GEODEMOGRAPHIC ZONING OF KASHKADARYA REGION AND ITS ECONOMIC GEOGRAPHICAL ASPECTS

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Abstract: *The article analyzes the relationship between the economic and geographical aspects of the Kashkadarya region and its population growth through its geodemographic regionalization. The impact of the economic and geographical characteristics of the North-Eastern, Central and Western regions on their demographic situation and level of economic development is studied.*

Keywords*: Geodemographic regions, transport infrastructure, economic activity, zoning, Social infrastructure, population density, demographic stability, migration, migration balance, urbanization, natural population growth, birth rate, socio-economic development.*

ГЕОДЕМОГРАФИЧЕСКОЕ РАЙОНИРОВАНИЕ КАШКАДАРЬИНСКОЙ ОБЛАСТИ И ЕГО ЭКОНОМИКО ГЕОГРАФИЧЕСКИЕ АСПЕКТЫ

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Аннотация: *В статье анализируется взаимосвязь между экономическими и географическими особенностями Кашкадарьинской области и ростом ее населения посредством геодемографического* районирование*. Изучается влияние экономико-географических особенностей Северо-Восточного, Центрального и Западного регионов на их демографическую ситуацию и уровень экономического развития.*

Ключевые слова*: Геодемографические регионы, транспортная инфраструктура, экономическая активность, зонирование, социальная инфраструктура, плотность населения, демографическая стабильность, миграция, миграционный баланс, урбанизация, естественный прирост населения, рождаемость, социально-экономическое развитие.*

Geo-demographic zoning is the process of analyzing the relationship between population and territory and dividing regions into territories based on socio-economic, environmental, and other factors. Economic geographic aspects

play an important role in this process, as they are seen as a key factor in determining the level of development and prosperity of territories.

Kashkadarya region is considered an important driving force for development in the region due to its economic and geographical features, natural resources, and social infrastructure. Economic and geographical factors are of great importance as the main drivers of population growth, resource use, and interregional migration in the region. The research analyzes the relationship between the economic and geographical aspects of the Kashkadarya region and its population growth through its geodemographic zoning. The importance of economic and geographical aspects in geodemographic zoning is great, and it is carried out taking into account the economic, ecological and social factors of the region. Economic and geographical aspects determine the population density, economic sectors and the efficiency of resource use.

Kashkadarya region is divided into three main geodemographic regions based on the above principles: Northeastern, Central and Western regions. The economic and geographical characteristics of each region affect their demographic situation and level of economic development.

Northeastern region (Kitab, Shahrisabz, Yakkabog districts). The Northeastern region, consisting of mountainous and foothill areas, has a lower population density and level of economic development. The economic potential of this region is limited, and agriculture-based industries are developing. Limited land resources, shrinking water resources, and poor transport infrastructure in mountainous areas slow down economic activity. At the same time, the city of Shahrisabz has an average level of social infrastructure and services, which ensures the stability of population growth. The district accounts for 26.8% of the population, while accounting for 15.7% of the region's area, with a population density of 209.4 people per 1 sq. km (Table 1).

The district is considered the leader in the region in terms of population density. In the North-Eastern district, the birth rate was 26.0 per thousand, the death rate was 4.4 per thousand, and the natural increase was 21.6 per thousand

(Table 2). The district has the lowest natural increase in the region, which may be due to a number of factors. In particular, higher unemployment rates or slower economic growth may limit family fertility, migration of young and reproductive-age population to other regions, shrinking family size and composition, late marriage or factors that reduce the birth rate, and other factors may be the cause. Although the demographic indicators of the North-Eastern region are generally positive, the low natural growth rate deserves analysis. To ensure demographic stability and growth in this region, it is necessary to take measures to improve economic conditions, strengthen the health care system, and manage migration flows.

Table 1.

Main indicators of geodemographic districts of Kashkadarya region (01.01. 2024)

Geodemographic regions	Area, %	Population, %	Density, person
Northeast	**15,7**	**26,8**	**209,4**
Kitob	6,1	8,0	161,1
Shahrisabz	5,6	6,6	145,1
Shahrisabz sh	0,2	4,2	2944
Yakkabog‘	3,8	8,0	256,8
Central	**52,5**	**56,4**	**133,9**
Qarshi sh	0,3	8,3	3695
Qarshi	3,2	7,6	302,3
Koson	6,6	8,8	166,0
Ko‘kdala	6,0	5,3	110,3
Chiroqchi	3,9	7,5	237,0
G‘uzor	9,3	6,2	83,5
Qamashi	9,3	8,2	110,1
Dehqonobod	13,9	4,5	39,8
Western	**31,6**	**16,8**	**66,6**
Mirishkor	11,2	3,6	40,3
Muborak	10,7	2,6	30,4
Kasbi	2,3	6,0	327,6
Nishon	7,4	4,6	78,9
Province	**100**	**100**	**124,6**

The table was compiled based on data from the Kashkadarya regional statistical department.

Central district (Karshi, Koson, Kokdala, Chiraqchi, Guzor, Kamashi, Dekhkanabad districts).The Central Region is considered the most economically developed region. The city of Karshi and its surrounding districts are characterized by industrial, service and agricultural sectors. The city of Karshi, being the economic center of the region, is considered the main driver of urbanization and industrial development. The growth of manufacturing and mining sectors in this region increases population density, creates new jobs and leads to a positive flow of migration. These factors lead to a lower population growth rate compared to other regions. The Central Geodemographic Region accounts for more than half of the region's population (52.5 and 56.4 percent), and its population density is 133.9 people per 1 sq. km, which is higher than the regional indicator (124.6 people).

The ratio of the territorial size of the central geodemographic region to its population, and the population density above the regional average, require in-depth study of the issues of socio-economic development, resource efficiency, and ecological sustainability. This situation indicates the existence of a significant imbalance between the territorial balance and the economic and geographical distribution of the population. As the analysis of high population density shows, migration flows, natural population growth rates, and urbanization processes are putting significant pressure on the economic activity and social infrastructure of this region.

To effectively manage the processes of social and economic development, it is necessary to take a number of measures. In particular, measures should be taken to control population density and balance migration. It is important to create economic opportunities in rural areas to prevent excessive concentration of the population in cities; To ensure the stable operation of water, electricity, transport and communal services, it is necessary to implement modernization programs, and new housing, schools and medical institutions should be built in densely populated areas; to ensure ecological balance, it is necessary to save water resources, control pollutants emitted by industrial enterprises and introduce systems for the efficient use of agricultural land; It is necessary to expand the opportunities for the

population to engage in economic activity by increasing employment and applying innovative approaches to the local economy.

Table 2.

Main indicators of natural population growth and mechanical movement of the geodemographic districts of Kashkadarya region (01.01. 2024)

Administrative units	Natural population growth (per 1000 population)	Birth and death rates of the population (per 1000 population)		Population activity indicators (per 1000 population)	
		Birth	Death	visitors	those who left
Northeastern geodemographic region	**21,6**	**26,0**	**4,4**	**2,6**	**5,4**
Kitob	23,4	27,4	4,0	1,7	4,8
Shahrisabz	20,4	24,8	4,4	2,4	5,9
Shahrisabz city	18,2	23,2	5,0	4,6	6,1
Yakkabog‘	24,3	28,7	4,4	1,6	4,9
Central geodemographic region	**25,3**	**29,9**	**4,6**	**2,4**	**4,0**
Qarshi city	21,7	26,4	4,7	9,6	8,3
Qarshi	23,8	28,8	5,0	5,5	5,1
Koson	23,4	27,4	4,0	1,3	2,7
Ko‘kdala	29,2	32,9	3,7	0,005	0,1
Chiroqchi	29,8	33,6	3,8	0,9	3,7
G‘uzor	24,4	29,4	5,0	1,3	3,4
Qamashi	25,8	30,1	4,3	0,3	4,3
Dehqonobod	24,4	31,1	6,7	0,2	4,4
Western geodemographic region	**23,5**	**28,5**	**5,0**	**2,5**	**4,8**
Mirishkor	23,8	29,2	5,4	1,6	3,5
Muborak	20,4	25,4	5,0	3,2	6,7
Kasbi	23,4	28,9	5,5	1,9	3,4
Nishon	26,1	30,4	4,3	3,5	5,9
By region	24,2	28,9	4,7	2,5	4,6

The table was compiled based on data from the Kashkadarya regional statistical department.

These measures will help achieve demographic and economic balance, ensure efficient use of natural resources, and ensure environmental safety. At the

same time, these processes should be managed through constant scientific monitoring and planning.

The birth rate in the Central Geodemographic Region is 29.9 per thousand, the death rate is 4.6 per thousand, and the natural increase is 25.3 per thousand (Table 2). The region has the highest natural increase in the region. Chirakchi and Kokdala districts are considered to have the highest natural increase not only in the region, but also in the region (29.8 and 29.2 per thousand, respectively).

The natural growth rate of 25.3 per mille leads to a high natural increase in the region, which indicates an increase in labor resources and expansion of economic opportunities. However, high natural growth creates high demands for the provision of social services, in particular, education, healthcare, and the construction of residential facilities. At the same time, the high level of natural growth requires attention to environmental protection and the rational use of ecological resources. Protecting nature and ensuring ecological sustainability are important for the region to be compatible with the high level of growth.

The highest natural increase rates (29.8 and 29.2 per mille, respectively) are observed in the Chirakchi and Kokdala districts, indicating rapid population growth and increased economic activity in these regions. Such high demographic growth requires meeting the increasing demands of social infrastructure, creating new jobs, and training qualified personnel for the labor market. At the same time, for the economic development of the region, it is necessary to increase the efficiency of the use of key resources, such as land and natural resources.

The high demographic growth in the region is creating an additional burden on social infrastructure and services. Therefore, it is necessary to introduce advanced management systems in education, healthcare and other sectors for balanced growth and sustainable development. At the same time, measures aimed at improving the ecological state of the region, protecting the environment, and saving natural resources should be effective. In this regard, the development of

scientific research, ecological monitoring, and data collection will help maintain the ecological stability of the region.

In general, the demographic growth process of the Central Geodemographic Region presents great opportunities for sustainable development, but also certain challenges. To ensure population growth, it is necessary to apply a comprehensive approach, while harmonizing economic, social and ecological systems. Thus, advanced management, strategic planning and measures are needed to ensure sustainable development in the region.

In the Central Geodemographic Region, migration indicators (incoming and outgoing) are average for the region, with 2.4 per mille incoming and 4.0 per mille outgoing. The migration balance is 2.6 per mille. The migration balance is highest in Dekhkanabad and Kamashi districts, which are 4.2 and 4.0 per mille, respectively. These districts rank 1st and 2nd in the region in this regard.

At the same time, for the sustainable development of the region, it is necessary to maintain harmony between social, economic and ecological systems. To regulate population growth, it is necessary to apply development strategies based on advanced management, efficient allocation of resources and new technologies. Ensuring harmony between demographic changes and economic development will shape the stable future of the region.

Western region (Mirishkor, Mubarak, Kasbi, Nishon districts). The Western Region is considered one of the least developed regions in economic terms. This region mainly covers deserts and plains, with limited natural resources and water sources. However, the development of industrial production and the oil and gas industry in Mubarak has a positive impact on increasing the economic activity of this region and increasing population density. In other districts of the Western region, especially in the agricultural sector, water resources are limited, which affects population growth. The Western geodemographic region occupies 1/3 of the region's area (31.6%) and 2/5 of the population (16.8%), with a population density of 66.6 people per 1 sq. km., which is lower than the regional indicator (124.6 people). These data require special attention to the demographic and

economic situation of the Western Region in the region, as its low population density and relatively small population compared to other regions may give rise to some social and economic problems. The fact that the Western Region occupies a large part of the territory, but has a relatively small population, may be due to several socio-economic factors. Low population density in this region can, in turn, mean a lack of access to infrastructure and services, including education, health care, transport and housing. This creates an inequitable distribution of resources and services, which in turn contributes to social inequality and slows down economic development. Population density below the regional average also presents opportunities for change and development. The Western Region, unlike many other regions, despite its very large territory, offers significant opportunities for the development of its own social and economic systems. These opportunities, in turn, can ensure the proper management of labor resources, the introduction of technological innovations, the diversification of production sectors, and the strengthening of agricultural potential.

The birth rate in the Western geodemographic region is 28.5 per thousand, the death rate is 5.0 per thousand, and the natural increase is 23.5 per thousand, and the region has the highest average natural increase in the region. Nishon district is considered to have the highest natural increase in the region (26.1 per thousand). These indicators constitute the lowest level of natural increase in the region. This situation indicates a limited population growth and a slowdown in demographic processes, which may negatively affect the development of economic and social systems in the region. Nishon district is considered to have the highest natural growth rate in the Western region, which indicates the unique demographic characteristics of the district. High natural growth contributes to the growth of the regional economy and social system, but at the same time, it can lead to an overload of resources and infrastructure, which requires the allocation of additional resources to meet the increased needs.

In general, the average natural growth rate and high mortality rate of the Western region limit the demographic and economic development of the region.

To improve this situation, it is necessary to strengthen social, economic and health systems. Expanding medical services, improving education and health infrastructure, efficient resource allocation and rational use of labor resources play an important role in ensuring the sustainable development of the region.

Mubarak district, as the most urbanized region in the region, has the highest negative indicator in terms of net migration (–3.5 per mille). This negative indicator, despite being an industrialized region, indicates the insufficient economic and social conditions available within the district, problems in the labor market, and limited infrastructure. The high migration balance in Mubarak district, in particular, may reflect a lack of jobs, poor living conditions, and other economic factors. It is necessary to review social and economic policies to improve migration processes in the region and increase the well-being of the population. The negative migration balance requires the development of appropriate strategies to retain the population in the region and attract new immigration flows. These strategies should be aimed at positively influencing population migration through the expansion of the labor market, the creation of new jobs, the development of infrastructure, and the improvement of living conditions.

In conclusion, the presence of a negative migration balance in the Western geodemographic region requires an analysis of the economic and social conditions in the region. The high negative migration balance in Mubarak district indicates the weakness of labor resources and living conditions, despite the industrialization of the district. To eliminate this situation, it is necessary to implement a complex of economic, social and infrastructural measures, manage migration processes and ensure stable development in the region. The economic potential of the Western region, in particular, the limited availability of water resources and the low development of industry are contributing to population migration.

The geodemographic zoning of the Kashkadarya region is based on a thorough analysis of its economic, ecological and social characteristics. This process, taking into account the region's natural resources, economic sectors, social infrastructure and ecological factors, serves to ensure the sustainable development

of each region. In addition, geodemographic zoning plays an important role in ensuring socio-economic equality and maintaining ecological integrity in the region. By reducing disparities between regions, effectively distributing social services, and optimizing economic activity, it is possible to achieve stable and equitable development of the Kashkadarya region.

The geodemographic zoning of the Kashkadarya region was carried out taking into account economic and geographical aspects and demographic indicators. It affects the economic potential of the regions, the use of resources, the development of agricultural and industrial sectors, population growth, and migration processes. While improving economic and social infrastructure, especially in the Central and Northeastern regions, supports population growth, resources and infrastructure in the Western regions need to be developed.

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