

Industrial Wasteland as Faced with Contemporary Landscape Architects' Challenges

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Abstract. The following article describes the problem of regeneration of industrial wasteland. It is illustrated with examples selected from various design projects created by outstanding contemporary landscape architects. It also shows how a correctly planned and performed project concerning regeneration of derelict industrial sites serves multiple functions, i. e. it serves as recreational zone as well as activates people. Moreover, it significantly enhances environmental value of a given area as well as stimulates emergence of innovative landscape investments. The paper presents innovative compositional arrangements used in creating projects concerning brownfields; balanced proportions of spatial elements, the possibility of approaching the area from different levels and perspectives and, also, the possibility of engaging fully with nature by physical contact with it.

1. Introduction

Revitalization of derelict urban public spaces reveals a great concern of landscape architects with the idea of restoration of former greatness to such forgotten areas as well as with adjusting them to ever-changing needs. Landscape architects transform unused brownfields into parks, shopping centres, public buildings or recreational areas by means of outstanding projects and designs which, consequently, lead to development of cities and emergence of new areas that can be used by various institutions, or as green areas decorated with new species of trees and shrubs.

2. Materials and methods

In order to retain the original idea of implementing greenery to a city, it is advisable to use a carefully planned and definite spatial arrangement that will consolidate all landscape architecture details in a consistent and clear-cut composition.

Green areas and public parks comprise ultimate tools which serve the idea of revitalization of public space structure [1]. From ecological standpoint, revitalization of derelict areas is as important as proper designing of new areas. All the materials gathered were analysed in terms of source materials, land development plans, and photographs so as to determine the designers' interest in improving the attractiveness of post-industrial areas, and their striving towards upgrading the lives of inhabitants.

3. The analysis of the selected examples of revitalization of post-industrial areas

The MFO Park in Switzerland was built on what was previously a factory of Maschinen Fabrik Oberlikon. It serves as a contemporary example of revitalization and restoration of an industrial wasteland aiming at regaining the area for new purposes and enhancing its value. The park was open in 2002. It was designed by architects Bruckhardt + Partner and landscape architects Raderschall partner. Its distinctive feature is a double-walled mesh steel-framed construction of a considerable size



(100 m (330 ft) in length, 35 m (115 ft) in width and 17 m (56 ft) high) which serves as a trellis for various types of plants. Its steel mouldings outline the rectangular structure of the entire space. The walls and ceiling are covered with a trellis made of stainless steel covered with climbing plants that also support it. [2].

The park is a venue suitable for a variety of activities such as concerts, festivals, film shows, and theatrical performances. It also serves as a place where people can rest and clear their minds. Moreover, the project involves a water element; a fountain reflecting the light coming from the outside. An openwork pergola is covered with a variety of climbers with different flowering periods and of different height that act as green walls framing the inside of the park.

A garden building referred to by designers as “Parkhaus” is planted with different species such as clematis, honeysuckle, climbing rose, Japanese bittersweet, heder, hydrangea petiolaris, Virginia creeper, grape, and Chinese wisteria. The park designers used rainwater systems that carry water to areas where climbers are planted in order to prevent plants from withering due to scarcity of water. Inside of the pergola different stairs, walkways, and balconies can be found. There is also a sun deck on the top of the steel structure wherefrom the panorama of the new part of the city can be admired.

At night, the harbour is lit with neon lights and spotlights highlighting the most distinctive and characteristic elements of the park. The park offers a profound sensual experience owing to the presence of rich foliage, intense scents, and sound effects which can be fully sensed while strolling along walkways and climbing the stairs. Moreover, MFO has an educational value, namely, it teaches the names of various species with the use of metal plates with plants’ names displayed next to them (Figure 1).

Author: Sibylle Aubort Raderschall

Finished: 2004

Location: Zurich-Switzerland

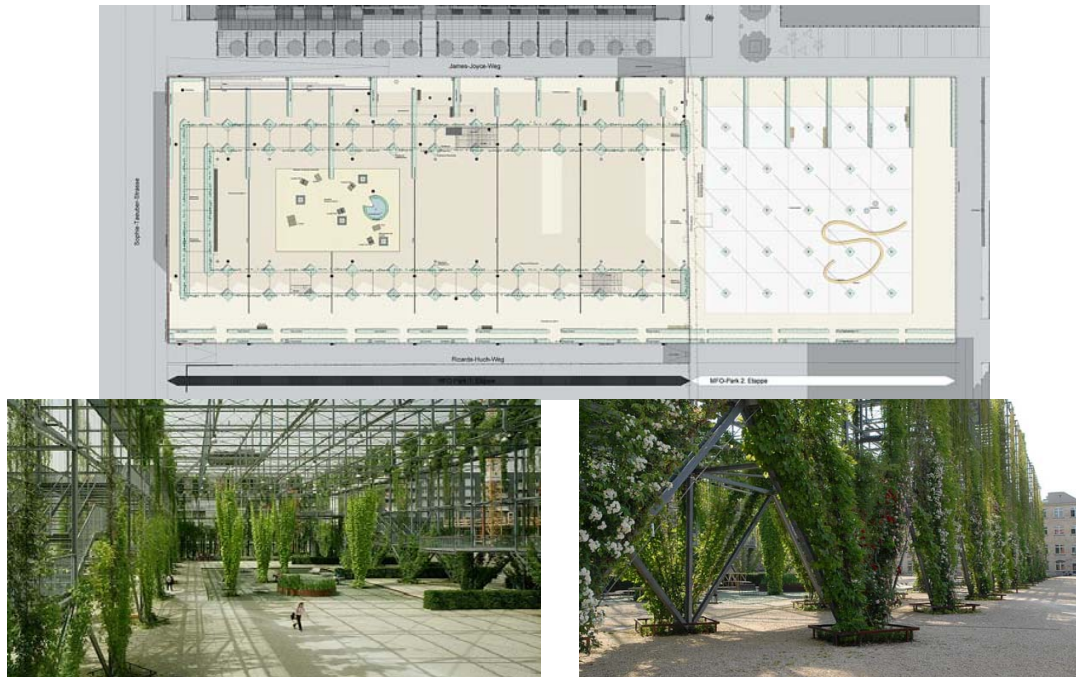


Figure 1. MFO Park, [3]

Section 1 of the High Line Park is one of New Yorkers’ favourite places to spend free time. The project was designed by James Corner Field Operations in collaboration with a Dutch horticulturist Piet Oudolf, and architects from Diller Scofidio + Renfro. Section 1 covers the area between Gansevoort Street and 34th Avenue and stretches over 2.5 km and is only a few metres wide. The origin of the High Line Park is linked to the mid-1900s when a railway was built along the 10th

Avenue whose aim was to enable transport of goods between factories and warehouses. The railway was an extremely perilous place due to street-level railroad crossings where numerous accidents involving cars and pedestrians happened. Consequently, the 10th Avenue was called Death Avenue (Figure 2).

Author: James Corner Field Operations, Diller Scofidio + Renfro

Finished: 2009

Location: New York City-The United States



Figure 2. High Line Section 1, [4]

In 1934, an overpass running between and through buildings was built in order to prevent accidents. With time, due to increasing motor traffic, the use of the railway was gradually dropping as was the number of commuters. In 1980, the line saw its last train, and since then the abandoned overpass had become notorious as a place where social ills grow. The idea of revitalization and reuse of this area was advocated by Joshua David and Robert Hammond who founded in 1999 a non-profit organisation Friends of the High Line which maintains and operates the area. The primary goal of the organization was to save and maintain the structure, and, above all, to transform it into a public park. The authors of the project faced a challenge; they were supposed to modernize the already existing structure, make it safe and available to the general public while, at the same time, preserving all the historical elements of the former railway. It was generally agreed that it will contribute to a revival of this area and make it a unique place for recreational activities and entertainment.

The elevated park is available from the street level due to elevators and staircases. Some parts of old tracks have been preserved to serve as the reminders of the history of this place and its original function. Walkways and unique details such as benches enable ambler to admire Manhattan and the Hudson River [5].

The project is modern in terms of the use of plants and innovative materials. The choice of plants was inspired by the idea of maintaining the dynamic and wild-like character of the place. Two hundred and ten species of perennials, grasses, shrubs and trees were carefully selected to create a resilient and enduring landscape the maintenance of which will be relatively low. The landscape is supposed to persuade its users to slow down owing to its numerous steps, meandering walkways, and hidden nooks which encourage unhurried strolls and, at the same time, highlight the industrial character of the area.

Houtan Park is a regenerative landscape built on a riverfront of the Huangpu River on a former industrial site. In the past, the brownfield seated a steel factory and a shipyard. It was transformed into a park especially for EXPO 2010 World Exhibition by Turenscape, a design office from Beijing where the leader is a landscape architect Kongjian Yu, a lecturer and the Dean of Architecture and Landscape Architecture Department at the University of Beijing who is also the owner of the biggest planning and design office in China that employs over 600 people. The site, which is located along the waterfront of the Huangpu River in Shanghai, is a narrow linear 14-hectare band. This brownfield with few remaining industrial structures was mainly used as a landfill for industrial materials. The primary goal of the project was to clean the polluted water, restore a degraded riverfront, and create a green area for EXPO 2010. At the same time, the park design was supposed to display green technologies. After the Expo, the area was transformed into a permanent public waterfront park.

The first challenge that the authors of the project had to face was restoring the degraded environment which was contaminated both on the surface and below due to previous industrial activities. According to the national water quality ranking, the water of Huangpu River was highly contaminated. It was qualified as Lower Grade V which is the lowest grade on a scale of one to five and, therefore, it is regarded as unsafe for recreation and swimming. It is also devoid of aquatic life. The second challenge was connected with improving flood control. The concrete floodwall that was previously built on the site was intended to protect it against approximately 6-metre flood wave. However, daily tidal fluctuation transformed the waterfront into a muddy and littered place which, consequently, was inaccessible to the public. A conventional anti-flood system would further increase the inaccessibility and, also, disenable any habitat creation along the shore. Therefore, it was necessary to create an alternative flood control system. Moreover, the site itself was a challenge as it is long and narrow area situated between a river and an expressway. The design intended to use terracing in order to mitigate the elevation difference between the area next to the river, and the expressway which made it possible for the public to access the riverfront. Terraces also linked the project to agricultural tradition of the area prior to the industrial era. The existing concrete floodwall was replaced with a riprap which is more habitat-friendly and which enabled native species to grow while, at the same time, protecting the shoreline from erosion. Various species of wetland plants were selected and designed to absorb water pollutants. After the project has been finished, the water was tested which revealed a significant improvement in its quality so it could be safely used during the Expo for non-potable purposes (Figure 3).

The selection of plants aims at creating a city farm which enables its visitors to observe ever-changing nature from season to season. Such a project provides a variety of educational opportunities; city dwellers can learn about the agricultural heritage of Shanghai while exploring the area inspired by a traditional Chinese landscape.

A revitalized landscape, urban agriculture, and industrial spirit – these are the three elements of the project that constitute its significant educational value. The network of walkways is enriched with ‘hanging gardens’ made of the remains of the former industrial infrastructure, as well as with terraces and platforms encouraging people to gather and spend time together. Bamboo groves and Chinese Redwood trees break up the spaces and create areas enclosed by trees that can be used as outdoor galleries to exhibit art. The existing remains of the industrial past were used to create a network of educational paths. Houtan Park is an example of a living system where ecological infrastructure benefits both nature and society, and provides a new method of treating water and controlling flood. What is more, it is evocative of the past and may inspire the future of the ecological civilization.

4. Results and discussions

Modern trends concerning landscape architecture planning which aim to recreate utility and environmental value of industrial wasteland were exemplified by the selected tools, (Table 1).

Autor: Turenscape, the leading designer: Kongjian Yu

Finished: 2010

Location: Shanghai-China



Figure 3. Houtan Park, [6]

5. Conclusions

The paper analyses sites on three continents (Europe, Asia, America) which were revitalized at the beginning of the 21st century. All the presented examples show that modern green areas that were obtained as a result of revitalization significantly contribute to shaping and defining the city area itself and improve the quality of life as well as the environment. Vegetation cover is of key significance to the sustainable development of a city [7].

Table 1. Selected types of tools aiming at revitalizing brownfields

	1. MFO Park	2. High Line Section 1	3. Houtan Park
Composition	The MFO Park in Switzerland was built on what was previously a factory. Its steel mouldings outline the rectangular structure of the entire space. Such elements draw a link between the project and the industrial past of the site.	A public park created on what was previously an elevated railroad of linear structure. Widened and irregular in its shape, it alludes to the former function of the place.	A regenerative landscape built on a waterfront along the Huangpu River characterized by considerable contamination. The project is situated in a previously inaccessible marshy area. In the centre of the park a linear structure of wetland was created which was planted with a variety of grasses and plants typical for such habitat. The project also highlights the agricultural past of this area. Furthermore, terracing was used and foodbanks were designed.

Materials	The walls and ceiling are covered with a trellis made of stainless steel covered with climbing plants that also support it.	Weathering steel, exotic wood, rubble, and genuine rails retain the original character and role of this place.	The already existing post-industrial elements were used to create a network of educational paths.
Planting	The site is planted with different species such as clematis, honeysuckle, climbing rose, Japanese bittersweet, heder, hydrangea petiolaris, Virginia creeper, grape, and Chinese wisteria. The park designers used rainwater systems that carry water to areas where climbers are planted in order to prevent plants from withering due to scarcity of water.	The plants that colonised the former wetland were used for the project. The basic vegetation cover comprises of native plants, i. e.: trees, shrubs, grasses, flowers, and perennials of similar colour and structure. All of them characterized by resilience the surrounding conditions.	Various species of wetland plants were selected and designed to absorb water pollutants. (Chinese Redwood) Sunflower and rice and bamboo were also planted to remind of the agricultural past of this place.
Modern solutions	The project involves a water element; a fountain reflecting the light coming from the outside. Inside of the pergola different stairs, walkways, and balconies can be found. There is also a sun deck on the top of the steel structure wherefrom the panorama of the new part of the city can be admired. At night, the harbour is lit with neon lights and spotlights highlighting the most distinctive and characteristic elements of the park.	The project is endowed with a series of stairs, ramps and elevators for the disabled. Elements such as seating and rails stress the industrial character and are not merely of decorative character. LED lights which were used highlight the surrounding greenery and all the elements of outdoor furnishing.	Red elements indicate significant elements of the project. Terraces, viewing platforms, galleries, hanging gardens made of the remains of the former industrial infrastructure integrated with walkways, bamboo groves.
Area for recreation	The park is surrounded by green walls covered with climbers, therefore it is a venue suitable for a variety of activities such as concerts, festivals, film shows, and theatrical performances. It also serves as a place where people can rest and clear their minds.	The park is one of the most favourite spots among city dwellers as well as tourists. All the walking passages and seating enable visitors to admire unusual panorama of Manhattan and the Hudson River.	A former EXPO 2010 venue in its appearance and function definitely adheres to the idea underlying EXPO 2010 – ‘A better city – a better life.’ City dwellers can learn about the city and its legacy and agricultural past while living there.

Projects concerning post-industrial areas are all characterized by usefulness, modernity, innovativeness, and they exist in an ideal harmony with the already existing city infrastructure. Park designs and revitalization projects, especially that of historical value, should undergo carefully planned actions aiming at highlighting their significance in the process of protection of cultural heritage, but also definite methods of managing such green infrastructure ought to be created.

References

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