

Analysis of the integrated development of the territory of the industrial zones of the city of Moscow

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Abstract. The relevance of the chosen theme is due to the novelty of the program for the integrated development of the territory and the diversity of its implementation in the regions. The paper objective is to identify a scientific problem in decision-making for the integrated development of the territory of industrial zones in the city of Moscow. To achieve the stated objective, the scientific method of systematic analysis of the statutory regulations of state authorities – the Government of the city of Moscow, which determines the role of the integrated development of the territory of the city of Moscow, was applied. The analysis of the implementation of the objectives of the territory integrated development presented in the Federal legislation made it possible to identify the interrelation of factors caused by the current city-planning situation in terms of restrictions on the urban planning activities, the economic feasibility of locating permanent facilities during the reorganization of industrial zones.

1 Introduction

The integrated development of the territory is a system of measures aimed at the sustainable development of the territory, including urban planning, which ensures the effective integration of the territory into the fabric of the city with due regard for the development of social and engineering as well as transport infrastructures.

The change in the Federal legislation, which formulated a set of measures to establish a unified procedure for the integrated development of territories, entered into force on December 30, 2020. The integrated development of the territory has become a powerful urban planning tool for the development of the cities in the Russian Federation. Regional authorities are fully authorized to form the procedure for the implementation of the integrated development of the territory in the regions.

In accordance with Article 64 of the Urban Planning Code of the Russian Federation, the objectives of the integrated development of the territory (hereinafter referred to as the IDT) are the totality of the provision:

1. Balanced and sustainable development of the territory;

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2. Achieving the indicators in the sphere of residential construction and improving the living conditions of citizens;

3. Arrangement of conditions for the development of transport, social, engineering infrastructures, improvement, increasing the territorial accessibility of such infrastructures;

4. Improving the efficiency of the use of territories, creating a comfortable urban environment, creating the places of service and places of labor application [1].

Achievement of the objectives stated in the Federal legislation is not fully implemented due to a number of problems associated with long periods of obtaining and using unsystematized initial data materials, the lack of the possibility of operational analytics of made urban planning decisions and proposals for the allocation of urban facilities [2-4].

2 Materials and methods

Consideration of the IDT program for industrial zones is determined within the limits of the city of Moscow. Industrial zones occupy a significant part of the city, about 15 thousand hectares in the capital. The facilities in most of the territory are occupied by operating industrial and production organizations as well as organizations that ensure their work. However, there are depressive, abandoned industrial facilities located in the areas with high urban development potential on 2 thousand hectares. According to the scientific paper of Kustova K. A. the limits of the IDT may include the land plots on which emergency facilities under emergency situation and facilities being subject to demolition are located [5].

The Urban Development Code of the Russian Federation, Decree of the Government of Moscow dated March 23, 2021 No. 331-PP “On measures for the implementation of the projects for the integrated development of non-residential development areas of the city of Moscow”, Decree of the Government of Moscow dated December 15, 2020 No. 820-RP “On the headquarters for the implementation of the projects for the integrated development of the territory of the city of Moscow”, Decree of the Government of Moscow dated November 16, 2010 No. 1019-PP “On the establishment of the Urban Planning and Land Commission of the City of Moscow”, etc. was reviewed as a part of the analysis of the legal and regulatory framework.

The analysis includes official responses to the requests for initial data from the executive authorities in text, tabular and graphical forms, urban planning documentation and field survey data, as well as urban planning documentation for various purposes.

A systematic analysis of the legal and regulatory framework as well as a generalization of the initial data of the industrial zone sections proposed for the IDT in order to make urban planning decisions were the main methods used for the paper.

3 Results

3.1. Analysis of the integrated development of the territory in Moscow

The metropolitan area has determined the procedure for implementing the integrated development of the territory based on the city urban development features, which is aimed at providing new “points of attraction” and “growth zones” for the city residents and businesses. Due to the active implementation of the Moscow city renovation program, the IDT sections are located mainly within the limits of industrial and communal areas. Thus, the IDT in Moscow is a consideration of the possibility of developing depressed industrial areas with subsequent integration into the fabric of the city.

The city program of the IDT supposes the development of industrial zones, and is designed to form environmentally friendly and modern production facilities, as well as residential buildings, hospitals and children’s educational institutions, parks and sports facilities at their place [2].

The Department of Moscow City Property Department (hereinafter referred to as the CPD) is the main operator of the IDT, and the Committee for Architecture and Urban Planning of the City of Moscow (hereinafter referred to as the Moscow City Architecture Committee) is the main coordinator of the project activities [4]. Consideration and decision on the IDT are made with the participation of the executive authorities: the Moscow City Architecture Committee, CPD, the Department of Economic Development of the City of Moscow, the Committee of the City of Moscow for ensuring the implementation of investment projects in construction and control in the sphere of shared-equity construction as well as the Office of the Mayor of Moscow. The proposals from a wide range of organizations are considered in the development of materials for a comprehensive consideration of the IDT projects [6].

The general procedure of the IDT can be conditionally divided into 7 stages (Fig. 1):

1. Boundary delimitation
2. Assessment of urban planning potential and decision-making on the IDT
3. Publication of the draft decision on the IDT
4. Determining the method of implementation
5. Making a contract for the IDT
6. Development of documentation for the area planning
7. Implementation of the approved urban planning documentation

An analysis of the real estate fund, which is appropriate for consideration, is fulfilled for determining the limits of the IDT development. A relevant application is formed to develop an assessment of the urban planning potential of the IDT based on the results of determining the limits [7, 8]. At the third stage, after fulfilling the Urban Planning and Land Commission (hereinafter referred to as the UPLC) on the draft decision of the IDT, the materials are sent to the CPD and the Moscow City Architecture Committee, following which they are officially published [6]. Determination of the method of implementation supposes the provision of a priority right to make a contract with the current copyright holder of the IDT real estate properties. In case of disagreement of the owner, the implementation procedure is carried out at the expense of the investor (based on the results of the auction) or budgetary funds [9]. The formation of the contract takes place through the mediation of the Committee of the City of Moscow for ensuring the implementation of investment projects in construction and control in the sphere of shared-equity construction according to the approved procedure on the method of implementing the UPLC.

After determining the limits of the territories and sending the relevant appeal to the design organization, an assessment of the urban planning potential of the IDT is being developed [4]. The developed materials undergo consistent approval from the Moscow City Architecture Committee to the review at a meeting with the Mayor of Moscow, and amendments may be made at each stage. The IDT is approved by a decree of the Government of Moscow by the decision of the Mayor of the city of Moscow [6]. The territory planning project (hereinafter referred to as the TPP) is developed and approved in accordance with the general procedure for the preparation and approval of documentation for the territory planning and with subsequent approval at the “Urban Planning Policy” Headquarters [4, 10]. The final stage of the IDT implementation corresponds to the general procedure for the construction of permanent facilities, and the obligations under the IDT contract are completed upon the implementation of the TPP to the full extent [11].

The existing process of the IDT implementation in the city of Moscow is simultaneously regulated by several statutory regulations, and includes the

interdepartmental work of a large number of authorities. This process is coordinated by common workflow tools. Given the complexity and stage-by-stage coordination, the review procedure may be slowed down due to the need for constant updating of interdepartmental elaboration regarding urban planning decisions.

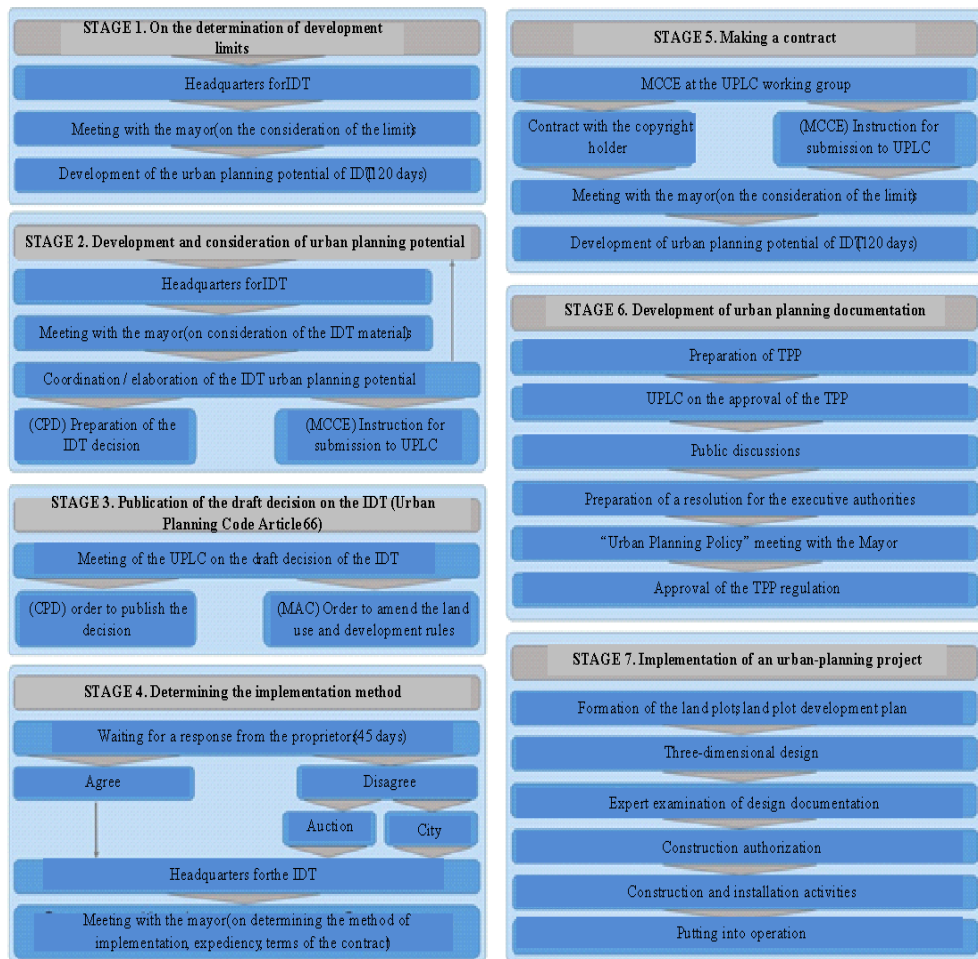


Fig. 1. Scheme of the integrated development of the territory in the city of Moscow.

3.2. Analysis of the composition of materials for assessing the urban development potential of the IDT of industrial zones

In accordance with the approved regulatory enactment of the organization subordinate to the Moscow City Architecture Committee, which assesses the urban development potential, the IDT of the industrial zones in the city of Moscow is presented in Table 1.

Table 1. The composition of the urban planning potential assessment of the IDT of industrial zones [12].

1	Characterization and analysis of the current condition and use of the territory, identification of prerequisites for the territory development
1.1	Existing use of the territory, prerequisites for the development of the territory

1. 2	With due regard for sanitary-epidemiological and environmental restrictions
1. 3	Development of natural and green areas
1. 4	Transport service of the territory
1. 5	Engineering support of the territory
1. 6	Analysis of state programs and regulatory legal acts of the city containing requirements and measures for the development of the territory
2	Determination of the limiting parameters of the territory urban development
2. 1	Proposals for the urban development of the territory
2. 2	Visual and landscape analysis of the territory
2. 3	The current state of civil defense engineering and technical measures as well as measures for protecting the territory from emergency situations
2. 4	Calculation of expenses for the implementation of project proposals and assessment of their economic efficiency
3	Presentation materials
3. 1	Booklet of presentation materials
3. 2	Model

The presented composition corresponds to a systematic approach to design and contains data for making a decision on the IDT. It should be noted that the presented materials can change qualitatively, since innovations arise regarding data that update design decisions at any level during the process of newly identified factors influencing over design decisions [13].

3.3. Initial data analysis

The initial data in the design of the IDT can be divided into 3 parts – the requested data, urban planning documentation and field surveys.

1. Requested data in the executive authorities and subordinate organizations.

Based on the application for the development of the urban planning potential assessment, official requests are sent to the executive authorities, which contain the title of the project, its limits and the necessary list of initial data. Each appeal receives a response in a free form and additional materials are attached to the response if necessary. Thus, the initial data from the executive authorities is a list consisting of answers, the analysis of which requires digitization and systematization. The review analysis is presented in Table 2.

Table 2. Analysis of official responses from authorities.

No	Authority	Initial data		Note
1	Construction Department	Title of the event in the Targeted Investment Program of the City of Moscow, implementation period in [14]	Text	It is impossible to determine the limits of the event
2	Department of Natural Resources	Distance and name of automatic air pollution	Text	Do not give an idea of the dynamics,

	Management and Environmental Protection of the city of Moscow	monitoring station. Station performance for the previous year for a number of pollutants		retrospective dynamics and spatial display
3	Department of Transport and Development of Road Transport Infrastructure of the City of Moscow	- Availability of bike lanes - quantity, addresses of urban transport; - the availability of a terminus; - data on paid parking	Text, table	Data digitalization is a big job
4	Department for Education of the City of Moscow	Educational facilities: address, name, design, estimated and actual capacity	Table	There is no request for deployment of the facility despite the deficit in indicators
5	Department of Investment and Industrial Policy	Organizations: types of economic activity, name, cadastral number of the land plot, number of employees	Table	An unlimited number of organizations can be located on one site. It is impossible to exactly identify their location.
6	Department of Housing, Utilities and Amenities	Engineering systems, asset holder, and capacity, belonging to the main engineering facilities, availability of promising projects and their customers.	Text, graphics	The data are presented in a bitmap based format, which makes it impossible to analyze them in detail.
7	Moscow City Health Department	Existing healthcare facilities: form, type, name and address. Suggested facilities.	Text	Lack of retrospective dynamics and spatial display.

The reviewed responses contain spatial data, which are presented in a free or tabular form. Coverage of the territory subjectively reveals the practical problem of the specifics of the enterprises being considered. The presented initial data are heterogeneous and not systematized. Moreover, they are not objective and scattered. The subjective display of the existing state is aggravated due to the provision of data in a free format without the possibility of comparison with all sites of the IDT.

2. Approved urban planning documentation.

An analysis of the approved urban planning documentation and made decisions gives an idea of the prospective development of the territory and allows decisions to be made with due regard for the integration into the planned environment. The approved urban planning documentation is analyzed from official open sources, for example, the resolutions of the Moscow Government on the approval of the TPP published on the official website “mos.ru” [9]. An industry-specific automated informatization system is also used, wherein documentation on planning and zoning the territory, documentation on planning the territory, urban planning plans for the land plots, architectural and urban planning solutions, etc. are analyzed. Due to the large amount of urban planning documentation superimposed on each other, the necessity arises for its retrospective analysis. The problem is the determination of relevant planning solutions among the superimposed on each other, as well as their unified consolidation for the use in the design process.

3. Field survey of the territory.

A field survey is an essential component for the spatial understanding of the projected area. The result of the survey is a photographic fixation, which makes it possible to assess whether the permanent facilities are in operation, as well as the condition of buildings, structures and landscaping. Besides, field surveys allow the designer to make sure that the geodetic sub-base is consistent with the real state.

3.4. The factors influencing the IDT of industrial areas

It is proposed to consider the following of the most significant factors influencing over the design decisions within the framework of the IDT material development:

1. The main goal-setting of the city project, which is to form a position for the integration of the industrial zone into the fabric of the city with due regard for multi-level and different-scale tasks as well as factors of the territory sustainable development. Extensive meetings are often needed with the representatives of various organizations to discuss the developed solutions for preparing a consolidated position of the city.

2. Considering for functional balance is the need to identify the optimal combination of proportions of the functional areas with due regard for the surrounding actual and planned functional elements. This factor is influenced by both initial data and approaches to the development of the territories [15].

3. City needs is a factor that provides the needs of the city in the deployment of social, transport and engineering infrastructure. All designed IDTs are considered simultaneously in order to optimally determine the location of such a city facility.

4. The legal and regulatory framework is a legal factor that also dynamically develops and can influence on the design decisions during the development process.

The above-mentioned factors are dynamically changing, but are considered during the stage of assessing the urban development potential (120 days) [4]. The factors may change and prepared proposals become outdated during the assessment of urban potential. It is necessary to make a request on a centralized basis with due regard for a uniformly performed analysis of the existing condition of the IDT for prompt and high-quality provision of the requirements [16].

4 Conclusion

Moscow has developed its own approach to the application of the integrated development of the territory based on the urban development features. This approach makes it possible to rid the city of the depressive industrial areas and include them in the fabric of the city.

The integrated development of the territory in Moscow is regulated by a system of statutory regulations that ensure the process from identifying the limits of sites that need to be considered to putting permanent facilities into operation. The process is a complex one, with due regard for the need for continuous updating of the interdepartmental position regarding urban planning decisions.

The assessment of the urban planning potential of the territory integrated development contains a well-developed urban planning proposal for functionality, the development of urban infrastructure systems and cost-effectiveness calculations with due regard for implementation costs.

The analysis of the initial data is divided into the responses of the executive authorities, urban planning documentation and field surveys. The volume of information of the first two types of initial data is essential for processing, but they lose their relevancy over the course of time and are provided in various formats, which make it impossible to perform complex analytics.

In addition to the initial data, the integrated development of the territory is influenced by the following factors: goal setting of the project for the city, consideration of the functional balance of the territories, urban needs and compliance with the legal and regulatory framework. The requirements within the above-mentioned factors may change during the development of urban planning solutions.

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