

The Peculiarities of Spatial Development of Urban Agglomerations in South Russia

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Abstract: Today, issues of perspective development of urban agglomerations are basic subject in modern town-planning science. The research is devoted to the study of aspects of the spatial and functional development of urban agglomerations in the south of Russia: Rostov, Volgograd, Krasnodar, Stavropol, Astrakhan. agglomerations. The proposals for the urban development of agglomerations in South Russia were realized.

Key words: Urban agglomeration • Spatial • Functional and spatial development • Settlement

INTRODUCTION

The modern world community has to deal with the major problems of urban planning- the irreversible process of territorial growth of metropolitan cities and large towns. This process of global urbanization is observed in many countries of the world. It is connected with the strengthening of social and economic processes, accompanied by the expansion of large cities in the surrounding area. Many scientific papers are devoted to the study of agglomeration processes in various countries around the world [1-4].

In Russia there are many urban problems requiring urgent solutions in the development of the agglomerations such as: the management of urban planning, the transportation problems, the low level of development of engineering infrastructure, the housing problems, the insufficient of cultural and consumer services in the suburbs and country sides, the excessive concentration of places of employment in the city center, the disbalance of social and economic development between the city center and the countryside, the deterioration of the ecological situation. One of the main problems is to find methods of territorial and urban management over the agglomeration processes [5-7]. But urban policies of many states in the current land market relations considers urban and suburban areas as facility construction and investment income and not as a habitat of millions of citizens. Today, therefore, the management of urban agglomerations are the primary objectives of public policy.

There were used the following research method: statistical data processing, system analysis, graph-analytical and experimental modeling.

Features of Settlement in the South of Russia: Near-border territory of South Russia is situated in the Southern European part of the Russia Federation. This area has unique geographical and geopolitical position and it influences special features of its resettlement and agglomerative development.

- Particularly profitable geographical position had an impact on the formation of South Russia settlement system. Ancient trade and migration routes passed through Podonie, Priazovie and Prikaspiiskaya plain from East to West and from South to North [8].
- Advantageous economical, geographical and strategic position of the South of Russia indicates a high economic potential. This territory is crossed by major transportation corridors of international and federal importance: meridian "North - South" and latitude "East - West ", connected by the Volga-Don channel [9].
- Favorable natural and environmental conditions in case of advantageous transportation and geographical position, that is proximity to densely populated European part of Russia, contributed to the development of the all-Russian recreation and resort area orientation of this district.



Fig. 1: Settlement system of South Russia

- Due to the diverse resource potential in the South of Russia the following industries have developed: fuel and energy industry, agro-industrial, tourism and recreation, branches of industry (food, machinery and metal industry, chemical and petrochemical industry).
- Multi-ethnic structure of the population.
- In a whole, relatively high socio-economic rates were recorded in South Russia, it reflects the successful development of this region. The exception is republics of the North Caucasus, where acute political and religious extremism continues.

Settlement system of the South Russia has uneven development. The average population density in federal districts is the following one: Southern Federal District - 32.2 people per 1sq.km; North Caucasian District - 55.3 people per 1sq.km. [10]. In Krasnodar Territory and Rostov Region the highest population density rates were recorded, they host almost three fifths of population of the district. And in the north- eastern arid regions of

Stavropol, Dagestan and the Rostov region, a number of people is extremely small. In explored territory, the following main areas of settlement were pointed out: north-south – meridian direction and east- west – latitude direction. Meridian direction forms arterial roads: Rostov - Krasnodar - Adler, Volgograd - Astrakhan - Makhachkala. Latitude direction forms arterial roads Rostov - Vologodsk - Volgograd, Krasnodar - Makhachkala [9].

Settlement system of the South Russia has uneven development. Large agglomerations are spread out equally throughout the territory. The analysis of the location of urban agglomerations in the settlement system of the South Russia shows patterns of development, as they are formed in the "nodes" of territorial-urban framework. They have significant economic potential for the effective development, not only city-centers, but also all towns and settlements forming part of it. In South Russia, such hubs of economic and social development are Rostov, Volgograd, Krasnodar, Stavropol, Astrakhan agglomerations (Figure 1).

Characteristic Features of Functional and Spatial Development of Agglomerations: In the author's research agglomeration is observed from the point of view of a comprehensive autonomous "system", which has a hierarchical structure. Within agglomerations, discussed in the research, intersettlement relationships between settlement elements were identified, they are distinguished according hierarchy, function, orientation and intensity. The statistical materials and design documentation used as source of the research [11-15]. As a result, general trends of intersettlement relationships distribution were formulated within each functional group:

- Intensification of centrifugal pendulous labor and cultural and general migrations connected with high concentration of regional functions in a regional major city;
- The basis for development of general economic space is nonproductive activities, concentrated in the major: management, education, science, trade, science and technology cooperation, compensation deal, credit and financial relations;
- The following internal agglomeration production and technological connections were revealed : industrial relationships of the "industrial period", agro-industrial and agricultural relationships, relationships of the power enterprises industrial enterprises connected with raw materials and operating characteristics.
- Intersettlement relationships of cultural and general services saved a hierarchical structure, based on the administrative and regional subordination, however, increasing level of motorization erases space-time boundaries, which limit washes transport and temporary thresholds limiting the accessibility of Service Center facilities;
- Management connections within agglomeration structure remain at administrative and regional subordination level, however, recently working partnership between municipal and city authorities has appeared.

When we were exploring production and industrial base of the cities within the urban agglomeration structure, we revealed their production peculiarity: Rostov agglomeration: machinery industry and tool production, non- ferrous and ferrous metallurgy; Volgograd agglomeration: machinery industry and tool production, non- ferrous and ferrous metallurgy; Krasnodar agglomeration : agriculture, food industry, machinery

industry and tool production; Stavropol agglomeration: fuel and energy industry, machinery industry, agriculture; Astrakhan agglomeration: fishing, food industry, fuel and energy industry (mining).

The Concept of Perspective Territorial and Spatial Development of Agglomerations in South Russia:

Taking into account aspects of the structural and functional organization of the agglomerations, the concept of perspective agglomeration development was elaborated. It is based on the formation of multi-core structure. The basic idea is to reorganize the central part of the agglomeration by forming additional multifunctional centers of 'attraction'. The main principles of the agglomeration reorganization are formulated:

- The new basic "points" formation of the cluster of the territorial and city planning resources of the regional and agglomeration level;
- Improvement of transport infrastructure of the agglomeration : the construction of additional radial and meridional highways linking the new elements of settlement;
- Reorganization of the major city urban fabric, preserving the historic center and displacing gradually the epicenters of the economic and social development of the regional level
- Preservation of "green" natural- ecological framework of settlement as an important element of the planning structure of the agglomeration : the formation of the system of green "wedges" and "rings" in the structure of the agglomerations' core.

Implementation of the spatial development of agglomerations is possible when using socio - economic development program:

- Formation of agglomeration systems control services;
- Elaborationg of the socio- economic development program of agglomerations in accordance with the scheme of spatial development;
- Environmental monitoring and implementation of the program to restore natural system.

Prospects for Spatial Development of Agglomerations:

Relying on the proposed concept the directions of perspective development of agglomeration were elaborated (Figure 2).

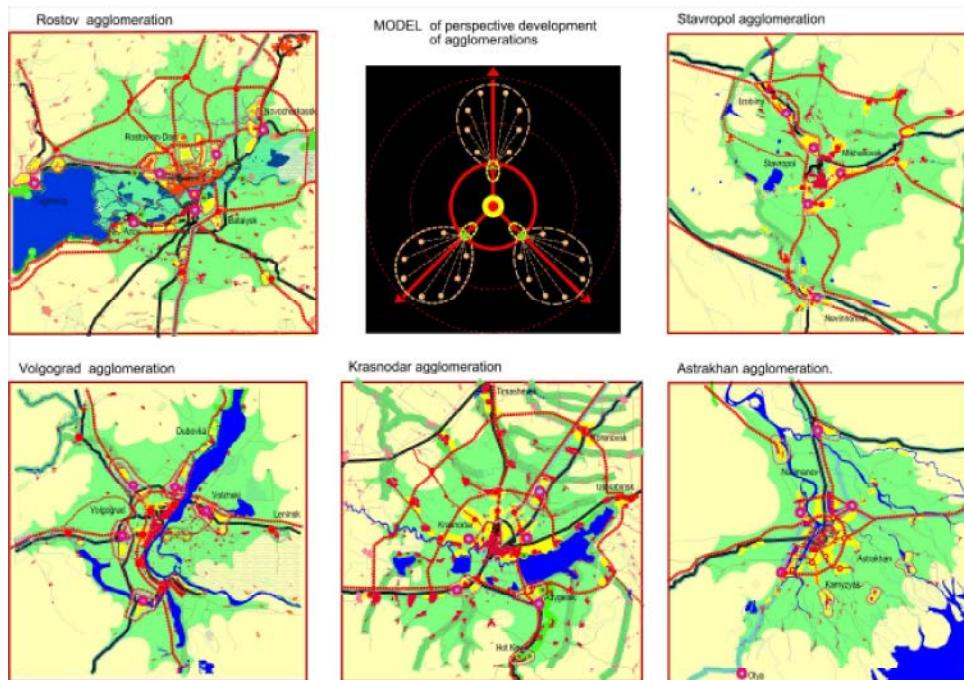


Fig. 2: Prospects for spatial development of agglomerations

Rostov agglomeration. Prospects of the agglomeration are connected with the development of social and business centers, with developed area intended for building, transport and logistics facilities in the center, production and logistics centers of the second order, health resorts centers along the river Don. The leading planning meridional and latitudinal urbanized axes were formed along which needless to create a linear-striped settlement system. Relying on them internal urbanized zone needs to be formed as planning "rays" of Rostov-on-Don spatial development in the core: Chaltyrsky, Krasnokrymsko, Bolshesalsk, Schepkinsk, Rassvet. Radial-axis development of the major city provides planning integrity of the agglomeration, it occurs because of separated natural areas. Multifunctional subcenters such as Taganrog, Novocherkassk, village Port-Katon, Azov and other settlements, form the part of the peripheral urbanized zone.

Volgograd agglomeration. Further growth of the agglomerations is based on the development of transport and logistics centers, improvement of industry and high-tech industries, construction of tourist and recreational centers, agro-farming industries. The characteristic feature of the architectural and spatial development of Volgograd agglomeration is the development of the major city straight along the riverbed. The further trend of stretching the city along leading planning axis (riverbed of the Volga) is unpractical. The main idea of the

agglomeration development is the formation of new centers in the structure of middle belt based on vil. Vinovka, vil. Drevny Val and vil. Kuzmichy, - vil. Gorky - vil. Kirov. Multifunctional social business and transport manufacturing sub-centers of settlement should be formed within the structure of these "new" elements. Natural ecological framework is of particular importance in the settlement system, recreation centers of various levels should be created in its structure. Developed tourist and recreation sub-center should be formed on the basis of the Krasnoslabodsk city.

Krasnodar agglomeration integrates the development of social business functions, the functions of the manufacturing sector, centered in the major city and agricultural specialization of the whole settlement area. According to the concept of the core agglomeration development it is necessary to form a system of areas of intensive settlement in the form of planning "rays." Village Novotitarovskaya, village Dinskaya, village Starokorsunskaya, village Elizavetinskaya (Krasnodar territory) are considered to be as basic resettlement elements. On the basis of the above list settlements social business and manufacturing sub-centers should be created. In the remote zone of the STA town of Ust – Labinsk, town of Korenovsk, town of Timashevsk, village Akhtyrsky and Holm, Goryachy Klyuch are considered to be as resettlement active elements of the regional level. Natural ecological framework should be

maintained in the structure of the agglomeration and its boundaries have to be expanded to form "green" zone around the agglomeration core limiting the spatial development of the major city and other settlements. The system of the recreational sub-centers should be created along the river Kuban and Krasnodar Reservoir. These sub-centers are Mikhailovsk, Lvovsk, Marjansk, Elizavetovsk.

Stavropol agglomeration. Prospects of the agglomeration have the following types of spatial-economic development: social business and transportation and manufacturing systems, improvement of the fuel and energy sector, the formation of historical-cultural and tourist-recreational natural systems, the agricultural sector. In the structure of agglomeration core settlement system should be regulated according to the decentralization idea of production and social business enterprises, on the basis of which a multifunctional planning districts with developed residential area, while maintaining ecological gap between Stavropol and St. Michailovsk. At the border of the agglomeration core the system of specialized and multifunctional centers: based on village Rizdvyani and Rozdestvenskaya – they are major manufacturing and transportation centers; village Staromarevka – it is producer of natural gas and production center; village Tatarka – it is tourist and recreational center. It is necessary to maintain and expand the territory of natural forestland encircling the south-western and western parts of Stavropol within agglomeration core. The National Natural Park is proposed to create between Stavropol and Nevinnomysk.

Astrakhan agglomeration. The following main planning axes are pointed out in the structure of this agglomeration: Narimanov - Astrakhan - Trudfront; Krasny Yar - Astrakhan - Lineynoe. The basic idea of the perspective development of Astrakhan agglomeration is to form new system of settlements with primary development of social business centers and transport manufacturing sectors around the major city in the second STA zone in the structure of multiaxes planning framework. The following villages can be singled out among the basic settlements: vil. Streletsk, vil. Bely Ilmen and urban-type settlement Krasny Yar; vil. Ilyinka, vil. Kartovsky and town of Kamzyak.

CONCLUSION

The comprehensive analysis of the major urban agglomerations shows that due to existing natural, political, economic and social processes, the urban

agglomeration systems will constantly develop and expand the field of its influence. Within the research, the comprehensive analysis of the South Russia, was made. As a result important points of the socio-economic development - the urban agglomerations were pointed out. These are Rostov, Volgograd, Krasnodar, Stavropol, Astrakhan agglomerations.

The result of the research is the concept of prospective territorial and spatial organization studied agglomerations. Based on it, made ??suggestions of perspective development of agglomerations in southern Russia.

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