione ecologica essenziale per proteggere la biodiversità. La pista ciclabile e il percorso a piedi si integrano con serie di vasche d'acqua, che vengono utilizzati come raccolta delle acque piovane e le zone umide di depurazione delle acque. Il grande spazio abbandonato sotto l'autostrada sarebbe trasformato in una zona un suggestivo paesaggio. Lo spazio più sarebbe partito per il fiume per offrire opportunità di educazione ambientale ecologico e ricreativo pubblico.

CHINA GREEN REVOLUTION

SITE

The speedy economic growth and the rapid urbanization in China impact the environmental sustainability. The following examples show the water landscape design in recent years for various scale and discuss the relationship between urban and the water environment. They changed the undesirable environment and improved the quality of life, furthermore their projects enjoyed the worldwide reputation and won the professional awards.

S

The first inner city ecological park in the world with WATER PURIFICATION

M

The MINIMUM INTERVENTION approach to urban greenway .

Transform the brownfield area into a LOW-MAINTENANCE urban park.

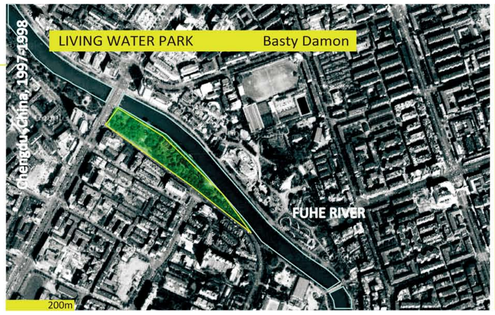
L

Combine ecological landscape re-construction with environmental engineering to treat RIVER POLLUTION.

XL

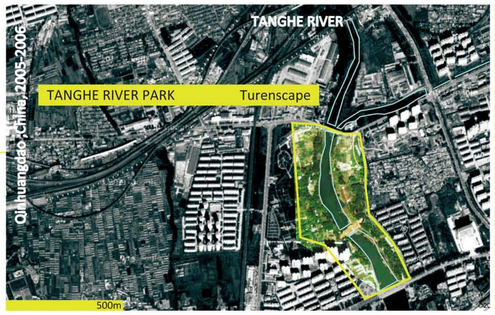
Generates ECOLOGY WITHIN THE CITY and raises the existence for the river within it.

INTRODUCTION



The Living Water Garden, located in the city of Chengdu in Sichuan Province, China, was the first inner city ecological park in the world with water as its theme. The 5.9-acre (2.4 ha) public park is located on the Fuhe river.It was built by The Chengdu Fu & Nan Rivers Comprehensive Revitalization Project, a five-year plan to rebuild Chengdu's infrastructure to support its growing population for the next 200 years. Each day, 200 cubic meters of polluted river water move through the natural treatment system and emerge clean enough to drink. Its purpose is teaching and inspiration, which it does very successfully.

2.4hectares

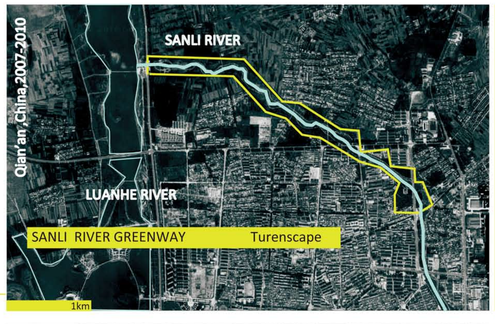


The project was located on the Tanghe River, at the east urban fringe of Qinhuangdao City, Hebei Province, China. The site is a linear river corridor, with a total area of about 20 hectares.The site was covered with lush and diverse native vegetation that provides diverse habitats for various species.Located at the edge of a beach city, the site was a garbage dumping site with deserted slums and irrigation facilities such as ditches and water towers that were built for farming years ago.Along with the urban sprawl process, the site was sought after for recreational uses such as fishing, swimming, and jogging by the people from the newly developed comunities nearby.

20hectares

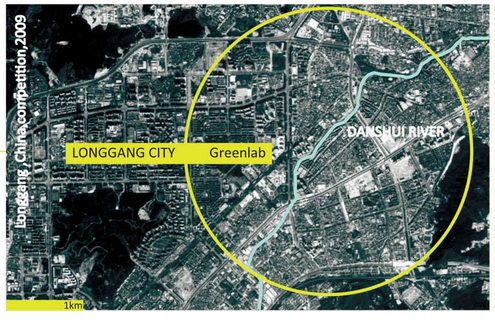
This is a park of 22 hectares (54 acres) in the northern coastal city of Tianjin, China. Rapid urbanization had changed a peripheral shooting range into a garbage dump and drainage sink for urban stormwater; the site was heavily polluted, littered, deserted, and surrounded with slums and temporary rickety structures, which had been torn down before the design was commissioned. The soil is quite saline and alkaline. Densely populated at the south and east boundaries, the site is bounded on the west and north sides by a highway and an overpass.

22hectares



Located along the Sanli River in Hedong district, the greenway covers 135 hectares and spans 13.4 kilometres across the city.
It ranges from 100 to 300 metres wide, and the Qianan government spent 630 million yuan and more than three years designing and constructing it, from early 2007 to May 2010.
Dubbed "a mother river recovered", the urban ecological corridor transformed a former garbage dump and sewage-drainage facility into an ecological landscape and habitat for vegetation. It was named 2011 World Landscape Project of the Year in the World Architecture Festival (WAF) in Barcelona, Spain.

135hectares



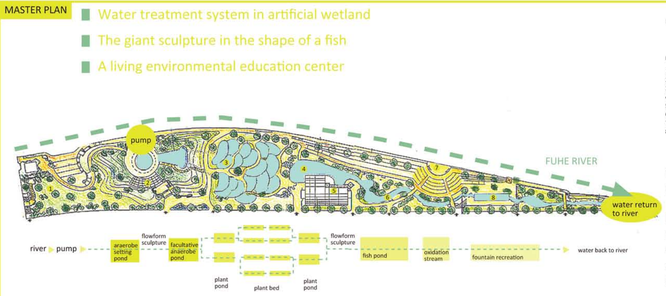
The project deep ground, developed by the design collective Groudlab, won the first prize in an international competition for the city center of Longgang.
The project includes the regeneration of 11.8 km of the city centre of Longgang, Northest from Shenzhen In the Pearl River Delta, with an estimate population of 350,000 and 900 hectares of developed area of the methodology currently used in the Landscape urbanism Master in AA. Elements of this methodology are the multi scalar strategies, bottom up design, mapping of information and indexing territories, as well as relational urban models.

900hectares

CONCEPT AND STRATEGY

MASTER PLAN

- Water treatment system in artificial wetland
- The giant sculpture in the shape of a fish
- A living environmental education center



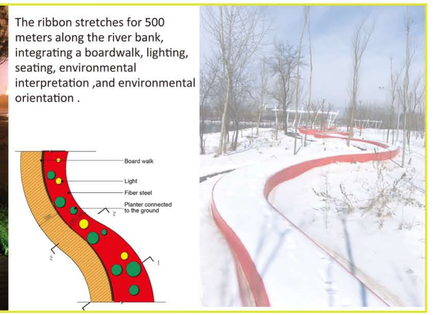
WATER PURIFICATION STRATEGY

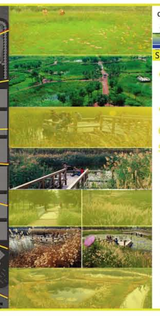
Because of the visible and understandable treatment system, the visitor could observe the dead water become alive .

MASTER PLAN OF TANGHE RIVER PARK

The minimum intervention approach to urban greenway . The solution is " RED RIBBON".

The ribbon stretches for 500 meters along the river bank, integrating a boardwalk, lighting, seating, environmental interpretation ,and environmental orientation .





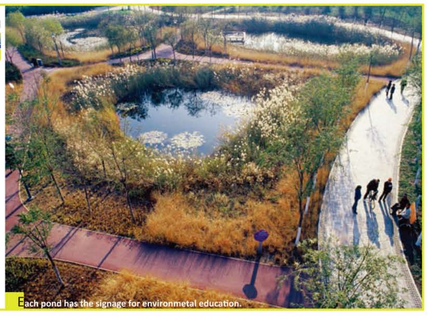
digging cavities of various depth to create diverse environmental conditions to initiate the processes of adaptation

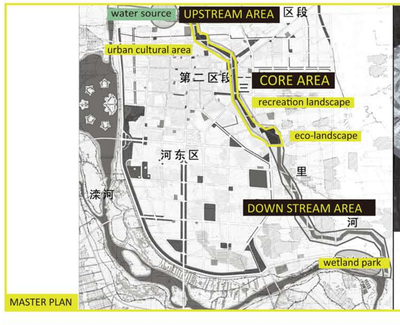
SECTION

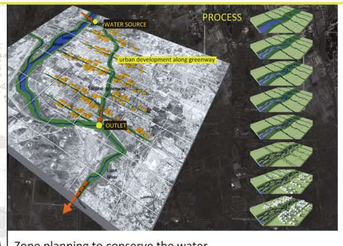
"LET NATURE WORK"

"adaptive palettes" was used to create a series of biologically diverse ecosystem that could repair contaminated soils and treat urban stormwater.

It's a ecosystem sevice –oriented design.
a) The creation of habitats.
21 ponds were constructed with various depths for stormwater .
b) Plant community design .
Encourage a biologically diverse plant community.
c) Cultural service design.
Signage for each pond to explain the water cycle, ecological benefits and major plant species.



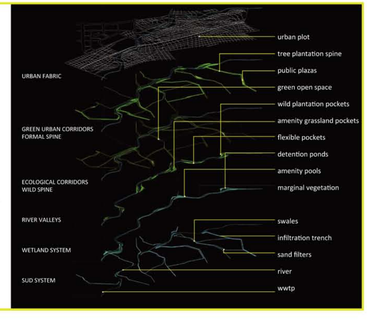




Zone planning to conserve the water.
Urban ecological corridor to provide habitats for native biodiversity, creat spiritual and aesthetic benefits and act as catalysts for urban development.

THICKENED GROUND: implementation of the underground development in conjunction with public space design and the river crossing.

The infrastructure designed along the river will serve as an anchor point to deploy cleansing strategies, rainwater collection and flooding defense while creating green areas, ecological corridors, public open space, sports fields and leisure areas.



LANDSCAPE STRATEGY