ECONOMIC GEOGRAPHICAL FEATURES OF THE DEVELOPMENT OF GRAIN GROWING CLUSTERS IN KASHKADARYA REGION

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Abstract. This article analyzes the economic and geographical features of the development of grain clusters in the Kashkadarya region. The study studies the impact of the natural and climatic conditions of the region, the level of land and water resources, labor resources and production infrastructure on cluster activity. The establishment and development of grain clusters is based on the strengthening of territorial integration of the processes of cultivation, processing and sale of agricultural products. The impact of the clustering process on regional economic development, employment growth and socio-economic stability of rural areas is also assessed.

Keywords: grain clusters, regional development, agrocluster, agricultural production, land and water resources, infrastructure, regional economy, clustering.

Аннотация. В данной статье анализируются экономико-географические особенности развития зерновых кластеров в Кашкадарьинской области. Исследование изучает влияние природных и климатических условий региона, уровня земельных и водных ресурсов, трудовых ресурсов и производственной инфраструктуры на деятельность кластеров. Формирование и развитие зерновых кластеров основано на усилении территориальной интеграции процессов выращивания, переработки и сбыта сельскохозяйственной продукции. Также оценивается влияние кластерного процесса на региональное экономическое развитие, рост занятости и социально-экономическую стабильность сельских районов.

Ключевые слова: зерновые кластеры, региональное развитие, агрокластер, сельскохозяйственное производство, земельные и водные ресурсы, инфраструктура, региональная экономика, кластеризация.

Introduction. In recent years, the issues of ensuring food security, territorial optimization of agricultural production, and integrated development of agricultural sectors have become one of the most pressing scientific and practical problems in the world. In particular, the trend towards forming the "cultivation - processing - storage - sale" chain as a single territorial-economic system through the introduction of clustering mechanisms in the grain production sector is increasing. This process reduces production costs, increases logistics efficiency, and expands the opportunity to create added value. In Uzbekistan, the development of grain-growing clusters has become an important priority of the state agrarian policy as part of the modernization of agriculture, increasing export potential, and accelerating the economic development of regions. The economic and geographical essence of this process is directly related to the rational use of regional resource potential, the placement of production in accordance with natural and climatic conditions, and the formation of multidisciplinary economic structures in agricultural regions.

The issue of developing grain-growing clusters is particularly relevant in the Kashkadarya region, as the region is one of the leading agricultural regions of the republic in terms of natural and climatic conditions, irrigation networks, fertile land resources, and labor resources. The vast geography of grain cultivation in the region, the high share of irrigated land, and the significant rural population create an important economic geographical basis for the introduction of the cluster model. At the same time, the regional unevenness of the production infrastructure, the insufficient development of the logistics system in some districts, and the incomplete correspondence of processing capacities to the raw material base create the need for regional planning of the clustering process on a scientific basis.

Therefore, studying the economic geographical characteristics of the development of grain-growing clusters in the Kashkadarya region is of significant scientific and practical importance in terms of improving regional development strategies and increasing the efficiency of the agricultural sector.

Main part. Kashkadarya region is one of the agrarian regions with favorable economic and geographical conditions for the formation of grain-growing clusters. The region's extensive irrigated lands, long growing season, and high levels of sunlight provide a natural advantage in growing grain crops. The continental nature of the climate, the ability to carry out spring and autumn agrotechnical measures at specific times, as well as the relative stability of soil fertility across regions, serve as important factors for achieving high yields within the framework of the cluster system. In this regard, the natural resource potential of the region serves as a basic economic and geographical basis for the territorial location of grain-growing clusters.

The territorial distribution of land and water resources in the region directly affects the geography of the formation of grain-growing clusters. The majority of irrigated land is located in river valleys and districts with developed irrigation systems, and these areas have a high potential for establishing intensive grain farms. The level of use of water resources, the varying state of land reclamation, and the agrarian structure of the land fund create the need for territorial specialization of clusters. At the same time, the dense concentration of labor resources in rural areas, the high share of agricultural employment, and the presence of traditional farming experience appear to be important factors ensuring the socio-economic stability of production in the clustering process.

The territorial location of transport and logistics infrastructure and processing facilities also plays an important economic geographical role in the formation of grain clusters. The availability of access to the republic's markets via the main highways and railway networks in the region ensures the rapid transportation and sale of grain products. However, the uneven location of

processing plants relative to the areas where raw materials are grown leads to increased logistics costs in some districts. Therefore, in the territorial organization of clusters, the spatial coordination of the chain "raw material base - processing - storage - market" is one of the main conditions for increasing economic efficiency. This reinforces the need for scientifically based territorial planning for the development of grain-growing clusters in the Kashkadarya region.

The table below shows the location of grain-growing clusters operating in the Kashkadarya region, the number of farms attached to them, and the size of their land areas. This data allows us to assess the characteristics of the territorial organization of grain-growing clusters in the region, the spatial distribution of production resources, and the scale and intensity of the clustering process from an economic geographical point of view. By analyzing the data in the table, the territorial concentration of clusters, the ratio of large and small clusters, and their location in accordance with agricultural potential are determined.

Information about grain clusters in Kashkadarya region

№	Cluster name	Located district	Number of farm attached to the cluster	Total land area attached to the cluster (ha)	From this	
					Including cluster land (ha)	farm, (ha)
1	"Galla Cluster" LLC	Guzar	375	8650	-	8650
2	"Karshi Don Agro" LLC	Karshi	578	14000	-	14000
3	"Qamashi oltin boshoq agrocluster" LLC	Qamashi	357	10200	-	10200
4	"Bogobod qorabayir" f/x	Koson	14	431	70	361
5	"Sanjarbek Nadjim ogli"	Koson	56	969	47	922

	f/x					
6	"Koson sara bugdoy don" LLC	Koson	833	13844	-	13844
7	"Kitob agro invest produkt" LLC	Kitab	42	417	-	417
8	"Kitob Beshterak agro" LLC	Kitab	17	233	-	233
9	"Kitob agrokimyohimoya" LLC	Kitab	125	1172	-	1172
10	"The best agroxim cluster" LLC	Mirishkor	1030	22250	-	22250
11	"Mt amir tex" LLC (Private Enterprise)	Muborak	210	9250	2220	7030
12	"Indorama" LLC (Private Enterprise)	Kasbi	-	5065	-	-
13	"Asqar trans gold cluster" LLC	Kasbi	483	9135	-	9135
14	"Indorama" LLC (Private Enterprise)	Nishan	-	3600	-	-
15	"Nishan Cluster Tech Service MTP" LLC	Nishan	717	14900	-	14900
16	"Chiroqchi cluster galla" LLC	Chiroqchi	513	8600	-	8600
17	"Yakkabog boshoqlari agrocluster" LLC	Yakkabog	324	8000	-	8000
18	"Kesh grain seeds" LLC	Shahrisabz	212	4718	-	4718

The table shows that grain-growing clusters in the region are mainly located in districts with a high share of irrigated land, and they cover large areas of land. In

particular, "The Best Agrokhim Cluster" LLC in Mirishkor district is the largest cluster with 22,250 hectares of land and 1,030 farms. Also, clusters such as "Nishon Cluster Tex Service MTP" LLC in Nishon district (14,900 ha), "Qarshi Don Agro" LLC in Karshi district (14,000 ha), and "Koson Sara Bug'doy Don" LLC in Koson district (13,844 ha) also stand out as large regional production units. This indicates that clusters are mainly formed in regions with a large raw material base.

There is an uneven distribution of the number of clusters and land areas across regions. For example, in Kitab district, there are three clusters operating, and their total land area is relatively small (417 ha, 233 ha, and 1,172 ha), while in Koson district there are several clusters, covering land areas of various sizes. This situation means that the regional specialization of grain-growing clusters and production capacities are being formed in accordance with the natural and economic conditions of the districts. In some clusters, part of the land area appears to be directly owned by the cluster, while the rest is managed through farms, indicating that production is organized on the basis of a cooperative model.

There are also significant differences in the number of farms. For example, clusters in Mirishkor, Nishon, Koson, and Karshi districts have 700-1,000 farms, while in some clusters (for example, in Kitab or Shahrisabz districts) this figure is less than 200. These differences are related to regional production density, land size, and the level of development of irrigation systems. As a result, large clusters are superior in terms of economic efficiency and production volume, while small clusters operate in a manner adapted to the local raw material base. This situation indicates that the territorial organization of grain-growing clusters in the region is becoming economically and geographically stratified.

In general, the data in the table show that grain-growing clusters in the Kashkadarya region are geographically unevenly distributed and are mainly formed in districts with large areas of irrigated land. The concentration of large clusters in the Mirishkor, Nishon, Karshi, and Koson districts indicates the high

agricultural production potential of these regions. This confirms that natural resource factors (land and water availability), as well as infrastructure capabilities, serve as the main territorial selection criteria in the clustering process.

At the same time, sharp differences in the size of clusters and the number of farms attached to them indicate the economic and geographical stratification of grain-growing clusters in the region. While large clusters excel in terms of production volume and economic efficiency, relatively small clusters operate in a manner adapted to the local raw material base and regional specialization. As a result, strengthening the internal coherence of clusters through territorial planning, logistics, and bringing processing capacities closer to the raw material base is an important scientific and practical task in the development of grain-growing clusters in the region.

Conclusion. The conducted analyses show that the process of developing grain-growing clusters is inextricably linked to the natural resource potential of the region, the level of land and water supply, labor resources, and the location of production infrastructure. In the case of the Kashkadarya region, it was found that clustering is mainly taking place in districts with a high share of irrigated land, the raw material base of large clusters covers vast territories, and the territorial concentration of production is increasing. This confirms the important economic and geographical importance of the cluster model in the territorial specialization of agricultural production, the efficient use of resources, and the formation of a sustainable production system in the grain sector.

At the same time, the unevenness in the territorial location of clusters, the insufficient development of processing capacities and logistics infrastructure in some regions create certain limitations in achieving the full economic efficiency of grain-growing clusters. Therefore, the development of grain clusters in the region based on territorial planning, spatial harmonization of the "raw material - processing - storage - market" chain, and strengthening inter-cluster cooperation are important scientific and practical tasks. This approach will help increase the

competitiveness of the grain sector, accelerate the socio-economic development of rural areas, and strengthen regional food security.

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