

**BACKGROUND AND PERSPECTIVES OF THE CITY-PLANNING RECONSTRUCTION OF THE IVANIVSKIY INDUSTRIAL DISTRICT OF KHARKIV****Oleksandr Udovychenko**

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*The objective of the work is to reveal the substantive provisions of town-planning conception of transforming Ivanivskiy industrial district in Kharkiv. The importance of work is conditioned by developing the scientific approach of the effective use of industrial territories which lost the function. Pre-conditions of town-planning transformation of industrial territories and prospect of their development in the context of city steady development are shown on the example of Ivanivskiy industrial district in Kharkiv. Basic principles of reconstruction of industrial districts of modern city were formulated. Embodiment of researched results are shown in the renovation project of Ivanivskiy industrial district in Kharkiv.*

**Keywords:** *industrial district, concept of city-planning reconstruction, city-building principles, the renovation project*

**1. Target Setting**

The present stage of the developing of urban space is executed under the influence of several powerful factors, including the processes caused by the third industrial revolution. Today there is a fundamentally new type of production and exchange processes. The basis of the economic strategies of rapidly developing countries was the new system process called "reindustrialization". Its essence is an active development of material production on the basis of the modern technologies. On the other hand, some industrial enterprises lose profitability and decline, and their territories are waived. At the same time, these territories become a significant resource for the intensive development of the city in the context of the strategy of its sustainable development.

The result of these phenomena and processes is the actualization of the problem of finding new ways of urban reconstruction of industrial territories in the structure of Ukrainian cities.

**2. The Level Of Studing The Problem**

In modern socio-economic conditions of the formation of market relations in Ukraine the implementation of city-planning policies that ensure the rational use of land resources is important. According to the new concept of the development of Kharkiv city, territorial resources in the long run should be sought, first of all, within the existing urban development. The possibility of city development within the existing boundaries is due to the presence of areas among them that are subject to reconstruction, including the necessary change in functional use [1]. First and foremost, inefficiently used industrial and share house and public utilities zones.

The objective of the article. The objective of the scientific publication is to reveal the main principles of the concept of city-planning reconstruction of the Ivanivskiy industrial district of Kharkiv.

Research methodology. The study is based on the main principles of the system concept in urban planning. Accordingly, industrial areas are considered as structural and functional elements of urban system

development. The theoretical and methodological basis of the research became a series of fundamental works related to the study of general problems of urban planning, urban system development by such authors as: Yu. Belokon, V. Vadimov, O. Gutnov, M. Demin, V. Timochin, T. Panchenko, I.O.Fomin.

At the stage of the study of the urban development situation and the analysis of practical experience methods of observation, comparison, cartographic analysis are used. The methods of synthesis, logical and graphical modeling are used at the stage of development of the concept of urban development of the examined territory. Individual elements of the research and verification of its results during experimental engineering were performed by the student V. Shpakovich during the implementation of the Master's research paper under the guidance of the - Dreval I., Udovychenko O.

The empirical base of the research was the development of the Design and Research Institute "Kharkiv PrombudNDIproekt", which is the basic, territorial project organization of "Derzhbud Ukraine" and "Ministry of Regional Development of Ukraine" [2-4].

The legal and organizational principles for the reconstruction of industrial areas of Ukraine are determined by the following state documents: Laws of Ukraine "On Industrial Parks", "On Special Regime of Innovative Activity of Technology Parks", "On Innovation Activity".

Considerable attention is given to issues of rational use of production areas in the development of advanced technologies in modern science. Scientists emphasize that the main prerequisites for the renovation of industrial areas of modern major cities are: the loss of industrial enterprises of their functions in market conditions; the need to improve the ecological condition of the city; the need for further development of the city in the context of sustainable development concept [5-9].

A series of works, which considered the functional, planning, environmental, socio-economic aspects of the problem of urban development of industrial areas was important for this study [10-12]. However, there is still no scientific justification for a comprehensive solution to the problem.

### **3. Main Content**

An analysis of practical and scientific experience in the reconstruction of industrial districts of big and largest cities has shown that numerous industrial enterprises and zones that have lost their significance under the influence of scientific and technological progress, changes in the economic situation, and the increase of environmental requirements have become an important reserve for the renewal of significant territorial fragment planning structures of large and largest cities. The main features of the transformation of industrial districts of the largest cities are:

- new urban formations of different functional purposes (residential, public service, recreational, scientific and production) on territories that have lost the functions of industrial production;
- further development of industrial enterprises with attracting of innovative technologies and reduction of areas of their sanitary protection zones;
- increase of transport and communication infrastructure density of the district and increase its connection with adjacent urban areas.

Ivanivskiy industrial district is one of the oldest and the largest industrial districts of Kharkiv. Its total area amounts to 309 hectares. Until recently, such factories as the tanks repair plant, alcoholic beverage factory, plant of electric apparatus, of repair of carriages, compositions successfully operated.

The development of the concept of the urban developing of the Ivanivskiy industrial district was based on the study of scientific and practical experience and the results of the analysis of urban conditions and fac-

tors that influence the formation of urban development complexes in reconstruction of industrial areas conditions.



*Fig. 1. Ivanivskiy industrial district*

The main feature of the object that is under study is its location in the central planning area of Kharkiv and its proximity to historic town center. An important characteristic of the town-planning situation in the Ivanivskiy industrial district is also the restriction of its territory – by the river Lopan on the one hand, and railway - on the other. This conditioned the presence of streamside in the structure area that do not perform recreational function. It is clear that the ecological condition of the district is unsatisfactory. On the territory of the Ivanivskiy industrial district there is a small amount of residential development and public service facilities. However, their condition is largely unsatisfactory. The positive qualities of the object to be studied include the progress of developed transport infrastructure and engineering communications. Demarcation of the industrial area with the central railway station complex of the city strengthens the town-planning potential of the territory.

An analysis of the urban development situation has shown that special attention needs to be paid to the complex problem solving from the functional, planning, landscape-ecological and compositional organization of their entire territory.

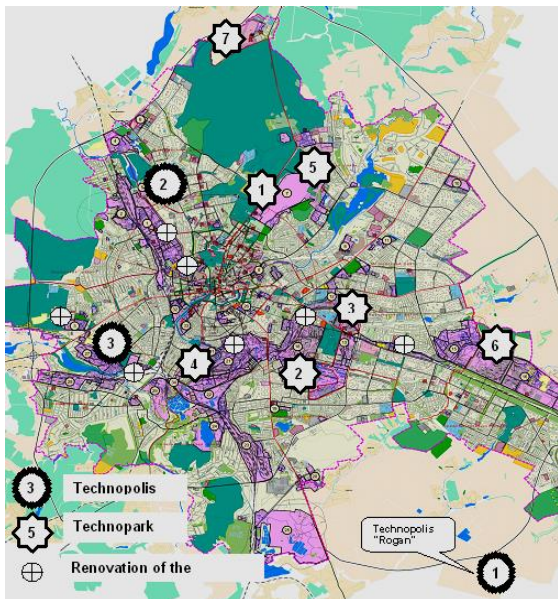
During the analysis of factors influencing the features of city-building transformation, several groups have been identified. Urban development, natural and climatic, socio-economic, technological conditions and factors are external factors. A group of internal factors become a requirement of new types of functional processes that replace the function of industrial production, which has lost its effectiveness.

The main urban factors that influenced the features of the industrial area reconstruction are as follows:

- placing the object in the central part of the city structure, which resulted in a high level of transport connectivity of the territory with other areas of the city and, accordingly, its significant urban development potential;
- the level of harmfulness of industrial enterprises subject to removal and reconstruction;
- planning features of the district area, which allowed to allocate several planning modules with different functional content;
- the natural conditions of the territory, which revealed the possibility of forming a powerful landscape-recreational zone, which greatly enhanced the landscape-ecological framework of the whole city.

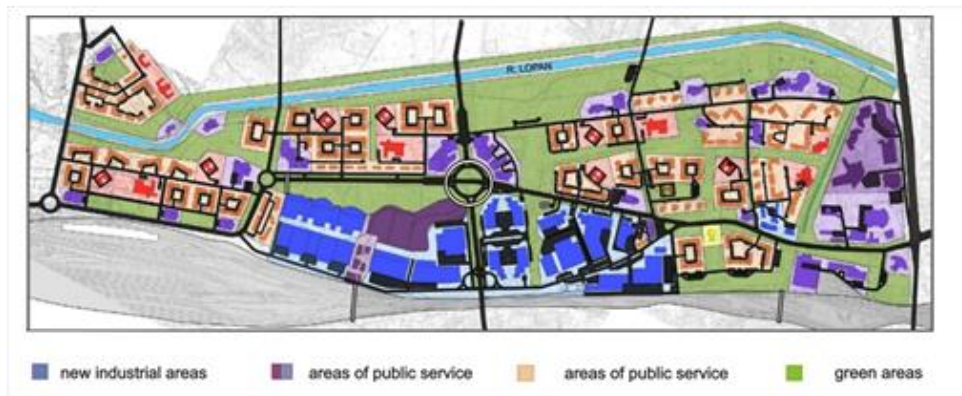
When developing the concept of urban restructuring of the Ivanivskiy industrial region, the preservation of its city-forming function in the structure of the Kharkiv city was considered as a priority task. For this purpose, instead of the industrial enterprises that lost their function, it was decided to place objects with a city-planning potential. Thus, the scientists emphasize that "with the further development of the city's indus-

try, particular emphasis should be given to the development of technopolises and industrial parks, which create the possibility of combining the unique scientific and technological potential of the city and the diverse lines of activity of industrial enterprises." (Fig. 2) [11, p.13].



*Fig. 2. Scheme-model of innovative development of Kharkiv industrial territories. 2-Ivanivskiy*

The concept of the reconstruction of the Ivanivskiy industrial district of Kharkiv was based on the integration of the components of functional renewal, transport-planning complication, compositional harmonization, and environmental safety (fig.3, 4) .



*Fig. 3. Conception of updating of functional organization of Ivanivskiy technopolis. Source: the diploma projects of master student Shpakovich V. of the Urban Development Department of Kharkiv National University of Municipal Economy (graduates of 2017), leaders - Dreval I., Udovychenko O.*



*Fig. 4. Innovative development of Ivanivskiy technopolis. Source: the diploma projects of master student Shpakovich V. of the Urban Development Department of Kharkiv National University of Municipal Economy (graduates of 2017), leaders - Dreval I., Udovychenko O.*

The basis of the concept became the city-building principles for the reconstruction of industrial areas formulated in the work, the main among which are:

- substitution of city-forming functions of industrial production for other city-planning functions: scientific-industrial (techno park, technopolis, industrial park), intercity public, landscape-recreational and transport services;
- growth of city-building potential: increase of functional saturation, building density, internal and external communication connectivity, compositional integrity and expressiveness;
- improvement of ecological characteristics of the district and city as a whole.

In the course of experimental engineering of urban construction of the Ivanivskiy technopolis of Kharkiv. It was suggested:

- in the functional aspect: the development of elements of the city-forming base, namely the techno park, a new industrial enterprise with innovative technology, public service complexes of the inter-city rank, development of nodes of external transport; development of housing function through the formation of new neighborhoods;
- in the structural and planning aspect: the development of the area within its planning boundaries, taking into account historical planning, improving the communication subsystem by creating transport interchanges, parking lots, overground pedestrian crossings;
- in the landscape-ecological aspect: strengthening and development of the landscape-ecological framework through the formation of a developed waterfront, a system of internal boulevards and a district park.

Such measures ensured the development of the region, preserving its city-planning function in the city system (Table. 1, 2).

**Table 1**

**Technical and economic characteristics of the projected area of the Ivanivskiy technopolis of Kharkiv**

1	The area of industrial formation in the defined planning boundaries	309 <i>ha</i>	100, %
	Including:		
1.1	Territories of the existing industrial enterprises	240	74
1.2	Territories of the residential development	45	15
1.3	Territories of the public service objects	9	3
1.4	Territories of green plantations	4	2
1.5	Road traffic network	11	4

**Table 2**

**Technical and economic characteristics of design proposal of the Ivanivskiy technopolis of Kharkiv**

No.	The area of reconstruction in the defined planning boundaries	309, <i>ha</i>	100, %
	Including:		
1.1	The territories of the preserved industrial enterprises	12	4
k11.1a	The areas of the techno parks and the new logistics centers	66	26
1.2	Territories of the residential development	100	30
1.3	Territories of the city-wide public-trade centers	15	5
1.4	Green areas of the general using	100	30
1.5	Road transport network	16	5

#### 4. Conclusions

Socio-economic changes and city development needs require scientifically sound approaches to urban development of industrial areas, which are significant resources for the sustainable development of urbanized areas.

Analysis of scientific and practical experience has proved the effectiveness of formation in the territories that lost the functions of industrial production, new urban structures of different functional purposes: residential, public services, recreational, scientific and production.

Features of urban development of industrial districts are caused by such urban development factors as: the location of the industrial area in the zonal structure of the city; the level of harmfulness of industrial enterprises that undergo removal and reconstruction; functional and planning features of the territory of the district and its natural conditions.

Town-planning principles of urban development of industrial areas are based on the replacement of city-forming functions of industrial production by others, which ensures the growth of urban development potential of the territory.

Implementation of the research results in the renovation project of the Ivanivskiy technopolis in Kharkiv has proven the effectiveness of the systemic approach to functional upgrading, the development of communication infrastructure, compositional harmonization, landscape-ecological balanced territory as a holistic structural and functional element of the city system.

### ПРЕДПОСЫЛКИ И ПЕРСПЕКТИВЫ ГРАДОСТРОИТЕЛЬНОЙ РЕКОНСТРУКЦИИ ИВАНОВСКОГО ПРОМЫШЛЕННОГО РАЙОНА ХАРЬКОВА

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*Цель статьи – возродить существующее обеспечение градостроительной концепции трансформации промышленного района Ивановский в Харькове. Значимость работы обусловлена разработкой научного подхода к эффективному использованию промышленных территорий, потерявших свою функцию. Предпосылки градостроительной трансформации промышленных территорий и перспективы их развития в контексте устойчивого градостроительного развития показаны на примере промышленного района Ивановский в г. Харькове. Сформулированы основные принципы реконструкции промышленных районов современного города. Результаты исследования воплощены в проекте реновации промышленного района Ивановский в Харькове.*

**Ключевые слова:** *промышленный район, концепция градостроительной реконструкции, градостроительные принципы, проект реновации*

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**Ալեքսանդր Ստեփանի Ուդովիչենկո**

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Խարկովի Օ.Մ.Բեկետովի անվ. Քաղաքային տնտեսության ազգային համալսարան, ք.Խարկով, Ուկրաինա  
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**Առանցքային բառեր.** *արդյունաբերական շրջան, քաղաքաշինական վերակառուցման հայեցակարգ, քաղաքաշինական սկզբունքներ, ռենովացիայի նախագիծ*

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