

Development of Rural Areas in Zones of Large Cities' Influence

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Abstract—The present article studies the issues of evaluating a large city's influence on socio-economic development processes in a rural area and the prospects for its independent development in the urban agglomeration. It analyses the changes in the system of rural settlement affected by the transport factor and circular migration of the local population to nearest cities.

Keywords—*rural development; urban agglomeration; agglomeration development processes; urban and rural interaction*

I. INTRODUCTION

One of the acute problems of urban agglomerations' development is the expansion of their influence on rural territories. The traditional boundaries between the city and the village are changing and rural territories gradually integrate into the urban economic space, which cannot but raise the issues of local economy, labor market and transformation of rural residents' lifestyles. These issues frequently pose significant challenges to the existence of rural territories; however, they can serve the purposes of social and economic development as well.

The article is aimed at studying the influence of cities on the development of rural territories and identifying the approach to framing the policy for rural territories development.

II. THE KRASNODAR URBAN AGGLOMERATION AND RURAL AREAS COMPRISING IT

In recent years, in the media of Krasnodar Krai there has been increased information on the Krasnodar urban agglomeration. Meanwhile, the given data is rather contradictory: the constituent elements of the agglomeration, its population and economy structure, etc. are presented differently. It can be explained by the fact that the concept of

“the Krasnodar urban agglomeration” has not yet been enshrined in regional legislation. Therefore, it is a matter of priority to define the Krasnodar urban agglomeration, its structure and size.

The structure of the Krasnodar urban agglomeration can be described as follows [2]:

- the city of Krasnodar - the nucleus of the agglomeration;
- the Dinskoy District;
- the Krasnoarmeyskiy District;
- the Severskiy District;
- the Ust-Labinskiy District;
- the city of Goryachy Klyuch.

The city of Krasnodar, the nucleus of the agglomeration, is a multifunctional city, characterized by a multi-branch economy, substantial proportion of high-tech industries; considerable socio-cultural, scientific, technical and intellectual potential, and unique functions of national and international significance. [2].

The analysed rural district, the Severskiy District comprises the Krasnodar city agglomeration belt.

According to the official data, the Severskiy District is a medium-sized rural territory of Krasnodar Krai, located to the southwest of the region, on the left bank of the Kuban River, on the northwestern slope of the Greater Caucasus Mountain Range. The territory accounts for about 211 thousand hectares. The area is characterized by the moderately humid climate, with the annual mean rainfall of 700-800 mm. The population of the area amounts to 117833 people [1].

The Severskiy District is closely related to the city by means of massive labour migration flows, business and economic connections, tourist flows, city enterprises location in the region and city residents buying real estate in the region.

Oil, natural gas, non-metallic resources, clay, and mineral water springs are the main natural resources of the region. Being an industrial region, the Severskiy District has a multidimensional capacity. In the structure of the economy, manufacturing represents 90%, 80.4% of which is oil production. What is more, the region produces wall materials (brick), construction non-metallic materials, oil field equipment, the products of the forest and wood industries, and food industry. [2].

Agriculture is also well-developed in the district. The dominating industries include crop farming, especially grain crops production (wheat, buckwheat) and oil crops production (sunflower and rapeseed).

Natural landscapes and attractive recreational spaces are areas of unique interest in the district.

When evaluating the role of the Severskiy District in the Krasnodar urban agglomeration, it is reasonable to assess its transport accessibility first.

The data on the distance and travel time from the settlements in the administrative centres of the Severskiy District to the city of Krasnodar was provided by the portal <https://www.rudorogi.ru/> and is presented in "Table I" [7].

Studying the data we can conclude that most settlements of the municipal entities of the district meet the main criterion for the territories comprising the agglomeration - accessibility by transport (travel time within 1.5 hours).

However, due to the rugged landscape of the Severskiy District (flat terrain, piedmont, mountain areas, extending to the Caucasus Mountain Ridge) transport communication between individual settlements and the nucleus of the agglomeration is impeded [8].

TABLE I. DISTANCE AND TRAVEL TIME FROM THE ADMINISTRATIVE CENTRES OF THE SEVERSKIY DISTRICT SETTLEMENTS TO THE ADMINISTRATIVE BORDER OF THE CITY OF KRASNODAR (AT THE AVERAGE SPEED OF 60 KM/H)

| Inhabited localities | Distance, km | Average travel time, min | Available means of transport |
|---|--------------|--------------------------|------------------------------|
| Afipskoye urban settlement (Afipskiy urban-type settlement) | 29 | 32 | Automobile, bus, railway |
| Ilskoye urban settlement (Ilskiy urban-type settlement) | 52 | 58 | Automobile, bus, railway |
| Chernomorskoye urban settlement (Chernomorskiy urban-type settlement) | 67 | 1 h. 03 min. | Automobile, bus, railway |
| Azovskoye rural settlement (Azovskaya stanitsa) | 48 | 57 | Automobile, bus |
| Grigor'yevskoye rural settlement (Grigor'yevskaya stanitsa) | 85 | 1 h. 52 min. | Automobile, bus |
| Kaluzhskoye rural settlement (Kaluzhskaya stanitsa) | 54 | 1 h. 2 min. | Automobile, bus |
| L'vovskoye rural settlement (L'vovskoye village) | 49 | 51 | Automobile, bus |
| Aleksandrovskoye rural settlement (Aleksandrovskiy khutor) | 67 | 1 h. 12 min. | Automobile, bus |
| Mikhaylovskoye rural settlement (Mikhailovskiy settlement) | 68 | 1 h. 27 min. | Automobile, bus |
| Novodmitriyevskoye rural settlement (Novodmitrievskaya stanitsa) | 28 | 24 | Automobile, bus |
| Severskoye rural settlement (Severskaya stanitsa) | 37 | 32 | Automobile, bus, railway |
| Smolenskoye rural settlement (Smolenskaya stanitsa) | 32.6 | 46 | Automobile, bus |
| Shabanovskoe rural settlement (Shabanovskoe village) | 82 | 1 h. 57 min. | Automobile, bus |

The most remote inhabited settlements include the Plancheskaya Shchel settlement - 112 km (3 hours 17 minutes of travel time); the Tkhamakha village - 148 km (3 hours 47 minutes of travel time); the Mirnyy settlement - 117 km (3 hours 25 minutes of travel time); the Ubinskaya stanitsa - 142 km (3 hours 12 minutes of travel time); the Derbentskaya stanitsa - 157 km (over 4 hours of travel time) ("Table I"). [7].

III. IDENTIFYING ZONES OF URBAN AGGLOMERATION INFLUENCE ON ECONOMIC DEVELOPMENT OF THE RURAL AREA

Taking into account the described conditions, it can hardly be said that the Krasnodar urban agglomeration incorporates the whole Severskiy District and influences it as much as its other constituent elements. Thus, the territories of the region are involved in the agglomeration processes to a greater or lesser extent.

Accordingly, the Severskiy District can be conditionally divided into three zones that experience influence by the urban agglomeration:

The first zone is comprised of the settlements bordering on the city of Krasnodar and the settlements located at the A-146 federal highway (Krasnodar-Novorossiysk). This zone includes the inhabited settlements of the Afipskoye, Ilskoye and Chernomorskoye urban settlements; travel time to the city of Krasnodar there is up to 1 hour.

The second zone is represented by the inhabited settlements of the L'vovskoye, Smolenskoye, Azovskoye and Kaluzhskoye rural settlements. Although they are located up to 80 km away from the Krasnodar-Novorossiysk highway, they are easily accessible by transport from the city. Travel time to Krasnodar is 1-1.5 hours.

The third zone is shaped by the settlements farthest from the Krasnodar-Novorossiysk highway, characterized by considerable travel time, limited transport access and problems with regular public transport. They include the inhabited settlements of Mikhaylovskoye, Grigor'yevskoye and Shabanovskoe rural settlements. Travel time to the city of Krasnodar is over 1.5 hours.

The presence of transport communication and roads connecting the rural areas and the agglomeration nucleus represent another criterion to identify the Severskiy District in the structure of the Krasnodar urban agglomeration. [3].

Nowadays, in the Severskiy District, roads are predominantly present in central plain-like areas. The Chernomorskoye, Afipskoye, Ilskoye urban settlements, the Severskoye, Smolenskoye and Novodmitriyevskoye rural settlements have well-developed networks of roads, transport communication with the city, which has a significant role for passenger and cargo flow direction within the agglomeration [5].

However, for some settlements, such as the Azovskoye, Shabanovskoe and Mikhailovskoye rural settlements transport communication with the agglomeration nucleus is hindered due to the lack of developed road networks.

What is more, some settlements lean towards the neighbouring areas, not the city of Krasnodar. For instance, the Kaluzhskaya stanitsa is more oriented to the city of Goryachy Klyuch, which is within the distance of 18 km; the Sputnik settlement - to the city of Abinsk; the Mikhailovskiy settlement - to the neighbouring city of Slavyansk-na-Kubani, 12 km away [8].

IV. CHANGES IN THE SETTLEMENT SYSTEM AND DEMOGRAPHIC PROCESSES OF THE RURAL AREA INFLUENCED BY THE AGGLOMERATION

One of the most important outcomes of rural areas being influenced by the agglomeration is changes in their settlement systems.

In a broad sense, a settlement system is the system for locating the population and populated areas across the country (region). The settlement location is always preconditioned by three factors: cores of employment,

habitability of the territory and the opportunities of convenient transportation. [3].

A core of employment is industrial and agricultural production, research and training centres, administration, etc., i.e. a place to concentrate people for the production of material and nonmaterial values, management, personal contacts and communication. The population is the main productive force of society, while its settlement is the arrangement of productive forces across territories. Nevertheless, for productive forces to function effectively, the space has to be specially organized. Therefore, it is exactly the settlement system, which has a regulatory role in the territorial structure of productive forces [3].

As a part of the Krasnodar urban agglomeration, the Severskiy District, is inevitably faced with changes in the settlement system. Table 2 provides an overview of these changes [32]. In order to illustrate them more clearly, the data is presented in three periods over the past 20 years.

Some of the trends require special attention.

First, there is a positive dynamics in the number of large inhabited settlements in general and in the administrative centres of rural and urban settlements of the Severskiy District in particular. Most of the rural centres increased their population over the past 20 years. The largest population growth was recorded in the Afipskiy urban-type settlement, the Ilskiy urban-type settlement and the Severskaya stanitsa. The negative trend is characteristic only of the Alexandrovskiy khutor. 15 people - is the official number of its residents, which reduced to 8 people in 2018 [6].

Simultaneously, the population decrease is observed in small inhabited settlements, especially in villages in the periphery.

The population is also declining in the Tkhamakha village, the Naumenkov khutor, the Oasis khutor, the Shuvayev khutor, the Anan'yevskiy khutor, the Peschanyy khutor, the Novoivanovskiy khutor, the Krasnyy khutor, the Chibiy settlement, the Stavropol'skaya stanitsa, the Kipyachiy khutor, and the Kosharskiy khutor. These inhabited settlements used to be workers' settlements, thus the termination of operations or reduced volumes of work resulted in the population decrease. For instance, when logging enterprises were closed in Chibiy in 1998, the settlement lost 97% of its population. Today, the official population there amounts to 30 people, with only 4 residents living in the settlement permanently [4] ("Table II").

TABLE II. CHANGES IN THE SETTLEMENT SYSTEM OF THE SEVERSKIY DISTRICT

| Inhabited localities | Years | | |
|--|-------|-------|-------|
| | 1996 | 2006 | 2016 |
| <i>Afipskoye urban settlement</i> | | | |
| Afipskiy urban-type settlement | 18412 | 19324 | 20114 |
| Vodokachka khutor | 287 | 227 | 129 |
| Vostochnyy khutor | 517 | 449 | 340 |
| Kovalenko khutor | 387 | 412 | 641 |
| Kosharskiy khutor | 78 | 22 | 13 |
| Neftekachka settlement | 114 | 82 | 56 |
| <i>Ilskoye urban settlement</i> | | | |
| Ilskiy urban-type settlement | 16805 | 18715 | 24944 |
| Derbentskoye village | 1022 | 712 | 634 |
| <i>Chernomorskoye urban settlement</i> | | | |
| Chernomorskiy settlement | 6265 | 6912 | 7205 |
| Oktyabrskiy settlement | 914 | 1372 | 1857 |
| Karskiy khutor | 218 | 243 | 214 |
| Novopetrovskiy settlement | 1026 | 815 | 419 |
| Vesolyy khutor | 508 | 412 | 316 |
| Kipyachiy khutor | 318 | 257 | 127 |
| Sputnik settlement | 128 | 522 | 712 |
| <i>Azovskoye rural settlement</i> | | | |
| Azovskaya stanitsa | 2308 | 2714 | 3874 |
| Ubinskaya stanitsa | 307 | 511 | 452 |
| <i>Grigor'yevskoye rural settlement</i> | | | |
| Grigor'yevskaya stanitsa | 963 | 1087 | 1247 |
| Stavropol'skaya stanitsa | 1352 | 1105 | 815 |
| <i>Kaluzhskoye rural settlement</i> | | | |
| Kaluzhskaya stanitsa | 1678 | 1815 | 1925 |
| Chibiy settlement | 214 | 52 | 30 |
| <i>L'vovskoye rural settlement</i> | | | |
| L'vovskoye village | 4247 | 4732 | 5171 |
| Krasnyy khutor | 255 | 211 | 179 |
| Novoivanovskiy khutor | 289 | 265 | 210 |
| Peschanyy khutor | 315 | 187 | 65 |
| Stefanovskiy khutor | 285 | 244 | 236 |
| <i>Aleksandrovskoye rural settlement</i> | | | |
| Mikhailovskoye village | 2057 | 1862 | 1775 |
| Alexandrovskiy khutor | 87 | 34 | 15 |
| Anan'yevskiy khutor | 627 | 415 | 325 |
| <i>Novodmitriyevskoye rural settlement</i> | | | |
| Novodmitrievskaya stanitsa | 4283 | 5472 | 5718 |
| Shuvayev khutor | 1072 | 825 | 512 |
| Oasis khutor | 612 | 583 | 487 |
| Novyy khutor | 286 | 207 | 377 |
| <i>Severskoye rural settlement</i> | | | |
| Severskaya stanitsa | 21568 | 22085 | 24812 |
| Bonchkovskiy khutor | 638 | 758 | 816 |
| Bondarenko khutor | 415 | 388 | 311 |
| Volikov khutor | 127 | 95 | 87 |
| Naumenkov khutor | 392 | 312 | 247 |
| Novoalekseevskiy khutor | 128 | 214 | 319 |
| Svobodnyy khutor | 94 | 107 | 112 |
| 8 March settlement | 393 | 358 | 415 |
| Predgornyy khutor | 316 | 385 | 317 |
| <i>Smolenskoye rural settlement</i> | | | |
| Krepostnaya stanitsa | 3107 | 3248 | 3057 |
| Smolenskaya stanitsa | 3987 | 3875 | 4218 |
| Mirnyy settlement | 482 | 468 | 412 |
| Plancheskaya Shchel settlement | 312 | 344 | 328 |
| <i>Shabanovskoe rural settlement</i> | | | |
| Shabanovskoe village | 422 | 458 | 412 |
| Tkhamakha village | 397 | 355 | 308 |

The following settlements located along the A-146 federal highway demonstrate a positive trend: the Oktyabrskiy settlement, the Chernomorskiy settlement, the

Ilskiy urban-type settlement, the Severskaya stanitsa, the Afipskiy urban-type settlement, the 8 Marta settlement, the

Svobodnyy khutor, the Vodokachka khutor and the Vostochnyy khutor [4].

Another significant trend is as follows: the closer to Krasnodar the settlement is located, the more positive the dynamics of its population is. The trend is demonstrated by the Afipskiy urban-type settlement, the Vodokachka khutor, the Vostochnyy khutor, and the Novodmitrievskaya stanitsa.

Most settlement of the mountainous areas, including the Shabanovskoye village, the Tkhamakha village, the Mirnyy settlement, the Plancheskaya Shchel settlement and the Chibiy settlement, with the exception of the Azovskaya stanitsa and the Ubinskaya stanitsa, gradually lose their population.

It should be mentioned that all the changes in the settlement system of the Severskiy District prove a well-known fact: the rural population moves from the periphery to

the centre and from the centre to the cities. However, this process is only partially characteristic of the Severskiy District: the population do not move to the Severskaya stanitsa, but directly to several large settlements located on the Krasnodar-Novorossiysk federal highway. Meanwhile, the settlements that are geographically closer to the city of Krasnodar grow to a greater extent. This shows that the population does not leave the Severskiy District, but relocates to those settlements more convenient for living and closer to the city, thus shaping "rural" residential areas of the city of Krasnodar.

Another trend is a positive net migration. According to the data of the Severskiy District administration, the population of the district has been growing, including due to the influx of new residents into the district (See "Table III"). [4].

TABLE III. POPULATION DYNAMICS IN THE SEVERSKIY DISTRICT

| Indicator | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|--------|--------|--------|--------|--------|--------|
| Standard residential population, pers. | 113094 | 114394 | 115149 | 116261 | 117073 | 117833 |
| Natural population growth (+)/ decline (-), pers. | -278 | -314 | -87 | -104 | -117 | -218 |
| Migration gain (+)/ loss (-) of the population, pers. | +827 | +986 | +668 | +1008 | +695 | +542 |

The comparison of the figures of natural and migration population growth demonstrates that the 2% growth is predominantly due to migration influx of the population rather than to its natural increase.

Unfortunately, the data on migrants was not available; however, as far as the authors are concerned, most of them are concentrated in three inhabited settlements of the region: the Afipskiy urban-type settlement, the Ilskiy urban-type settlement and the Severskaya station.

It can also be assumed that urban residents themselves contribute to migration flows at least in two possible ways. The first way is connected with the practice of downshifting, when urban residents, tired of hectic city life move to quieter and cheaper areas. The second way is related to making a conscious choice in favour of a village life, mostly for economic reasons.

V. CONCLUSION

To conclude, it can be emphasized that the territories of the Severskiy District respond differently to the proximity of Krasnodar and are engaged into the activity of the agglomeration to varying degrees. Therefore, some territories integrate into the agglomeration's life and find new development opportunities in being involved into the city's zone of influence, while others fail sustain their capacity for development and maintain their population and economies. In a part of the areas, the population is on the verge of vanishing, which cannot be helped even by their location in proximity to large cities. Moreover, all processes take place randomly, influenced by external factors and are practically uncontrolled by local administrations.

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