Domestic experience in the reorganization of degrading industrial areas in landscape and recreational areas

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Abstract. In recent decades, a trend towards the reorganization of industrial areas around the world, the goal of which is the sustainable development of the urban environment has been of great interest. Obsolete technologies in various areas of production are being replaced by the innovative ones. In this regard, industrial enterprises occupying the significant spaces for the city, which are not only the reserve of the land fund, but also its urban planning potential, are closed and empty. The article discusses one of the methods of the degrading industrial territories reorganization - their transformation into landscape - recreational zones, as well as domestic experience of the work carried out in this area.

Introduction
The development of a modern large city is inextricably linked with the transformation of the territories of the industrial heritage [1]. Globalization, which had an impact on the economy, largely predetermined the state of industrial facilities, some of which ceased to perform a direct task, and in some cases turned out to be completely stopped. A large concentration in relatively small areas of the population, transport, industrial enterprises with the formation of anthropogenic landscapes very far from ecological equilibrium, led to a serious deterioration in the environmental performance of the urban environment [2]. Post-industrial territories are located on especially valuable in architectural-landscape relation and historically established areas, and since urban residents have a need for recreational zones, in order to improve the ecological condition of the city on the post-industrial territories with the derived production function, there is a need to organize the recreational zones for the population [3]. The reorganization of industrial zones is an important direction in the complex of measures for the formation of a comfortable urban environment [4].

Main part
The major Russian cities are closely involved in this issue. Currently, Moscow continues to include the urban environment inefficiently used territories of degrading industrial zones, which occupy about 17% of the capital's territory into the recreation. Since 2011, the city authorities have approved 65 projects concerning the planning of industrial areas with a total area of more than three thousand hectares. One of a few projects implemented at this plan is the Tufelev Grove Park (Figure 3), which appeared during the redevelopment of the territory of the former ZIL plant (Figure 1)
The name of the park refers to the history of the area. In the 17th century a relic forest located here belonged to the grounds of the Simonov monastery. Later, these places, called “Tufelev Grove” by the name of the nearby village of Tufelev, were used by the Muscovites for walks. The pond in these places is mentioned in the story “Poor Liza” by historian Nikolai Karamzin. [5]

Jerry van Eyck, the head of the New York bureau Melk, is the project’s author who decided to keep the main idea of the plant and reflect it in the park project (Figure 6). He designed a pergola of Corten steel that runs through the entire park, like a conveyor belt at a factory.

Pergola (Figure 4) at the same time is a viewing platform, an object of public art and a covered walking area of 1.3 kilometers. It performs several functions at once: it is a walking space and a trade pavilion. The main role of the pergola is to combine several spaces. Its length is 1.3 kilometers.
Another interesting detail of the park is a pond with blue water, the depth of which in some places reaches two meters, and the area is three thousand square meters. There are sun loungers under the umbrellas on the bank of the pond. In winter the pond will be converted into a skating rink.

There is a designed amphitheater for 100 visitors, which is the place of attraction of all events held in this area.

Oaks, pines, lindens, larch trees, alders, junipers, cotoneaster, spirea, and roses are planted - only about 3.5 thousand coniferous and deciduous trees and greenery shrubs occupy almost half of the park's territory. 97 flower parterres are created. For active recreation in the park "Tufelev Grove" there is a sports area with exercise equipment, volleyball, basketball and tennis courts [6].

For children there is a playground with trampolines, slides and a climbing wall. In addition, there is a place for dog walking in the park.

Another feature of the Tufelev Grove Park is that all footpaths and paths from it lead to the Moscow branch of the Hermitage. According to the organizers, the idea of combining the park and the museum was embodied in the project of this park - a similar decision is quite unique for Moscow. [7].

Not far behind Moscow in the reorganization of the post-industrial zones is the city of St. Petersburg. For 7 years in the former industrial zones of St. Petersburg, the builders erected more than 4 million m² of real estate - mostly housing. And in the forthcoming 10 years, the volume of development of the former factory territories will increase by 4 times.

In 2004 the project to transform the territory of the former warehouses for the storage of the New Holland ship forest was implemented. This is an island formed in 1719, in the Admiralteisky district of St. Petersburg, between Kryukov and the Admiralty canals and the Moika River. The construction of warehouses for the storage of ship timber started here immediately. Architectural projects have changed three times, due to which the territory received its usual appearance in the second half of the 18th century.

Almost all the time the island was inaccessible for visits. The territory was given to the city in early 2004, after which a competition was announced for a project proposal for the reconstruction of the territory. The conceptual project by Norman Foster won the competition, implying the construction of a glass dome over the amphitheater and a very expensive underground construction. This project received a large number of awards in the field of architecture, but because of the investor’s bankruptcy it was not implemented.

In 2010, the company New Holland Development won in a new tender for the reconstruction of the island’s space. The architecture firm West 8 from Holland was also involved in the development. The idea of construction the new buildings on the island was abandoned in favor of the idea of creating a park zone, and it was decided to place all commercial areas in reconstructed historic buildings (Figure 5) [8].

Figures 3, 4. The Tufelev Grove Park
The forge was erected by engineer Mikhail Pasypkin in the 19th century. It was in the worst condition in comparison with other buildings in the area. After signing a contract with an investment company, the first thing to do was to preserve the structure.

After the reconstruction of the building, it houses the club and restaurant, which has become the cultural and social center of the whole island. “The Bootylka” was built in 1830 by architect Staubert (Fig. 6). In the past, the building was a maritime prison. After reconstruction, all four floors received the new functions from gastronomic to educational.

The house of the Commandant is the latest building erected on the island. Initially, the commandant lived in the building with his family, and in Soviet times the department of the maritime department was placed in it. At the beginning of 2017, the Mayak creative school was opened there.

Reconstruction of warehouses will have been completed by 2025, offices and studios will be located there.
A great pride of the architectural firm West 8 is a linden avenue consisting of 200 trees along the Admiralty Canal. Wooden, metal and glass pavilions appeared on the avenue. The largest pavilion is intended for film screenings, lectures and exhibitions.

In the central part there is a lawn, resistant to trampling, where one can walk on without the guards’ attention. There is also a stage on the lawn with the possibility of holding film shows, lectures and concerts on it during the warm season, and in winter there will be a skating rink.

In front of the Forge, a grass garden was laid out (Figure 7), which serves as a separation zone between the terrace for chilling and a playground. Ornamental plants and spices were planted in the garden, most likely the locals will take care of the plants. Landscape Bureau "MOX" rearranged the garden in 2018, replacing some of the plants for cereals and perennial shrubs brought from different parts of the world.

The basis of the garden is sage oakwood, which cuts through the flower garden with lilac stripes, and the grass varies in height from 40 cm to 2 m. The color accents are created with the help of various perennials that alternate throughout the season. Because of this the appearance of the garden is constantly changing.

![Figure 7. The grass garden](image)

The main playground for children in New Holland is a playground, which is a full-size model of the frigate Peter and Paul. The West 8 studio was responsible for its construction, while the German company Richter which designs similar objects all over the world, was involved in the interior design [9].

Summary
As a result of the examples considered above, it can be understood that the renovation of post-industrial territories significantly improves the ecological condition, complements the green frame of the city. The creation of public entertainment and commercial functions in these objects is important both for aesthetics and the ecology of the urban environment, and for the maintenance of these territories vital activity from the economic point of view [10]. Postindustrial zones that have lost their original purpose due to scientific and economic progress under the influence of toughening environmental requirements, as well as changes in the economic situation can be an important reserve for creating new planning solutions for the urban environment [11].

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