Integrated development of territories as an instrument of sustainable urban transformation

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Abstract. The article discusses the concept related to the integrated development of territories (IDT), specific features of its legal regulation, and its socio-economic and environmental aspects. It considered as an effective instrument of sustainable urban transformation, as it gives opportunities for the rational and efficient use of all types of resources within the territory and for the potential targeted planning of urban areas with a geographically-oriented approach to cities in directions that correspond to the patterns of sustainable spatial development. An experience of engaging different stakeholders partnership in integrated urban development was studied and recommendations for its adaptation to Russian cities were given. The presented analysis of IDT as a long-term instrument of sustainable urban transformation confirms the relevance of developing a methodology for monitoring, analysing, and forecasting the influence of this factor on regional social and economic development as an interdisciplinary research direction. As a practical application authors have made an analysis of the practical implementing IDT project in the Slavyanka residential area in St-Petersburg, presented development of resources in the expert community on this issue and proposed their own approach, according to which the IDT mechanism should be applied to urban areas. Such research would have a practical value for the purposes of making adjustments to regional integrated development of territories programmes and developing new IDT projects in other residential areas.

1 Introduction

Strategies for the sustainable urban transformation of modern cities are an objective process of more efficient use of human, material and financial resources, as well as the rational use of all resources not only of the territory as a spatial resource, but also of urban infrastructure, networks of engineering and technical support, knowledge and technology. From the point of view of sustainable urban management, various indicators of sustainable urban development can be used in practice for analysis and results estimation.

The process of integrated development of territories projects initiating for Russian cities opens up new opportunities for the rational and efficient use of all types of resources within the framework of sustainable urban transformation, as well as finding a balance of interests

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between social, environmental and economic factors of development, between different stakeholders - government, business and society. There is an opportunity for potential targeted planning of sustainable urban development with a geographically oriented approach to cities in directions that correspond to the patterns of spatial development, the productive forces placement on the territory of cities and their surroundings. There is a possibility of specialization and cooperation; coordination of municipalities representing parts of the formed agglomeration among themselves not only to solve common tasks in the form of inter–municipal interaction, but also to respect the interests of the national economy as a whole. [1-2]

The concept of integrated development of territories (IDT) has been reflected in Russian legislation for a long time. Thus, the Federal Law of the RF No. 136-FZ of 25.10.2001 “Land Code of the Russian Federation” included provisions on the implementation of promising IDT projects in order to increase the volume of housing construction. Subsequently, these provisions were developed in the Federal Law of the RF No. 190-FZ from 29.12.2004 “Urban Planning Code of the Russian Federation”, according to which "the integrated development of the territory is a set of measures carried out in accordance with the approved documentation on the planning of the territory and aimed at creating favourable conditions for the residence of citizens, updating the living environment and territories of general use of settlements, urban districts". [3-4]

The real reform that seriously changed the mechanism of the IDT was the adoption of Federal Law No. 373-FZ of 03.07.2016 "On Amendments to the Civil Legislation of the Russian Federation and Certain Legislative Acts of the Russian Federation in Order to Ensure the Development of Territorial Integration", which introduced the concept of "integrated and sustainable development of territories", broken down into different types of projects. At the beginning of 2021, legislative changes come into force, according to the Federal Law No. 494-FZ of 30.12.2020 "On Amendments to the Civil Legislation of the Russian Federation and Certain Legislative Acts of the Russian Federation in Order to Ensure the Development of Territorial Integration", which has changed the IDT mechanism again. [5-6] The specified document defines the concept of the IDT as "a set of interrelated measures for the formation of the territory, the creation of infrastructure and (or) capital construction objects carried out by legal entities, individuals, state authorities and aimed at the qualitative transformation of built-up and free from development (undeveloped) urban areas in order to use them best and most effectively, taking into account social functions that ensure the sustainable development of urban areas." [7]

One of the urgent issues in the sustainable urban transformation and cities' development, the success of which, is due to the implementation of the IDT projects with the most effective use of the capabilities of these territories, the creation of conditions for a comfortable urban environment and the implementation of environmental safety requirements. If we build logical relationships between agglomerations and cities, suburbs and other settlements, then we can count on synergetic and multiplicative effects in the country's economy in the medium and long-term perspectives.

2 Methods

Urban sustainability requires minimizing the consumption of space and resources, optimizing the urban form to facilitate urban flows, protecting both the ecosystem and human health, ensuring equal access to resources and services, and maintaining cultural and social diversity and the integrity of the urban environment. As a rule, socio-economic urban
development programs consider social, economic, industrial, energy, agricultural, transport and other problems separately and in isolation from environmental factors.

The development of sustainable development strategies and programs, approved by the UN and recommended by the Habitat I and II urban settlement programs, has been widely developed in world practice these days. Sustainable urban development programs are the most advanced documents that combine the principles of urban development in social, economic, environmental and other spheres of society. City and regional authorities should assist in the development of legislation on sustainable development based on the sound of economic, social and environmental principles. [8]

Based on a review of recent academic literature, there could be mentioned two interconnected urban concepts, the Resource Efficient City and the Resilient City, which are related to Urban Sustainability Transformations (UST). These concepts, which we analyse with regard to implementation challenges in everyday urban life, particularly address the necessary transformations of cities regarding use of resources and effective management and development system. [9-10]

A necessary condition for the IDT effectiveness as a form of sustainable urban transformation is a methodological basis of the management system for planning and construction processes, involved in the integrated development of the territory, taking into account main stakeholders’ interests of the urban community: population, city authorities, business, etc. The purpose of the article is to formulate a practical approach for the sustainable urban transformation through the effective IDT project realization, by presenting a case-study method, on the example of an IDT project realization for Slavyanka residential area in Pushkinsky district of St-Petersburg city.

In the framework of the present research work there were used methods of analytical and comparative analysis with geographically oriented approach to the residential areas, method of sustainability resources analysis for IDT project efficiency, based on the qualitative model of resource management. [11]

3 Research results

The IDT projects have a number of advantages compared to the construction of the single residential complexes. Due to its scale, the integrated development of residential area is distinguished by a developed social infrastructure, a wide selection of various types apartments, as well as a lower price on the real estate market. And approaches to the implementation of such IDT projects on the part of developers have undergone serious changes for the better in recent years. Over the past few years, residents have become more appreciative of the local urban environment, in which they have to spend a lot of time. The vector of development of the real estate market of St. Petersburg over the past decade has been shifted towards the IDT and construction of residential areas which are planned and designed as a complex with all communications and infrastructure developed.

One of the first large-scale IDT projects implemented on the territory of Pushkinsky district in St. Petersburg was the Slavyanka residential area planning and construction project. This project was implemented in 2010-2016 by the “Baltros Group” company. A total area of the Slavyanka residential area is 220 hectares with an estimated population of about 70 thsd. people and a real estate area of 1.5 mln. sq. m. [12]

The main advantages of the Slavyanka residential area are the introduction of innovations, technological efficiency and modernity of the IDT project. It provided all the necessary infrastructure components for a comfortable life: developed residential and social infrastructure, recreation areas, workplaces. A company "Baltros" implemented European ideas about a comfortable, modern and functional urban area in the Slavyanka residential area. It has become convenient and attractive for residents of the city, and as the main
indicator of its success there is a huge number of families with children who are living here permanently and moved from other parts of the city. This residential area was recognized as the best comfort class project and received the National Urban Awards in 2013.

**Organizational resources.** 135 apartment buildings of medium height (4-9 floors), shopping centers, commercial premises for housing household and retail infrastructure enterprises have been built in the new residential area Slavyanka. All the necessary social infrastructure facilities were planned and built by the IDT project: schools and kindergartens, children's and adult polyclinics, youth clubs, a sports and recreation complex. From the point of view of organizational resources for sustainable development, special places for cars were allocated and created – ground and covered parking lots and guest parking along the main streets of the district - for more than 15,000 parking spaces.

![Satellite image of the residential area Slavyanka (St.-Petersburg)](https://yandex.ru/maps/2/saint-petersburg)

**Social resources.** The Slavyanka residential area is a territory that has a high provision of social infrastructure. Against the background of a shortage of places in kindergartens of the city, seven kindergartens have been built in Slavyanka – one in each quarter and five secondary schools. It is very important that children's institutions are within walking distance. Social infrastructure facilities are built according to modern architectural projects approved by the City Administration of St. Petersburg and have a wide range of facilities for additional services in the field of education - swimming pools, concert and sports halls, sports and playgrounds. All the conditions accompanying a comfortable life in the city have been created for the residents of the district.

**Biological resources.** Slavyanka is located in the developing southern part of the city. With its territory, the district adjoins the city of Pushkin, which has been considered a privileged place to live for centuries. In the southern part of the city there are a large
number of natural protection zones, thanks to which Slavyanka is one of the greenest areas of St. Petersburg. The park area around the Slavyanka railway station is more than 10.5 hectares. The proximity of the Pushkin and Pavlovsk palace and park ensembles gives the Slavyanka a special expressiveness.

Transport infrastructure and accessibility. The district is located between the city of Pushkin and the Moscow Highway – a major transport highway connecting the Slavyanka railway station with Kupchino and Zvezdnaya metro stations. Although due to the congestion of this highway with trucks, there are problems with transport accessibility, especially during rush hours. There is also a good railway connection with the stations Tsarskoye Selo and Detskoselskaya Vitebsk direction.

At the present stage of development, taking into account the IDT, transport and passenger flows were modeled, a territory planning project was developed for the passage of the Slavyanka high-speed tram line along the route from the Kupchino metro station through the village of Shushary to the Slavyanka railway station. The total length of the route will be 21 km, on which 24 stops will be organized. This project is divided into several stages and should be implemented through public-private partnership by 2024, currently the project is undergoing all the necessary approvals and approval in the City Administration of St. Petersburg.

In this IDT project, the developer and construction company “Baltros” had managed to find the necessary balance between the interests of the investor, the city administration and the population of this territory. The well-thought-out planning structure of the Slavyanka residential area, based on the successful experience of European cities, has made it possible to implement many important modern trends in urban sustainable development, such as developed social infrastructure, transport accessibility and parking spaces, effective use of biological, cultural and economic resources.

4 Discussions

By authors' opinion, based on the presented case-study there could be identified advantages and disadvantages of IDT projects.

The most important advantage of IDT projects is a single integrated project for the development of an entire micro-district or quarter. In this project, the necessary capacities of engineering networks and communications for the projected number of housing have been calculated. The necessary social and commercial infrastructure facilities have been calculated and planned, designed to fully cover the needs of the future population of the quarter. Roads have been laid that can provide high-quality transport links both inside the micro-district and between it and with other neighborhoods.

Residents in a properly organized and built residential area of the IDT have the opportunity not only to work close to their homes (new jobs were being created), but also to fully relax and spend leisure time within their area. Children have the opportunity to attend school or kindergarten located in the immediate vicinity of their home, which is an important social resource for the sustainable development of the city. The advantages of IDT projects being built on the outskirts of the city include lower housing costs compared to prices in the city centre, as well as significantly better environmental conditions (the presence of parks and extensive green areas).

But there are some important disadvantages of IDT projects, which should be mentioned here as well. The main problems in the implementation of IDT projects can be called inconsistency of actions between municipal authorities and developers, as well as the desire of developers to get as much profit as possible.

In the relationship between the authorities and developers it is clear that the social component of life in neighborhoods, as well as transport links, is the responsibility of
municipal authorities rather than developers. The developer will build houses, sell all the
apartments, get his income and go on to build the next blocks, and his area of responsibility
remains only in building quality guarantees. But how comfortable it is for people to live in
a new neighborhood, whether they have enough schools, shops, medical facilities, and
whether there are traffic jams at the exit from the quarter – this is already the responsibility
of the authorities. And in solving this problem, local authorities should work together with
developers to ensure an appropriate level of living in this residential area.

But in reality, the authorities and builders cannot agree on who is responsible for the
construction of social facilities, for the development of the road transport network, how and
to what extent it will be paid for by the budget. As a result, problems arise for residents of
neighborhoods who are forced to stand in traffic jams to get to work and take their children
to kindergarten or school, because there are not enough educational institutions in the area
for everyone. [13]

Another problem is the long period of preparatory work on new plots of land, which is
also a big disadvantage of IDT projects in Russia. The problem is that for the complex
development of the territory, the area of this very territory should be rather large. And
before building housing on the existing site, the developer company should take care of
summing up all the necessary communications. After all, most often the plots are offered
completely undeveloped, former farmland of collective and state farms (for example, in
Slavynka). And in St. Petersburg there are almost no companies that can afford to
purchase vast territories and spend a lot of money on laying engineering networks, this can
take up to 35% of the total amount required for the construction of a micro-district.

5 Conclusions

The analysis of the situation with integrated development of territories and a case-study of
Slavynka residential area allows us to conclude that it is necessary to initiate more wider
a complex construction and development of new territories, since the city authorities will
have an opportunity to develop a whole residential area (a district) in a single project,
which will have a positive impact on the infrastructure of the city as a whole.

When choosing a site, a primary analysis of the use of the territory should be carried out
in terms of land and property relations, location, transport accessibility and engineering
infrastructure of the territory, as well as the composition and architectural image of the
planned area and the availability of the necessary amount of investment for the
development of urban territories.

The proposed instrument of the integrated development of territories has a lot of
benefits and advantages for all involved stakeholders, like city authorities, business,
planning and construction companies, residents and local population. This instrument,
combined with the active involvement of the local population on the developed residential
areas in the discussion and decision-making process regarding the IDT, allows us to take
into account interests of the population, city authorities and a business when applying the
mechanism of integrated development of territories, to reduce socio-economic tensions and
increase the effectiveness of the IDT as a form of urban development. [14]

Among evident advantages of the IDT projects anyone could mention a variety of
functional areas. It allows providing a variety of areas with different functions, which in
turn contributes to improving the comfort and convenience of city residents.

The efficient use of the developed territory, taking into account an integrated approach,
makes it possible to use the territory of the city with maximum benefits, thereby increasing
the density of urban development and providing a good and accessible organization of
transport and communication infrastructure.
In the framework of the IDT projects an environmental protection is of the great importance. Taking into account ecological factors in the planning processes of the IDT, it give a strong motivation to preserve natural resources, increase the level of environmental safety and improve the quality of life for local population.

The IDT projects allows to place diversity social facilities on the territory of the city, such as medical centres and hospitals, primary and secondary education, city parks and other infrastructure facilities, which contributes to improving the quality of social services and the convenience of the daily life for residents.

The IDT makes it possible to increase the economic potential of the city by increasing the volume of local production and services, which contributes to the growth of residents’ well-being and the economic potential development of the city. The IDT increases the attractiveness of the city for investments and business, which contributes to the development of entrepreneurship and the creation of new jobs. [15]

In general, the integrated development of territories is one of the most important and strategic instrument for sustainable urban transformation, improving their competitiveness in economic, social, environmental and spatial directions. Based on the present research study results, the process of the IDT projects and programs initiating could be developed further and be more detailed and clear for local population and residents of such areas, which would have a positive influence on the social acceptance.

References

2. S. Maksimov, V. Zasyad-Volk, K. Shelest, E3S Web of Conferences, 435, 020004 (2023) https://doi.org/10.1051/e3sconf/202343502004
https://doi.org/10.1016/j.cosust.2017.04.001
https://doi.org/10.1016/j.landusepol.2021.105365
https://doi.org/10.1016/S0169-2046(03)00117-8
https://doi.org/10.24411/2658-3569-2021-10046
https://doi.org/10.1016/j.proeng.2016.11.872
https://doi.org/10.17513/fr.35389