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# Enhancement of residential construction of urban agglomerations based on the modern financial mechanisms

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**Abstract.** Primarily, new approaches to residential construction are not exclusively applied to the development of the new territories, but also to the renovation of the old ones. Paper reviews the situation of residential development using the principle of ‘agglomeration’. The paper outlines perspective directions for the development of urban agglomerations based on the appropriate practices of the Voronezh Region. The comprehensive solution of the housing problem, which would consider the balanced development of the territories, is one of the utmost issues along this way. Authors consider solving this task to be the most effective solution, which would combine the interests of the state financing and private investors where the public-private partnership mechanism is employed. To this end, within the framework of the agglomeration process, an algorithm for housing development is proposed based on the sample territory of the city of Voronezh. This algorithm contributes to the efficient allocation of resources, financial interest, and responsibility of the parties, minimizing the costs of the process participants.

## 1. Introduction

Currently, we observe the consistent evolution of the cities, which in its turn leads to the improvement of the urban environment under the influence of innovative development processes, the concentration of production centers, and merging of labor and cultural ties between the cities and their surroundings [1, 2].

As a result, urban agglomerations evolve. Agglomerations, which not simply allow synchronizing the development of the settlements and improving the efficiency of spending public resources but also contributing to the improvement of the quality of life, which in its turn is an ultimate state priority.

## 2. Relevance

Considering the growing demand for the development of the new territories and the renovation of existing social spaces, the main task of urban development policy today is the development and



implementation of the new approaches that promote the qualified utilization of the residential development areas.

However, designing and implementing specialized targeted programs aimed at developing an affordable housing market in each metropolitan area require balanced financing. That is, in addition to state participation, it is necessary to attract private investors, who are in great demand in current socio-economic conditions of particular regions and the country as a whole. The study and analysis of the development of territories within the framework of agglomerations are scientifically topical. This topic was reviewed and analyzed by various authors, in particular, E. Hoover, M. Rouget, A.A. Kruber, G.M. Lappo et al. It has to be mentioned that the features of the basic approaches and definitions of the term "urban agglomeration" have already been reviewed in the by M.G. Dikansky, P.I. Dubrovina, V.N. Petrova, V.A. Skutina and others.

### 3. Task

Nevertheless, despite the manifested scientific interest, as well as the enormous contribution of both domestic and foreign researchers to the study of this concept and its practical application, there remain a number of issues that have to be considered. Particularly, certain issues have not been adequately reflected. Such issue as the possibility of using the mechanism of public-private partnership as a model of financing and development of social space within the urban agglomerations, which facilitate the country's policy at the new level, but also helps to achieve a number of "social effects".

The paper reviews the possibility of financing of the aforementioned process of agglomeration of regional territories based on the Voronezh region example. Voronezh agglomeration is the largest monocentric agglomeration in the Central Federal District of Russia, with a population of about 1.3 million people.

Having analyzed the current situation for the prospective development of the Voronezh city agglomeration for 2018-2020, it is possible to outline its directions: a comprehensive solution of the housing problem, taking into account the balanced development of the territories; improvement of the ecological situation; overcoming the impending transport collapse.

Public sector resources do not appear to be sufficient to resolve such problems, therefore, it is obvious that business structures should be engaged in the process to achieve these goals.

### 4. Theoretical part

Cooperation between the state and the private sector have always existed in one form or another, however, the degree of private partner involvement was usually determined by the state and was often insignificant.

Currently, there are numerous different definitions for this kind of cooperation nonetheless the public-private partnership (PPP) mechanism is the most promising option, which implies close and fruitful interaction in socially significant industries - both on the part of the state and the business side [3, 4,5]. Considering the long studying experience of the PPP mechanism, it could be affirmed that most of the developed countries today are more adapted to its practical application than the Russian Federation. Russia, on the whole, has some positive dynamics whilst using the PPP mechanism, however, various barriers are still in place [6, 7]. Analysis of the formation and development of the PPPs in the regions showed that PPP mechanisms are widely applied in the 'subjects' of the Russian Federation [8, 9]. Among the afore subjects the Voronezh region was one of the first in Russia to adopt the law on public-private partnerships in November 2011 [10, 11].

The social space of urban agglomeration is a set of the society's places of residence and different forms of labor application, accompanied by the social, cultural and social purpose accessories. Those get localized based on the vital functions of society's livelihoods [12]. The set of residential areas constitutes a 'housing stock'. Thus, forming social space as one of the most important components of urban agglomeration development is primarily affected by the housing policy. Modern conditions affected the general economic model of the country and led to the transition of housing policy to the new principles, which would consider solving the afore problems in their entire complexity.

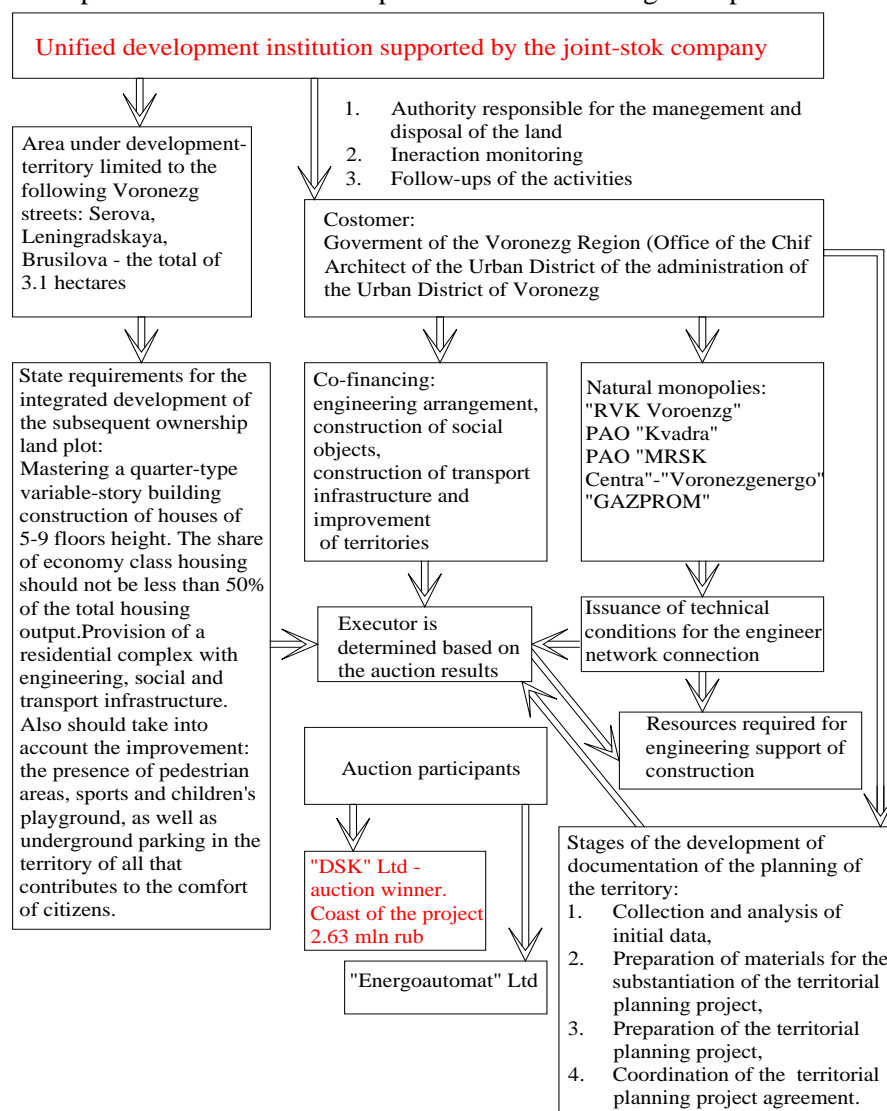
This has required the introduction of new approaches, which would provide for the conditions for the development of specially targeted programs for the development of affordable housing market in each specific agglomeration, taking into account the prevailing level of housing prices and the population's solvency potential [13, 14, 15].

Development and implementation of the state policy aimed at solving the housing problem and achieving the set goals are currently being reflected by the "Housing" federal program [16].

Analyzing several current 'subprograms' of the more general federal program, typical for the Voronezh region, it became obvious that the achievement of a result that positively affects the quality of life is only possible if the competent integrated approaches are applied to the development of territories, which presume the PPPs as a mechanism for balanced financing for its successful implementation [17].

## 5. Practical part

The proposed pattern for the adoption of the PPP mechanism within the framework of housing construction development based on the example of the Voronezh region is presented in Figure. 1.



**Figure 1.** The process of the territory agglomeration limited by Serova, Leningradskaya and Brusilova streets of the city of Voronezh (housing construction with the PPP mechanism applied).

The left bank of the Voronezh river district was chosen as a 'sample territory', bounded by Serova - Leningradskaya - Brusilova streets, with a total area of 3.1 hectares [18]. The houses located in this micro-district are the subjects to demolition within the framework of the municipal program called "Demolition and reconstruction of dilapidated multi-family housing stock". The Unified Development Institute owns the site under consideration in the housing sector, which has been operating since 2014. It interacts with the Customer - a legal state person, who will co-finance engineering development, construction of social facilities, construction of transport infrastructure and landscaping.

Given the scope of the program, it is obvious that the private investor is involved. In this case, the 'Customer' (represented by the Government of the Voronezh Region) holds an auction. Following this auction, the second side of the project financing is determined. In our case, it will be LLC DSK-1, with a proposal of 2.63 million rubles based on the requirements for integrated development of the land plot, the Contractor must submit a project for the development of the territory under consideration. Based on the need for resources for engineering maintenance of the building, the relationship between the Contractor and natural monopolies is traced.

It has to be mentioned as well that the Customer prepares and approves investment programs for the integrated development of engineering infrastructure for Natural Monopolies [19, 20]. From the economic point of view, such pattern promotes a clear coordination of actions, as well as a competent allocation of resources, financial interest, and responsibility of the parties, thus, allowing to minimize the costs of the process participants.

At the same time, it also has to be noted that the social effect – namely - the implemented project within the framework of the PPP mechanism -contributes to the city image as a whole and also raises the quality of life of the citizens, since the balanced construction activities allow to improve the entire territory of the city.

## 6. Conclusion

Given the above, it can be argued that the mechanism of public-private partnership in the nearest future will be further developed and that it has practical application in the development of the social space of urban agglomerations, which in its turn will affect the integrated development of both new and existing territories. Such prospects certainly do contribute to the strengthening of economic indicators and the country's entrance to the new economic level, but also to ensure the quality of life of its citizens.

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