Clustering of agriculture in the Republic of Uzbekistan

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Abstract. Clusters are motivators of innovation. The urgency of the problems of creating clusters is the transition to an innovative type of development. The effective functioning of clusters will lead to economic growth and increase the competitiveness of the regional economy. For a long time, reforms were carried out in agriculture that changed the forms of ownership and the mechanism of management in agriculture. Agroclusters have become the best option for the effective development of agriculture in the Republic of Uzbekistan and beyond. The research topic was chosen by the authors due to its relevance in the modern world. This article analyzes the current state of agriculture in the Republic of Uzbekistan, and the integration of agricultural clusters. In conclusion, proposals are made to improve and expand the horizons of clusters in agriculture of the Republic of Uzbekistan.

1 Introduction

The economy of the Republic of Uzbekistan does not stand still, it is driven by the integration of the economy into the world market, which implies the growth of investment and innovation activity in all sectors, including agriculture, its enterprises and industries. The investment and innovation development of agriculture is understood as an extensive active process, in this process the targeted consumption of financial resources, the attraction of additional sources of financing, the search for potential investors is directly related to the generation of new knowledge and ideas, technological development of scientific discoveries, inventions, integration of innovations, the choice of optimal forms of organization and management of production. Innovations are closely related to investments that contribute to maintaining the scientific potential of agriculture and its development. Combining investments and innovations into one system will lead to the successful development of the level of economic recovery. One of the new directions of agricultural formations is agricultural clusters [1-5].

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If you analyze the economic literature, you can understand that the concept of a cluster has many interpretations, but the very essence is the same, and its common feature is the unification of individual elements into one whole. So one of the scientists is Michael Porter, who believed that in the conditions of globalization, the traditional division of the economy into separate parts loses its functions. Based on this, cluster systems are associations of various forms and organizations that actively participate in the market mechanism. But the very prerequisites for the formation of a cluster theory concerning agriculture are observed in J.Tunen and A. Marshall. J.Tunen made such a contribution as the development of the theory of location (localization) on the example of agriculture itself. A. Marshall also distinguished himself by the fact that in his research he placed great emphasis on the localization of the agricultural process.

The concept of "Agro-clusters" is understood as a geographically localized, innovative structure formed on the basis of industrial and agricultural production, to create an industrial basis for improving the competitiveness and productivity of the food sector of the Republic, redistribution of added value and integrated use of the socio-economic potential of the country [6-15].

In the scientific world, a cluster is defined a little differently, namely, it has several formulations defining it:

1-companies connected by geographical location, operating in the same field, having common activities and which complement each other.

2-hierarchical chains, highly specialized sectors of a certain sphere, in which adjacent stages of the production process form the core of the cluster.

Based on these definitions, it can be said that an agro cluster is a strategic partnership of a group of local interconnected agricultural producers, processing and servicing enterprises and other participants united by common interests and operating in the field of agriculture, with the aim of obtaining by the cluster participants, increasing the competitiveness and efficiency of agriculture.

2 Methods

In the conducted research, the issues of the development of the introduction of agro-clusters, increasing the efficiency of their use, and proposals for their further development were developed. Methods such as abstract thinking, comparative analysis, grouping, observation, induction and other methods were widely used in the study.

The purpose of the study is to develop proposals for the functioning of the cluster in the conditions of agribusiness transformation. The object is the Republic of Uzbekistan, as a member of the agricultural cluster.

The information base of the research was the scientific works of foreign and local scientists, materials of state statistics, and the regulatory and legislative base of the Republic of Uzbekistan.

3 Results

The agrarian state of the country is an urgent and important issue of the economy of the Republic of Uzbekistan, it accounts for about 28.5% of GDP. About 4.2 million people are involved in agriculture in Uzbekistan, which is more than 30% of the total employment in the country. Until recently, the main agricultural crops of the Republic of Uzbekistan were cotton and grain, but after the abolition of benefits and price control in 2021, the diversification of crops has already begun, that is, a phased period to diversify crops. The

export of agricultural products led to the receipt of about 9.8% of external revenues in the Republic of Uzbekistan as of 2019.

Reforms and transformation of the economy are being actively carried out in the Republic of Uzbekistan. The agricultural sector is also subject to modernization and the impact of reforms, which gives impetus to further expansion and diversification of the agricultural sector. Since agriculture is closely intertwined with the country's economy, the Republic of Uzbekistan has an economic success. For example, in 2020, during the pandemic, the Republic of Uzbekistan was able to maintain positive economic growth.

The ongoing reforms in the country increase the productivity of agriculture, through the introduction of new resource-saving technologies, the development of new methods of processing and packaging in order to increase the cost of national and export products. With the help of innovations in agriculture, the production of fruit and vegetable crops can increase by 6-8% every year, meat by 16%, milk -13%, eggs – 27%, fish by 50%, as well as the degree of processing of fruit and vegetable crops up to 15%.
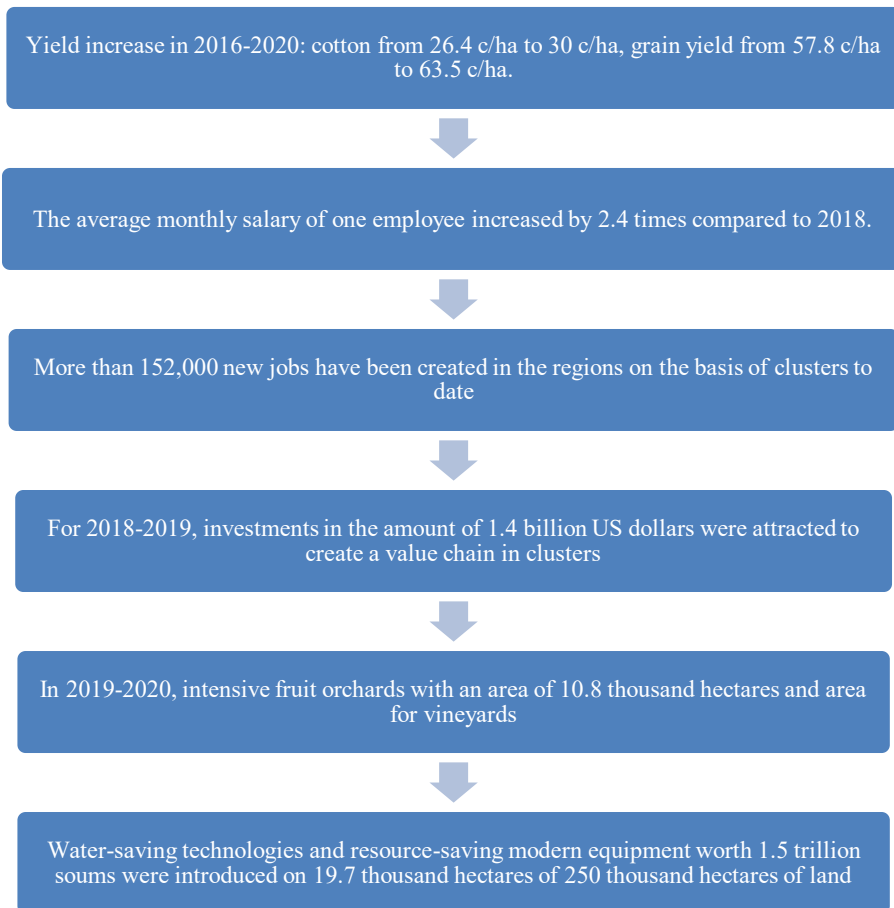
One of the main reforms in agriculture of the Republic of Uzbekistan is the creation of the "Strategy for the development of agriculture of the Republic of Uzbekistan for 2020-2030", their main tasks are:

1) Ensuring food security, reducing the undernourished population from 6.5% to 3%;

2) Reducing the share of state participation in industries, increasing investment attractiveness;

3) Creation of favorable conditions for agribusiness and creation of value chains;

4) Rational use of natural resources and environmental protection

5) Introduction of modern public administration systems

6) Diversification of government spending to support the agricultural sector;

7) Special attention is paid to the system of agricultural sciences, education, information and consulting services;

8) Agricultural industry statistics;

9) Support of agricultural land.

One of the innovations in the field of technology is the development of a new information platform ARIS, and within the framework of this platform, the creation of centers in the regions of the country of the Republic of Uzbekistan. In the centers, agricultural producers can receive agricultural services, use mobile laboratories, and receive education. There are opportunities for producers of goods and services in the field of agriculture to familiarize and advise their potential customers. The plans for 2022-2026 are to increase the number of such centers in all regions and to serve customers and provide them with more than 100 agricultural services.

Digitalization of agriculture is yielding its successful fruits, one of them is the Smart Agriculture program, thanks to which technologies for the rational use of land and water resources, subsidies and loans are widely introduced. For example, by 2026, rice that loves water will be grown in all repeated fields by the seedling method. By 2026, it is expected that the turnover of agricultural land put into circulation will be approximately 900 thousand hectares, and land with water-saving technologies will approximately amount to 1.2 million hectares, including drip irrigation of 445 thousand hectares. The acreage will be reduced, and productivity will increase.

In the modern world, one of the urgent and priority directions is the development of a cluster and cooperative system with innovative infrastructure and advanced technologies. Such a system will be able to provide a complete production chain from the field to the consumer. The main component in clusters is to increase the profit of producers due to high yields. The introduction of clusters has led to an increase in many economic indicators (Figure 1).

Yield increase in 2016-2020: cotton from 26.4 c/ha to 30 c/ha, grain yield from 57.8 c/ha to 63.5 c/ha.

The average monthly salary of one employee increased by 2.4 times compared to 2018.

More than 152,000 new jobs have been created in the regions on the basis of clusters to date

For 2018-2019, investments in the amount of 1.4 billion US dollars were attracted to create a value chain in clusters

In 2019-2020, intensive fruit orchards with an area of 10.8 thousand hectares and area for vineyards

Water-saving technologies and resource-saving modern equipment worth 1.5 trillion soums were introduced on 19.7 thousand hectares of 250 thousand hectares of land

Fig. 1. Results of cluster implementation in the Republic of Uzbekistan from 2016-2020.

In the Republic of Uzbekistan today, 463 agro-clusters are effectively operating in all areas of agriculture, such as cotton and textile, grain growing, fruit and vegetable growing, rice growing and others. The clusters took over 2.2 million hectares of agricultural land.

4 Discussion

The agrocluster has characteristic features: the maximum territorial proximity, industry specialization, commonality of the raw material base and technologies, interconnected relations between participants, and a common socio-economic environment.

The positive side of the creation of agroclusters is innovation and productivity growth in agricultural production, in comparison with agricultural producers limited by location. The agrarian enterprises included in the clusters profit from the concentration of primary agricultural producers, including subsidiary, dekhkan and private farms.

There is a method for calculating the clustering potential, which reveals the sectoral competitive advantages of industries, enterprises and organizations providing infrastructure located in the region.

Methodology for assessing the clustering potential:

$$Kc=Kf*Ks*Kpi*Kpc \tag{1}$$

Kc-clustering potential coefficient

Kf-the production factor is calculated as the ratio volume of production in the region to the volume of production on average in the republic;

Ks-the regional specialization coefficient is calculated as the ratio of the share of the region in the total production of this type production to the share of the same region in the total volume of production of gross agricultural products in the republic;

Kpi-processing industry development factor calculated as the ratio of available processing capacities products in the region to the available processing capacity on average regions;

Kpc-the coefficient of per capita production is calculated by the ratio share of the region's industry in the corresponding industry structure countries to the share of the population of the region in the population of the country.

The experience of foreign countries shows the positive development of agriculture, due to the widespread introduction of agricultural clusters in countries such as the UK, Sweden, the Netherlands, Austria, Norway, the USA, Japan and others.

Based on world experience, we can conclude:
- the state plays a special role in the financing of agriculture and plays a major role in the implementation of reforms;
-development of agro-tourism;
- territorial specialization, increasing the competitiveness of agricultural products;
-creation of a research environment for the development of science and education;
-financing of scientific research in the field of agriculture;
-development of agricultural marketing.

5 Conclusion

The effective development of agricultural clusters can be achieved through the following areas:

1) Formation of a favorable business climate, which will include a system of state regulation, technology, labor resources and social conditions;

2) Support for the activities of the cluster by local authorities through the mechanisms of state regulation;

3) The purpose of the agrocluster should be innovative;

4) The creation of an agrocluster should be based on a scientifically based decision and attraction of profitable investments;

5) Agro-clusters should include farms and dekhkan farms, they play the role of suppliers of agricultural raw materials and ensure the activities of leading companies;

6) The food sector clustering mechanism includes: the choice of the resource sector, taking into account the actual and potential level of development of rural production, the choice of the main sector using matrix analysis, the calculation of the competitiveness index of the economic sector.

7) integrated use of the socio-economic and scientific and technical potential of the region, monitoring the activities of agricultural clusters;

With the implementation of these measures, it is possible to ensure the efficient operation of agriculture, reduce production costs, and upgrade production resources. The solution of these and other problems in the field of agroclustering will make it possible to stabilize the food supply of the population of the republic and the export of agricultural products in processed and unprocessed form.

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