Trends in state management of spatial planning

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Abstract. A combination of factors, influencing the spatial regional planning is defined as follows: social stratification, low migration capacity; move into next technological paradigm according to the results of the fourth technology revolution; insufficient accounting of low material intensity of production in post-industrial economy. It has been determined that civil and housing construction defines socio-economic development of territories and the significance of prefabricated construction in modern conditions has been increasing with the application of new construction technologies, as well as advanced materials and structures.

Introduction

The purpose of this article is to identify key factors that should further determine the goals of the state (a separate region) in the field of spatial planning. Consideration of such goals and the correct timely response to the efficiency of its achievement can be the key to a stable successful (as well as economically successful) state. Material intensity in the economy, a long organizational life cycle, an invariable sectoral composition, globalization and broadening of certain economies, workforce mobility with its typical reserve of consumer end product capacity are the essential foundations of spatial territorial planning.

An important role of the considered factors influencing spatial planning and ever-more profound understanding of such importance have not been sufficiently reflected in the scientific literature on regional management. Moreover, the authors of this article suggest to consider these issues not separately within methodological aspects, but taking into account the strategic objectives of spatial planning in Russia, including socio-economic development of territories.

Literature review

Each article reflects the idea that the founders of such spatial urban planning in the nineteenth century were German scientists—J. Thünen, W. Christaller [1], A. Losch [2]. Complication of the economy occurred in a multi-sector structure with spatial resource distribution and workforce migration growth in Germany resulted in a request of the real sector to solve the problem of spatial economical transformation and urban planning.

The authors of article [3, p.1869] draw an attention to interdisciplinary nature of studying the issues of spatial urban planning, as well as to the fact that it is associated with political, economical, social and environmental problems. Since residential construction takes a significant place in spatial
urban structure, the scientific literature [4; 5, p. 827; 6] provides a comparative analysis of urban planning problems in Russia and Bulgaria. Monograph [7] pays attention to scientists from Bulgaria, Poland and Russia, whose research works are devoted to issues of spatial planning in conjunction with infrastructure problems of metropolises, as well as with local government activity in the development of spatial territories, and housing preferences in large cities. Scientific literature review allows to understand the credibility and correctness of authors' attempts to prove a multi aspect nature of spatial planning and an integral role of the state in this process.

Russia is expecting further economic changes, which have been formulated in “Strategic Spatial Planning in the Russian Federation until 2025” project (hereinafter Strategy-2025) [8]. Even the document's name allows it to be referred to spatial planning documents. What is the philosophy of the document? The authors think it's rather simple and clear: economic growth and its concentration in a limited number of centers. By 2025, it is planned to provide conditions for the formation of 35-40 large centers of economic growth. These are the very growth engines that influence the sustainable and balanced spatial development of territories.

The creation of 14 macroregions in future allows us to bind those growth engines with the depressive and stagnant territories, as well as to fill the production with low-cost labor. Thus, the problem of economic imbalances in the development is being solved, giving an impetus to economic growth of the regions and Russia as a whole.

Another positive aspect of the Strategy-2025 is that the labor migration capacity within one region is higher than between regions, due to the same tax law field, informational space, and spatial infrastructure (culture, education). Moreover, the labor cost within depressed territories is much lower, but the desire to hold low-key posts is higher.

The overall conclusion is obvious- the strategic goal is significant and should be considered as major. Tasks within the framework of its solution are set forth clearly and consistently. All elements of spatial urban planning are present.

Without claiming the completeness and finality of the list, it would be preferable to focus the attention of the scientific community on the factors affecting such spatial planning:

- social stratification, low migration capacity;
- move into next technological paradigm according to the results of the fourth technology revolution;
- insufficient accounting of low material intensity of production in post-industrial economy.

Methodological studies of spatial planning factors

Social stratification. According to Rosstat (Federal Service of State Statistics), 10% of the Russian population has 45.7% of the total monetary income of the country. The Gini coefficient (reflecting an income inequality) has been increased by 0.001-0.396.

I.V. Mostovaya writes: “Stratification processes in Russia radically transform social organization, since the traditional "power" (political) dominant of social structuring possibly moves to a “proprietary” (economical) basis of stratification” [9].

According to Rosstat data, such social stratification has been occurred. Why does it have such a dull expression in space? How fatal is further insufficient accounting of stratification in the Strategy of state development, as well as excluding of the state from management and low value of strategic orientation and absence of purpose to stratification processes?

The second question notes that the problem of the transformational model of Russian society at the present stage is a traditional belief, both personal and social, that social mobility is impossible (the absence of a “stratification elevator”) through our own efforts. This problem can and should be solved by the state. Only explicit admission of a class nature and consideration of certain class interests in Strategies, creation of clear motivational criteria, provision of conditions and rules for a “social stratification elevator” are those primary tasks of the government.
Why are the processes of social stratification not so explicitly expressed spatially and behaviorally? According to the authors' point of view, the reasons are as follows:

- internal class rejection by people born and brought up in the USSR. Currently, there is the majority of such citizens in the society. But this is a temporary phenomenon. In 10-15 years the society will be based on people with a normal understanding of the class nature;

- the percentage of homeowners (landlords) is much higher in Russia than in other world average. For example, in Berlin only 14% of the population are apartment owners, but in Moscow this number is 85%;

- low migration capacity of the population associated with both the above problem of ownership, and the lack of a rental housing market, as well as a huge difference in the infrastructural, cultural and economic imbalances of the territories. Moving from one region to another is usually associated with a dramatic change in the quality of life. The largest disproportion is between large and small settlements;

- an illegal situation when “masking” an income is a mimicry strategy that reduces the risk of losing property, health, and sometimes life.

Housing construction is a powerful means of social and economic development, since every invested ruble generates from 7 to 13 rubles in related industries. Since 1991 the state has almost abandoned problem solution in providing the population with housing. The percentage that developers pay to social construction is poor and unable to solve the problem of “social housing” (Public housing). At present, 13.7% of housing is under state jurisdiction (not privatized). For example, in France there are a number of different public housing, unsubsidized houses for rent from the state. Only one class of “half-limited” (HLM) public housing, according to the law, in settlements with a population of more than 3,500 people is at least 20% (the law of 1998). Replacing the focus on mortgages accompanied by a burden of multi-year payments against the instability background, a decrease in “free-to-use” family incomes, by the development of public housing will solve another problem- the problem of increasing labor mobility.

The Strategy-2015 focuses on the socio-economic development of territories. According to the authors, a significant role in changing approaches to spatial planning should be referred to civil and housing construction, taking into account innovative technologies and materials. Currently, there are two non-flexible and flexible conventional technological schemes for the production of reinforced concrete within large-panel housing construction. Today, every new large-panel house building plant is built according to a flexible technological scheme, including a complete set of conveyor lines with inventory pallets equipped with universal side elements. When comparing these two technologies, it turns out that this difference is too relative in casting shops of large-panel house building plants. When equipping the existing metal pallets of the conveyor lines of these plants with quick-detachable universal side elements, the production data from the inflexible scheme is transferred to the flexible category, but here we need a new house project [10]. Project developments of CNIIEP (Central Research Institute of Engineering Design) showed that the most promising approach with regard to the demographic requirements of citizens for housing is the use of new materials and structures. In particular, the transition to the use of hollow-core slabs for off-form concreting and framed structures in the form of pylons and girders. Thus, the revival of prefabricated construction in Russia in the near future will help to solve the housing problem, influencing the migration capability and changes in spatial urban planning.

Transfer into next technological paradigm according to the results of the fourth technology revolution

Earlier, a group of authors in “Critical analysis of world practices in spatial planning at the macro- and meso-level” article [11] has already addressed itself to this topic. First four technological modes are industrial (the basis of each is determined by the type of main driving force: water engine, steam engine, electric motor, internal combustion engine), and the fifth mode is post-industrial,
informational with microprocessors as its key factor. Just as a water engine allowed manual labor mechanization, providing almost complete mechanization for the creation of tangible goods, so the electronic microprocessors took the first step towards the mechanized work with information that is an intangible reflection of the real world in human communication processes, i.e. the main carrier and source of social needs satisfaction. It will be finished by the fifth and sixth modes, fully mechanizing the processing and transportation of information, thereby mechanizing personal social needs, and creating the basis for the ninth technological paradigm aimed at mechanization of the spiritual life that is creativity, self-development, self-realization, the search of its meaning. Going back to "Strategic Spatial Planning in the Russian Federation until 2025", for example, the authors of the article observe a complete disregard of the change of technological modes and the involvement of new promising areas of economic growth in the system of spatial planning. None of the 14 regional centers of economic attraction in Russia in the "Strategy ..." are tied to the industry of a new mode.

**Low material intensity of production in post-industrial economy.** Low material consumption changes the economy space. The need to locate production facilities, both near the sources of raw materials, and close to the main consumer, is becoming a thing of the past.

**Summary**
The authors of the article are trying to inform that the very essence of spatial planning should change to a great extent according to the following objective conclusions.

In the middle of the last century, the assumption of the stability of production technology and the balance of the sectoral structure was not doubted by contemporaries. The rate of economic changes has been significantly increased. If at the beginning of the last century, 500 largest companies in the world include enterprises that existed on the market for 57 years on average, then at the beginning of this century, the age of the companies from the same top 500 list is 12 years [12]. During moving to the next sixth technological paradigm, when the “electronic processor” replaces the material “leading machines”, it is not possible to talk about the stability of the sectoral economic and the consumption structure.

Even now, 10,000 jobs are occupied by 300 robots in America, and 400 in Japan. 1 man-hour in the US costs $ 39, but $ 4 for a robot. These are the forerunners of the fact that all professions with routine procedures (drivers, doctors, etc.) will soon be professions of robots, not people. Soon, there will be no need to concentrate production in the workforce location. This is a completely new approach to spatial planning. Now the settlements become places of life, and the industry can be dislocated to other places, very remote from those settlements. This, perhaps, is the future solution of environmental and ecological problems.

The authors hope that these are the main challenges to the state management of spatial planning.

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