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## URBANISATION OF AGRICULTURAL AREAS: CITIES AND BLACK EARTH SOILS

**Summary:** The article is devoted to the impact of the black earth soils on the formation of urban settlement. The features of development and settlement of the Central Black Earth Region are examined. The main colonization flows and their impact on the modern structure of the population are stated, the migration attractiveness of the region is described. The territories with fertile black earth soils are analyzed in terms of their involvement in economic circulation processes. Cities are characterized as the central points of the settlement. Particular attention is paid to the role of regional centers. The influence of the most significant factors on the contemporary urban settlement structure is evaluated: the construction of railways, iron ore mining and production of ferrous metals. The role of soils in urban development and the processes of urbanization are analyzed.

**Keywords:** city, urbanization, black earth soils.

**JEL Classification:** P25, Q16, Q18.

The dependence of the citizens' lives on the soil conditions is no longer evident. However, the cities that arose and developed on the black earth soils have geographical features, which indirectly effect the socio-economic development. The degree of involvement in agriculture, based on the fertility of black soils, is reflected, in particular, on the type of industrial production.

At each stage of development of the territory, black earth soils play different, but always a significant role. The soil fertility was the main factor which helps the development of the Central Black Earth Region. Also it provided the population with basic foodstuffs and allowed to produce marketable products. In terms of natural conditions, the Central Black Earth Region refers to the territo-

ries, the most favorable for the life of the population. This region is close to the optimum ratio of heat and moisture resources. It has fertile black soils, pronounced seasons, there are practically no natural hazards. This means that the region has excellent natural abilities to live in. However, in terms of socio-economic development it lags behind the majority of regions in Russia.

Widespread fertile black earth soils of the region establish its agricultural specialization, taking industries, that are not related to the development of agro-industrial complex, as something alien, brought from outside which do not correlated to the established stereotypes.

Agriculture and industry in the Central Black Earth Region are in a need to compete for land resources. On the one hand, multi-storey building increases the population density in urban areas, but, on the other hand, it alienates people from their traditional way of life. Their well-being is inextricably linked in the genetic memory with the possibility of self-sufficiency in foodstuffs. Therefore, last but not least, living in multi-storey buildings is compensated by a high proportion of second homes, parental estates in the countryside. Many citizens consider it as a supplement to the family budget, and as a bonus – an opportunity to have environmentally-friendly products.

Among the urban population in the Black Earth Region, there is a substantial proportion of summer visitors and people, who own home grounds. In most cases, allotments are used to grow crops for personal consumption. Also, there is enough high proportion of farm animals, which are bred by citizens on private and suburban areas. This was determined by history, as evidenced by the works of art (Fig. 1).



**Fig. 1.** Deineka A. After a rain. Kursk (1925)

Agricultural background affects the types of residential development, town image, traditions, customs, character and mentality of the population living in cities, relationship with each other and with their neighbors.

The fertile black earth soils and favorable agroclimatic potential have a significant impact on the formation of the economic profile of the territory. The share of agricultural land in the structure of the land areas of the Central Black Earth Region is about 80% (Central Federal District – 51%, Russia – 13%).

A significant part of the industrial enterprises of the Central Black Earth Region process agricultural products. One of the most important sectors of specialization is food industry (meat, milk, flour, cereal, bakery, sugar, etc.). The proportion of areas in the Central Black Earth region in food production is 43%. The leader is Belgorod region (60%). Approximately the same indicators have Southern and North Caucasian Federal District. The vast majority of food businesses are located in urban areas.

Current problems of regional development of the Central Black Earth Region are associated with the peculiarities of the development and settlement of the territory, which have been influencing the socio-economic development of the region. Thanks to black earth soils which have made the development predominantly agricultural, although in some periods it has been combined with defensive activity, which is reflected in the structure of employment and population, toponymy, heraldry, mentality and culture of the modern population.

Historical sources indicate that the mass settlement of black earth areas in the 17th century was very diverse, which subsequently affects the peculiarities of the population living here. The most important ones in terms of impact on the socio-economic portrait of the region are: first of all, a combination of two streams of colonization – Russian and Ukrainian. Until now, the “islands” of the Ukrainian ethnic group can be found in the border regions of Belgorod, Kursk and Voronezh regions. In some places they have survived till the present time, some of them in the form of cultural and historical monuments.

Basically, the processes that unite ethnic groups, especially in urban areas, make the differences less remarkable, leaving their unique peculiarities in estate development, in the way farming and peculiarities of the southern dialect of Russian language, using which the inhabitants of the border black earth regions can be easily identified. According to the census of 2010, the proportion of Ukrainians in the Central Black Earth Region is extremely low – 0.7% in Tambov to 2.8% in Belgorod regions.

However, the statistics do not always shows the real situation, because the ethnic issue is influenced by the circumstances, and while cohabitate in adjacent

territories, on the one hand, there remains a certain isolationism, on the other hand – mixed Russian-Ukrainian marriages as a result of ethnic assimilation. We should not discount the migratory movements of migrants from Ukraine. These movements have become more often in the period of acute geopolitical situation.

The development and population of the territory, administrative reforms, railway construction were the factors that formed special “Black Earth” type of rural towns with significant stratifications, which is shown in the structure of economy, town image, population composition, character and habits of its inhabitants. The economy of these cities make up the industry, processing of agricultural raw materials, so they are a little different from hamlets and large villages. Often the black earth cities do not correspond to the status of the city, even in terms of population. Out of 52 cities in the Central Black Earth Region, only 10 have less than 12 thousand residents (Boguchar, Ertel, Zadonsk, Biryuch Dmitriev, Novochoopersk, Graivoron, Sudzha, Korocha, Fatezh).

Their architectural character, if we go away from the main streets, is represented by private households with plots of land on which agricultural activity is carried out actively, including livestock. The exception is the energy and metallurgical centers that meet the criteria of the city as a matter of form and in reality.

Significant changes in the territorial structure of the Central Black Region made the development of Kursk Magnetic Anomaly. In this period, new industrial units are formed – Belgorod-Yakovlev, Stary Oskol-Gubkin, Zheleznogorsk, which become points of growth of the territory, give new impetus to the economic development of the agricultural area. Energy deficiency is overcome by the development of nuclear energy. Commissioning of Novovoronezh and Kursk Atomic Power Station - town-forming for Novovoronezh and Kurchatov.

The territorial distribution of towns of different time of origin expresses this very clearly. The Central Black Earth Region traces the characteristic trend: in the north-west cities are older, in the south-east – younger (Fig. 2).

Currently, the Central Black Earth Region, as well as the majority of regions in Russia and Central Federal District, is considered to be a territory in which the natural decline exceeds migration gain. Population migration affects demographic and population distribution figures, modifies the amount and composition of the labor force, national structure, influences the culture and traditions of the local population.

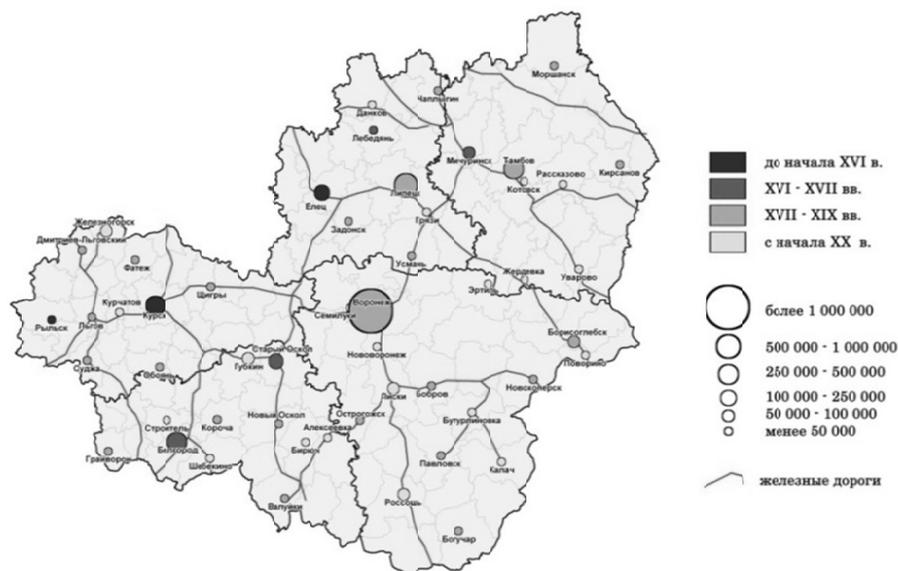
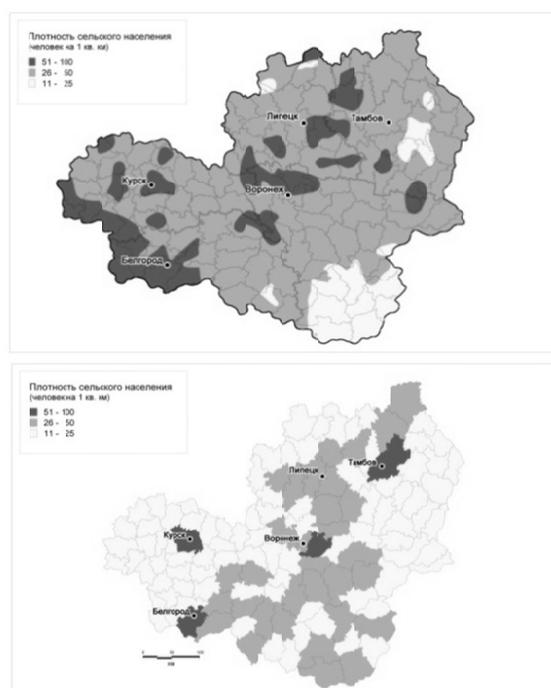


Fig. 2. Formation of cities' network of the Central Black Earth Region

Starting from the time of the agrarian overpopulation, the Central Black Earth Region is constantly “giving” the population as fertile soils do not provide a high level of social and economic development, and new technologies do not take root in the region. Difficulty in moving innovations create love to the settled way of life, reluctance to change, peasant conservatism and caution in relation to innovation, the pursuit of stability, self-isolation. One way or another, but migration outflow of the population, along with the natural decline has led to a decrease in population density. Compared to 1970 [Aslanyan et al., 1970], the Central Black Earth Region population density has decreased significantly (Fig. 3).

An important circumstance, which affects the migration situation, is a near-border position of the Central Black Earth Region, which is currently quite a serious problem, since due to the reception, resettlement and employment of migrant workers. A particularly acute this problem is in Belgorod region because it borders populous Kharkiv region and is the most accessible for migrants, since the border regional centers shared transport corridor that is 80 km long. In the structure of migration flows of border regions, there is a high proportion of Ukrainians who are taken to work by many companies, including agro-industrial holdings.



**Fig. 3.** Reduction of rural population density between 1970 and 2015

Another important advantage for migrants is beneficial transport and geographical position of the region, located at the intersection of meridional transport routes, which link central Russia and South Ukraine, as well as latitudinal highways, stretching from east to west (Kiev – Voronezh). An extensive network of railways and, in particular, roads contribute to the widespread dispersal of migrants.

Socio-economic “background” of the migration attractiveness of the Central Black Earth Regions estimated as close to the average criteria: monetary income and proportion of poor people is lower than in the majority of cities in the Central Federal District. A comparison of the migration attractiveness of the Central Black Soil with indicators of socio-economic development shows almost a *direct correlation*. Slightly higher rates of migration attractiveness in comparison with the level of socio-economic development are explained by more favorable natural-resource potential of the region. Equally important in the present conditions is the tolerant attitude of the indigenous population to the visitors, the absence of inter-ethnic conflicts, which can also be seen as a positive factor contributing to

the formation of the migration attractiveness of the Russian Black Earth Regions [Kretova, Popkova, 2014].

Since the beginning of 21st century there is an intraregional migration in the Central Black Earth which has centripetal character – from rural areas to regional centers, towns and villages. The ratio of urban and rural population of the region has changed steadily in the direction of increase of urban population and decrease in the share of agriculture (from 60% in 1970 to 35% in 2014). Inter-regional migration, which has a negative value, is also insignificant in scope.

The region is a key migration exchange occurs within the Central Federal District. Outflow of the population in the capital and major cities is usually connected with labor migration. In general, the migration processes in the region are characterized by a slight predominance of inter-regional activity of the population over intraregional and international.

Currently the preconditions to stabilize the current demographic situation are detected: the migration loss gradually reduces, that positively affects the population base of the region. Net migration is an external resource that has a compensating effect thus decreasing depopulation.

The migratory movement of the population is characterized by the processes, that are typical for most regions of Central Russia. It stimulates inequality, reducing the concentration of population in the peripheral areas and increasing in suburbs.

The Central Black Earth Region has long been characterized by constant migration outflow that weakens the region as a whole. It reflects on the city and, especially, rural areas, that “feed” the city. The area weakened by migrations could not “lift” all urban settlements, focusing on regional centers and small quantities of other cities. New cities were not the result of the development of “their” territory, but as a consequence of solving national problems – the construction of the Azov flotilla, development of Kursk Magnetic Anomaly and the formation of the Unified Energy System (Mining, metallurgical plants, nuclear power plants).

The Central Black Earth Region has a relatively sparse network of cities, mostly small, which are the part of the regional centers. Their priority development was made possible thanks to the use of administrative resources. Settling is transformed by extracting the key points, the formation of reference points (regional centers) including the city with million plus population Voronezh; the largest city Lipetsk and three major cities – Voronezh, Belgorod, Tambov. The role of the regional “capital” of the Central Black Earth Region – Voronezh, is enhanced by the value that it has not only “their” oblast, but also for the entire

region. The share of regional centers in the population of the region tends to be a gradual increase (Table 1).

Belgorod region has a second city that is comparable in population with the regional center. Belgorod population exceeds Stary Oskol only in 1.6 times. This creates two poles of development. It also involves the use of new natural resources, improves territorial organization.

Second in population size cities are much inferior to the population of the regional centers (Elec – Lipetsk 4.6 times; Zheleznogorsk – Kursk 4.4 times; Michurinsk – Tambov 2.8 times). Administrative center of Voronezh region is characterized by super-concentration of population. The gap in numbers between the first and the second city in Voronezh region is 16-fold. In addition to the regional center, which is presented by Voronezh, the rest of the cities are medium and small, which indicates the lack of development of urban structure.

**Table 1.** Proportion of regional centers in the population areas of the Central Black Earth Region

Cities	Population (thous. person)					The share of regional centers in the population of the region (%)				
	1959	1989	2002	2010	2015	1959	1989	2002	2010	2015
Belgorod	72	286	337	356	384	6	21	22	23	25
Voronezh	447	887	849	890	1024	24	36	36	38	44
Kursk	205	424	412	415	431	14	32	33	37	39
Lipetsk	151	450	506	509	510	13	37	42	43	44
Tambov	172	305	294	280	288	11	23	25	26	27

Source: Popkova [2005]; Regions of Russia [2002, 2015].

The Central Black Earth Region is especially noticeable for interconnection of urban and rural settlement in the course of their evolution. Many cities in the region were created or established by the formation of rural settlements throughout its history. They were needed in order to build consistently developed territory. The process of sprouting city from rural and semi-urban settlements reflects the evolution of the settlement, having reached a new, higher stage of maturity. Usually these settlements begin to perform municipal functions, being the centers of administrative districts. The Central Black Earth Region has many such “cities-villages”, which preserve many rural features. Orientation industry on local labor and local agricultural raw materials leads to the development of traditional activities, which help the growth of large rural populations which over time become cities (“aging into the city”) [Lappo, 2012].

Mainstream cities that have arisen thus become the cities – local center which usually lead the local administrative areas. They begin to serve as a cen-

tral place, while still villages, gradually expand and make its economic base more diversified by small industrial enterprises for the processing of local raw materials – agricultural, mineral – and the development of the surrounding area maintenance functions. Having received city status, such centers continue to perform rural functions, remaining rural because of the nature of planning and development, and the way of life. Urban network is transformed in the Central Black Earth Region. Old, unprofitable located and economically weak cities are replaced with new territories capable to concentrate population and economy. This process take place gradually, sometimes taking a lot of time until there are created the prerequisites for the relevant legal reforms.

Cities and rural areas are always complementary, and if necessary “feed” each other. Most often the village, that supply the labor force in the city play the role of “donors”. But there are also situations when in the early ’90s there has been sufficient mass migration from the cities to the countryside. These trends are short living, but seasonal relocation of urban residents in housing estates preserves for quite a long time. Often suburban villages, which have lost their resident population, become housing estates.

The Central Black Earth Region is represented by different types of cities starting for the local “capitals”, serving the surrounding areas and up to the industrial centers of various specializations and often single-industry. The list, approved by the Federal Government on July 29, 2014 № 1398-p., shows that there is no single-industry towns *with the most difficult socio-economic situation* in the Central Black Earth Region. Among those, which have *downside risks of socio-economic situation* are Semiluki, village Elan-Kolenovsk and Zheleznogorsk. Cities with stable socio-economic situation – Gubkin, Pavlovsk, Rossosh, Lebedyan, village Znamenka, Kotovsk.

The harmonious development of cities in the Central Black Earth Region depends directly on how their operation coincides with the state of modern economic situation and the solving of urgent tasks.

In fact, thanks to fertile soils that the Central Black Earth Region is more rural than urban territory. The main supplier of the population of the region are semi-rural towns and villages, this is reflected in the habits of the new citizens, town image, the pace of socio-economic development and innovation.

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### URBANIZACJA OBSZARÓW ROLNICZYCH: MIASTA A OBSZARY CZARNOZIEMU

**Streszczenie:** Artykuł poświęcono wpływowi gleb czarnoziemnych na tworzenie osad miejskich. Dokonano w nim analizy cech zagospodarowania i osadnictwa w Centralnym Okręgu Czarnoziemów, opisano główne napływy osadnicze i ich wpływ na współczesną strukturę zaludnienia oraz przedstawiono atrakcyjność migracyjną regionu. Ponadto przeprowadzono analizę obszarów żyznych czarnoziemów w kategoriach ich udziału w procesach obrotu gospodarczego. Miasta zostały scharakteryzowane jako centralne ośrodki osadnictwa. Szczególną uwagę zwrócono na rolę centrów regionalnych. Oceniono także wpływ najważniejszych czynników na współczesną strukturę osad miejskich: budowy dróg kolejowych, kopalni rud żelaza i produkcji metali żelaznych oraz przeanalizowano rolę gleby w zagospodarowaniu miejskim i procesach urbanizacyjnych.

**Słowa kluczowe:** miasto, urbanizacja, czarnoziem.