

## Development of the Penza Region from the Position of Strategic and Territorial Planning

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**Abstract:** The article considers the issues of increasing the efficiency and rational use of the territories of the city of Penza and the Penza region from the standpoint of the implementation of the main directions of the socio-economic and territorial development of the region. The main problems hindering the implementation of the territorial planning documentation are stated.

### Introduction

Modern urban planning policy is largely determined by the documents of the strategic and territorial development of cities and towns. The development of cities is of priority importance, since they have the main economic, intellectual and socio-cultural resources.

Documentation of strategic and territorial planning and implementation of basic design solutions by the systemic force of territorial development. Strategic planning, which has its goal of social and economic development of society, is inextricably linked with the implementation of design solutions for territorial planning. However, territorial planning, in turn, is a multifaceted event, together with which such areas as theory and practice of urban management, geography of cities, engineering geology, transport systems, engineering communications, ecology, etc. are developed.

### Research

The most important role in the settlement system is played by large cities and megalopolises, in which the main objects of industry, education, health care, social environment and culture are concentrated. The development of urban areas is currently based not on the growth of industrial production, but on the level of quality of life - housing, environmental conditions, life safety, social and cultural services, the opportunity to participate in decision-making on the development of territories, etc. A characteristic feature of modernity is the fact that, in contrast to the last century, for which the driving force behind the development of cities was the trend of industrial development and the associated outflow of the rural population to cities, in modern conditions, development is determined by informatization and digitalization.

The main condition for the implementation of territorial planning documentation is the sustainable development of territories, the basic principles of which are set forth in [1]. A brief analysis of some issues of urban planning allows us to make an extremely important conclusion that the development of documentation for strategic and territorial planning is the most difficult stage in planning the development of society and territories and, therefore, requires a scientifically based approach and appropriate technical and economic calculations and justifications.

Let's consider and analyze some of them in relation to the development of the Penza region.

#### Decent home for all

Housing construction is one of the most important conditions for improving the well-being of the population and, in general, the quality of life. The main task of strategic planning is to determine the level of housing provision for the population and calculate the need for housing construction in the future, taking into account the demographic situation, migration processes and the development of social infrastructure.

The most important urban planning principle is the division of territories by functional purpose with the aim of rational and efficient use of it. The territorial planning documentation for any settlement is based on the town-planning zoning scheme, the implementation of which largely determines the territorial structure of the settlement and its future development. In this regard, design solutions for strategic planning documentation should be developed taking into account their territorial binding, otherwise the integrity of strategic decisions is violated.

The level of housing provision on average in the Penza region is quite high and amounts to about 29 square meters in urban areas and about 31 square meters in rural areas [2]. However, the dilapidated and emergency fund is about 900 thousand square meters and there is a possibility that by 2030 it will reach the level of 3.7 million square meters. Thus, Penza is on the verge of mass retirement of standard apartment buildings built in 1950-1975. This current situation requires a global revision of housing policy.

The main directions of development of the construction complex are as follows:

- ensuring the accessibility and comfort of the dwelling, the formation of a high-quality living environment;
- renewal of the potential of facilities and material and technical infrastructure of the construction complex;
- training and rejuvenation of personnel in construction based on the development of higher and secondary professional construction education in the region;
- introduction of new technologies and materials in the construction of highways with an increase in the warranty period of service.

Targets are shown in the Table.

**Table.** Targets

Indicator	2020	2025	2030	2035
Commissioning of housing, mln. Sq. m per year	0,93	1	1,1	1,2
Housing commissioning per 1 resident at the end of the year, sq. m per year / person	0,68	0,7	0,78	0,85
Total area of residential premises, per capita on average, sq. m / person	29,5	31,0	33,0	35,0

It should be critically noted that the main directions of construction development and target indicators do not have appropriate feasibility studies and calculations. For example, what is the basis for the indicator of housing commissioning by 2035 per inhabitant (sq. M per year / person) - 1.2 million sq. M. Per year? It is known that for the development of housing construction, a well-coordinated work of a system of enterprises for the production of building and finishing materials is necessary, which successfully works in conjunction with construction and installation organizations and other subcontractors. To confirm the indicator of housing commissioning (1.2 million square meters per year), it is necessary to calculate the need for concrete, reinforced concrete, metal and wooden structures, cement, crushed stone, sand, insulating, paint and varnish and polymer materials, as well as the calculation of production capacity and productivity relevant enterprises.

The problem of increasing the level of use of local raw materials in the production of building and finishing materials is of great importance in the implementation of housing construction programs. The Penza region has large reserves of mineral resources: sands, clays, diatomite, limestone, sandstone, flask, marl, mineral dyes, timber, timber and many others. Such materials are raw materials for the production of a wide range of building materials.

A promising direction for the implementation of housing policy is the development of low-rise, individual construction, especially in rural areas near the existing deposits of mineral resources. The production of building structures made of wood, bricks, wall blocks based on cellular materials (foam glass, foam blocks, clay-slag blocks) is the most important and promising area of housing construction. However, it should be noted that the level of use of local mineral resources in

construction and the introduction of advanced technologies for the production of cheap and efficient materials in the Penza region is still relatively low and requires further development.

At the same time, it should be noted that in 2014 in the Nikolsky district of the Penza region a cement plant "Asia-cement" was opened with a capacity of 1.86 million tons per year. It would seem that the problem of low-rise construction in the Nikolsky district and in the surrounding areas should be successfully resolved. In addition, the Nikolsky District has large reserves of diatomite, sand, opoka sandstone, gaize and timber. However, the problem of low-rise construction did not receive mass development. The problem is aggravated by the fact that many enterprises of the construction complex in the nineties ceased to exist or were redesigned, and it is almost impossible to restore them, since to ensure the operability of such enterprises, complex and expensive equipment is required, which medium-sized enterprises cannot afford. It should be noted that in recent years in the city of Penza there has been a positive trend of putting into operation (in the former areas) or construction of construction enterprises in new territories. Such enterprises include the holding "Termodom", the companies "Zhilstroy", "Betonium", "Domostroitel" and a number of other enterprises successfully operating in the city of Penza and the region.

Considering the issues of increasing housing construction in the city of Penza, it should be noted that when solving it (as well as when solving a number of other urban planning issues), other intractable problems arise, such as updating the documentation of urban planning zoning and entering information about the boundaries of territorial zones and settlements into the Unified State real estate register (hereinafter - USRN). Since January 2013, an urgent need arose in Russia to update the territorial planning documentation. To date, in many constituent entities of the Russian Federation and municipalities, territorial planning documents have been updated and are being successfully implemented. However, in some regions of the country there is an acute problem of updating, establishing the boundaries of territories of various levels and entering information about them in the USRN. It should also be noted that in many cities of Russia, when implementing urban planning policy, difficulties arise not only in terms of determining the boundaries of territorial zones, but also with their transformation.

When analyzing the location of the boundaries of territorial zones and the boundaries of settlements contained in the USRN (introduced earlier), the intersections of the boundaries of territorial zones with the boundaries of settlements, also contained in the USRN, are revealed. The reasons for such phenomena are mainly irrelevant information about the boundaries that require appropriate changes. Often, not only the boundaries of municipal districts, but also the boundaries of the constituent entities of the Russian Federation require clarification. In such situations, the process of managing the development of territories is complicated, which entails difficulties in the implementation of design decisions for strategic planning.

To the current situation, one should add the problem of the lack of territorial binding of the majority of land plots proposed for housing objects of housing construction. In the city of Penza and other cities of the region, the development of residential areas is carried out mainly in two ways:

- 1) development of free territories on the outskirts of cities and large settlements,
- 2) infill development and consolidation of existing residential areas.

At the same time, it should be noted that when choosing land plots for housing construction, natural factors and engineering and technical conditions are not always taken into account, contributing to the favorable location and safe operation of housing facilities [3]. The most important task in the implementation of housing construction programs is the ability to provide construction facilities with communal and transport infrastructure. It is no secret that in many cities of Russia, as well as in the Penza region, the degree of wear and tear of engineering communications makes us seriously think about the possibility of joining newly built objects to them. The enterprises of the housing and communal complex, as a rule, do not have their own profit and are not able to independently finance the construction of out-of-order utilities. Such problems require appropriate technical and economic calculations and financial support.

With the transition of Russia to new socio-economic conditions, many industrial enterprises were privatized and reoriented to another area of activity (mainly trade and the service sector).

Accordingly, it became necessary to transform and change the boundaries of territorial zones and change their town planning regulations. In addition, in many cases this happened in the context of historically developed urban development. For example, in the 50-60s of the last century, a residential area and objects of social services, education and health care were located near large industrial enterprises. In modern conditions, in connection with the reorientation of many objects, a revision of the structure of urban planning zoning of micro-districts and, in general, cities in general arises.

### **A healthy and safe environment**

Sustainable development of Russian regions and improvement of the quality of life cannot be predicted without the preservation of territorial natural resources and environmental protection. In the Penza region, on the whole, a favorable ecological and landscape situation has developed, however, on a number of issues there are problems that require an early solution. Air pollution and radiation conditions in the Penza region remain at the level of one of the lowest in the Volga Federal District.

One of the acute environmental problems is the destruction of household and industrial waste. To date, there are no corresponding enterprises in the Penza region. Most landfills are ordinary landfills with all the ensuing consequences. In the vicinity of such landfills, an unfavorable situation is developing in relation to the air basin and pollution of underground fresh water reserves. An attempt to "close" the overcrowded old landfills does not solve the problem, since in this case, in order to eliminate their negative impact on the environment, a complex set of reclamation and reclamation measures is required to reduce the real negative impact on the environment. The placement of landfills in other territories will further aggravate the problem, since new ones are added to the existing "old" landfills that have a negative impact on the environment, the results of which are well known in the future. Thus, the only possible and rational solution to the problem of household waste disposal is the earliest possible construction of a plant that meets modern environmental safety requirements.

In the similar practice of European countries, there are many positive examples of the successful implementation of such projects. For example, in the central part of the Austrian capital - the city of Vienna, there is an enterprise for the destruction of household waste. However, even residents of the territories closest to the plant do not know everything about the true purpose of the plant, since it does not produce any harmful and hazardous emissions. In addition, nearby residential buildings, heated by thermal energy generated at the plant, have preferential tariffs for heating payments, and the closer the building is located to the plant, the lower the tariff. Unfortunately, in the Penza region, the task of building a plant for the destruction of household waste has been posed for several years, however, the problem has not yet been resolved.

The solution to the problem of the disposal of chemical weapons on the territory of the Penza region near the village of Leonidovka has developed in a favorable way. In 2008, an act was signed on the allotment of a land plot for the construction of a chemical weapons destruction facility (hereinafter - CW), and in 2008 the process of destruction of CW began, which was completed by 2015. In 2016 - 2020 the property complex of the plant in the Leonidovka settlement underwent a reorganization procedure, including the neutralization and destruction of a number of premises and equipment, including infrastructure facilities. After the completion of the liquidation measures, the facility will be put into commercial circulation.

In reality, it is difficult to overestimate the entire range of work associated with the elimination of a huge amount of lethal weapons. However, the environmental problem does not end with the completion of the process of destruction of chemical weapons. Currently, the former Leonidovsky peat bog, and now Lake Mokhovoe near the village of Leonidovka, poses a serious environmental hazard. According to the available data [4], chemical weapons (including obsolete and trophy weapons) were destroyed in the lake water area and, possibly, by incineration. The decomposition products of toxic substances have a herbicidal effect, and the arsenic contained in peat is hundreds of times higher than the MPC. In 1964, after the dam broke in the spring, a significant part of the water from Lake Mokhovoe went into the Medoevka River and through it into the ponds of the village of Zolotarevka, which led to a sharp exacerbation of the ecological situation.

Currently, the lake is a dangerous object that has a negative impact on the environment. The waters of the lake are closely related to underground waters, which are also contaminated products of decomposition of toxic substances. Thus, the problem of the nearby territories of Lake Mokhovoye requires a serious solution.

It should be noted that, in general, a favorable ecological and landscape environment has developed in the Penza region, which makes it possible to actively develop recreational areas and the sphere of tourism. The main goal of town planning and urban planning is to create spaces for comfortable living of the population, placement of housing facilities, production forces and social infrastructure. In the last decade, there has been a tendency to develop the innovative potential of the Penza region, based on increasing its attractiveness for residents. At the same time, the socio-economic and territorial development of municipal districts and rural settlements is a big problem. It is necessary to turn them into local centers of affordable and comfortable living for the population. For this purpose, it is necessary to improve the regulatory framework for urban planning and territorial planning, the development of the production sector, engineering, transport and social infrastructures.

The problems of the implementation of strategic and territorial planning are even more aggravated in relation to rural areas, due not only to the lack of highly qualified specialists, but also, in general, in the implementation of comprehensive programs for the development of favorable industrial and social conditions of life in the countryside.

## Conclusion

Thus, in the development of programs for the strategic development of the region in terms of solving the problem of housing construction, a scientifically grounded approach and technical and economic calculations are required regarding the development of mining and processing enterprises, construction and installation departments and holdings that can ensure the achievement of the targets. The placement of plots intended for housing construction must meet the basic requirements of architecture and urban planning and comply with the territorial planning documentation.

The implementation of the main decisions of strategic and territorial planning covers almost all areas of development of modern society, therefore, the development of project proposals and their implementation determines the most important indicator - the quality of life.

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