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STUDY OF AGRO-INDUSTRY CLUSTERS IN FOREIGN STUDIES

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Abstract: Studying the theoretical and practical knowledge of foreign researchers in the organization of agro-industry clusters is very important in the development of the field. The article describes the important scientific results of cluster activities carried out by researchers working in different countries. Various models proposed by scientists for the purpose of developing the economy of the cluster in the organization of agro-industry clusters were analyzed. A summary of each country's cluster approach, functions, key levers, advantages and disadvantages are presented.
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Introduction

It is important to develop and improve the efficiency of agriculture, which is considered one of the important sectors of the economy of developing countries, to attract modern techniques and technologies to the agro-industrial complex, to increase the innovativeness of the sector, and to ensure the integration of science and education within the agro-industrial complex. After all, agriculture has always been one of the main sectors of the economy of many countries.

Agriculture occupies an important place in the economy of Uzbekistan and in the agro-industrial complex as a primary factor in providing employment to the rural population and forming the country's food reserve, as well as an important element of national economic security. Therefore, supporting the formation of agro-industrial clusters and developing their activities can become an important factor in increasing the efficiency of the agricultural sector, increasing national and regional competitiveness, ensuring employment and increasing the income of the population living in rural areas, and achieving long-term sustainable economic growth. The study of the specific features of the cluster policy, the formation and development of agro-industry clusters, especially the analysis of problems in this field, are among the current issues.

The main findings and results

The practice of using the cluster scheme in the organization of production activities is now being implemented in Uzbekistan. In many foreign countries with developed economies, its use began in the last century. In these countries, clusters were formed in almost all sectors of the economy, and their scope sometimes exceeded the borders of the countries and reached the regional and international level. Clusters have become an effective tool for regional and intersectoral integration. Therefore, studying foreign experience, using its positive aspects, researching negative experiences will help to conduct an effective economic policy in the country.

Although it was not long ago that the cluster approach to the organization of production began to be used in our country, the founders of the theory of competition abroad have been developing this direction for a long time. Among them M. Porter, M. Meskon, P. Drucker, A. Thompson, F. Khedouri, T. Brian and others are Michael Porter, the founder of the theory of using cluster schemes in competitive management. According to Michael Porter, the competitiveness of the economy of a country or region depends not on factors such as the exchange rate, interest rate, budget deficit, cheap labor, natural resources, but on production productivity. As the growth of productivity in production enterprises requires the regular development of the economy, it is necessary for enterprises of various sectors to improve the production process by increasing the quality of products, expanding consumer properties, developing technologies, and increasing production efficiency.

Cluster schemes have been proposed as a unique instrument for ensuring competitiveness, which are defined as a group of related companies and related organizations that are geographically close and operate

together and complement each other within the same industry [1]. Later, this theory was developed in the studies of F. Raines. F. Raynes's economic views on competitiveness, like M. Porter's, are mainly based on developing the quality indicators of the production process and the product [2]. In this case, the practice of creating cluster schemes was developed on the example of countries where the market economy has been operating for a long time.

Among the scientists who worked in this direction in the CIS countries, D. Belousov, D. Salnikov, D. Sivakov, T. Gurova, A. Voronov, A. Buryak can be included. They just developed M. Porter's ideas without conducting fundamental research in this regard [2].

Theoretical-methodical aspects and organizational issues of cluster organization in our country G. Zakhidov, T. Matevka, A. Osmonova, O. Todorova, D. Mirzakhalilova, Ya. Be, D. Kurbanova, D.K. Begimova, etc., were studied in scientific researches. In these studies, the cluster scheme of production organization was analyzed as an important instrument for implementing the country's regional policy and increasing the competitiveness of various sectors of the economy.

The above-mentioned researchers studied clusters in various ways, analyzed them, drew conclusions, developed proposals and recommendations within the framework of their scientific research. The results of the research were and are being used in the development and implementation of economic policies of various countries. The use of theories in practice brings out their advantages and disadvantages, and work on the shortcomings causes further enrichment of existing theories. In this process, a variety of opinions are transmitted, and one can come across different theories that contradict each other. Given that the solution of the cluster concept is a concept in the process of formation, the scientific research of scientists in this regard serves to further improve it.

Let's consider several models of state management of innovation clusters. The USA is one of the leaders among the countries that have implemented successful cluster activities. Liberal cluster activities were conducted in this country. But in the formation of clusters and their management, radically different methods and levers were used. Currently, a number of clusters called industrial or innovation centers operate in the country. The most famous of them is "Silicon Valley", where many high-tech companies operate. In the USA, the cities of Pittsburgh, Akron, Cleveland (Ohio and Pennsylvania) specialize in "clean" energy technologies, Boston (Massachusetts) - biotechnology, Austin, Dallas (Texas) - semiconductor manufacturing [3]. If in 1991 there were 9 successful cluster models operating in the USA, now there are more than 20 cluster groups. These cluster groups provide intensive cross-industry connections. This means that clusters in the USA have reached a new stage of development and the expansion of the fields of activity of enterprises and the type of products they produce is renewed.

In the US, the majority of clusters are independent and have their own system of knowledge and technology collection and distribution, or rather their own "technological network". Cluster participants have a single scientific base, which allows for internal specialization and standardization. Another feature of American innovation-industrial centers is the flexible system of small businesses, which allows the formation of "innovative growth points" within the cluster. Support and development of clusters in the USA is one of the main directions of the state economic policy. In 2011, the law "On creating opportunities for the development of technology, education and science in America" was adopted in the country.

Innovation support programs have been developed, issues of forming clusters in the regions have begun to be researched. A commission for the formation and development of innovative clusters has been established in the country. In this case, the initial capital of the cluster was allocated from the state budget, and then funds from private companies were attracted. The state provides incentives for the participants of developing prospective clusters on taxes, raw material purchase and rent of state-owned equipment and scientific laboratories. In this case, benefits are distributed by announcing contests and grants. Thus, the formation and development of clusters in the USA took place under the influence of a complex system of factors in the region - territorial location, a complex system of inter-participant relations, inter-industry relations, highly qualified labor force and state support [3].

Canada is also a country that operates a developed cluster with liberal features. A different aspect of the country's cluster activity is the establishment of innovative technological clusters. In Canada, a Scientific Research Council has been established at the federal government level to work with emerging innovation clusters based on the following strategy:

1. Organization of clusters based on existing infrastructure in the region;

2. Establishment of a research center "greenfield research center" that will become a new cluster nucleus in the region.

There are currently about 50 successful clusters in Canada. Examples of them are the Technology Cluster "Thermal Elements and Hydrogen Technologies" in Vancouver, the Technology Cluster "Nontechnologies" in Edmonton and the "Aviacosmos" cluster in Montreal [3]. In order to cover all regions, the Council has established "technology cluster initiatives" in the regions, which are managed by the regional

offices of the National Council. The main areas of activity are ensuring the growth of intellectual capital, supporting innovative initiatives, developing special programs and cooperation mechanisms between cluster participants, financing scientific research, etc. Thus, all levels of government are actively involved in supporting clusters in Canada.

Germany is a country with world-famous clusters. An example of this is the automotive cluster located in East Germany, the "Phoenix" innovation center, and the "Silicon Valley of Saxony" in Dresden [4]. The policy of "attraction" of depressed regions is carried out in the country through the development of clusters. This policy is also used by the USA and other Western European countries. Germany's technology parks and business incubators, which are established with the initiative and participation of local administrations, universities, banks and industrial enterprises, support new innovative firms. If the new firm develops successfully, they will join the technopark.

The most successful technological parks merge into technological areas, that is, into innovative clusters operating in interconnected networks in a certain region of the country. In the German cluster policy, the role of the state is to develop federal programs and direct strong entities to cooperate with emerging enterprises and regions.

The uniqueness of Austrian cluster policy is the establishment of cross-border clusters with Germany, Italy and other countries. The largest existing cluster in the country is the automobile cluster in Styria. The formation of such clusters and the coordination of their activities were carried out within the framework of the innovation-research program developed by the Austrian Institute of Economic Relations and the Austrian Research Center at the initiative of the government. The program coordinates the activities of clusters at the macro, micro and meso management levels. The cluster policy in the country is focused on the development of science and the growth of innovative potential. The Council of Technology Centers established in Austria includes 23 centers. Creation and development of innovation centers is carried out within the framework of the state program "COMET - Competence Centers for Excellent Technologies" [5]. Innovation centers in Austria can be organized based on one of the following 3 strategies [6]:

1) Establishment of centers of international importance ("K1" category);

2) Establishment of centers of state importance ("K2" category);

3) Centers established for the purpose of commercialization of individual projects and developments ("K3" category).

Thus, the cluster policy and the levers used by the state are aimed at ensuring the connection of production and science, and establishing international level clusters in cooperation with other countries.

France has several successful innovation clusters: Ile-de-France Regional Innovation Center, Ester Limoges (electronics and communications), Savoie Technolac (alternative energy sources), SYNERGIA (nanotechnologies, eco-industry), Laval Mayen Technopol technopolises (environmental protection, nutrition technology) and others. But in France, the process of clustering is somewhat difficult because the government is highly centralized. Since 1995, the region organization program has been operating in the country, which unites enterprises in a certain area into clusters.

As a result, clusters were formed in traditional branches of industry in the country and innovations were introduced in them under state management [7]. Today, in France, the main attention is focused on the establishment of communication between production and science, and the establishment of research centers within clusters. Thus, the French concept of the formation of industrial clusters is based on business cooperation under state management, where the main focus is on the development of scientific research activities, the active application of innovative technologies and developments to the production process.

The UK has a liberal approach to state management of clusters. At the federal level, the role of the state is to help coordinate and finance the process. Cluster identification and mapping is centralized and management is delegated to local authorities. The concept of local development has been introduced in the country, and local government bodies manage the activities of innovative projects and innovative entities. The peculiarity of the UK economy is that entrepreneurs are active not only in the formation of innovation clusters, but also in other economic processes.

The historically strong system of academic universities in the country also affects the clustering process. In Great Britain, since 1980, cooperation between business and higher education has been developing - agencies and networks of parks have been established under the state control of English universities that distribute technologies and transfer them to production enterprises. Such universities include the Edinburgh Center for Technology Transfer, the Stockbridge Technology Center (agriculture), the Regional Contamination Assessment and Remediation Research Center (a collaboration between the Universities of Edinburgh, Naper and Scotland) and others [8]. They occupy a central place in the structure of innovation clusters.

Small and medium-sized businesses play a key role in the Italian economy. The policy of clustering in the country is aimed at the development of entrepreneurship. All over the country, small and medium-sized enterprises are consolidating into industrial districts. Currently, more than 200 such districts are functioning effectively. Small businesses will be grouped into districts and will have some of the advantages of larger businesses. At the same time, they retain such features as product differentiation, flexibility in the marketing environment to meet the demands of the target market segment, and innovative activity typical of small enterprises. For this reason, almost all firms in Italy are grouped into districts. In Italy, the company first succeeds in its industry, has financial stability, profits and its own customers, and begins to be interested in partners in other industries.

This approach to clusters opens the door to opportunities for innovative development. The role of the state in the activities of clusters consists of attracting investors and consulting. In Finland, cluster policy began in the 1990s. Initially, the conditions for the formation of clusters and their competitive potential were studied. The main task of the National Industrial Strategy developed by the government was to coordinate and control the establishment of clusters in the main branches of industry [9]. Thus, from the first days of cluster reforms, the state took full control of the process.

Based on available natural resources, forestry (wood processing, cellulose paper), energy (environmentally clean technologies, energy efficiency), food, non-ferrous metallurgy industry, construction and healthcare sectors have become the most promising sectors [10]. A “cluster map” was developed for each network. Within each cluster, research centers were established, the purpose of which was to improve the technologies used in the network, increase the qualification of the workforce, and increase the intellectual capital of the cluster. Examples of large clusters in Finland include “Forest cluster” management research company, “Kliin” management research company (energy and environment), “Energon” renewable energy research center. The innovative development funds established in the country made a great contribution to the growth of the innovative potential of clusters, and to the increase of the innovative and communicative activity of the participants [11]. Among them, the national independent public innovation fund “Sitra” (established in 1967 under the Finnish Parliament), the “VVI” Technical Research Center, and the “Tekes” technology and innovation financing agency (established in 1983 under the Ministry of Trade and Industry of Finland) can be singled out. In 2007, OSKE (The Center Expertise Program), which manages regional innovation processes, was launched in the country [12]. Strategic Centers for Science Technology and Innovations (SHOKs) were established to achieve the goals of the program.

As a result of the centers, Finland has become a leader in the effective commercialization of innovative ideas. Innovative projects are examined by the state. Selected projects will be supported and monitored by the state for 1-3 years. The state ensures that clusters unite for the purpose of sharing experience. For example, all technology parks in the country (about 2000) are members of “TEKEL”, the Association of Finnish Science Parks.

Currently, clusters have reached a new stage of development in Finland, and their mutual integration is observed. Thus, the cluster strategy in Finland is based on the general development strategy developed by the state, which focuses on the consistent development of innovations, technologies and environmentally friendly products[13].

Japan is also following the policy of clustering. The state has a unique role in this process. In 2001, 19 clusters were established on the basis of the innovative cluster establishment program developed by the Ministry of Education, Science and Technology of Japan. These include the Japanese University of Science and Technology located in Tsukuba and the intellectual cluster (automotive engineering, robotics, etc.) located in Kitakyushu [14]. Modeled after innovation clusters in foreign countries, the Japanese government's proposed structure includes universities, research laboratories, a large enterprise (primarily) and several medium and large enterprises [15]. Based on the state policy, the main attention in clusters is focused on the development of science. But in the innovative strategy for the development of Japan, which was developed in 2010, small and medium-sized businesses were neglected. Japan’s current cluster policy is not as expected.

Although a large amount of money has been allocated from the state budget for the organization of innovative structures and clusters, an effective cluster management system has not been formed [16; 17]. The unsuccessful attempts are explained by the following:

1) In the US, the main focus is on the development of science, financial support is spent on providing research grants and building infrastructure. The Japanese government denies this necessity;

2) The government does not pay enough attention to the issue of personnel training and working with intellectual capital;

3) Low mobility of Japanese management and employees;

4) Artificial organization of innovation clusters;

5) Blindly using foreign cluster models without taking into account the mentality of citizens and the traditions of management in the country [18].

Thus, the analysis of the foreign experience of cluster activity showed that this activity was successfully implemented in some countries, while in others it led to negative consequences. In Canada, the main focus is not only on supporting innovative activities, but also on monitoring its implementation. Germany was able to organize the efficient operation of clusters and thereby develop depressed regions. In the process of studying the experience of this country, it can be seen that the federal targeted programs aimed at conducting cluster policy and developing regions have a good effect.

A positive aspect of the French experience is the successful establishment of cross-border clusters. It is a characteristic of Great Britain to ensure effective cooperation between universities and business in the formation of clusters. In Italy, small businesses need to band together to get different preferences. The uniqueness of the Finnish policy is that the cluster policy is developed separately for each branch of the economy, "cluster maps" are drawn up.

Conclusion

In Uzbekistan, cluster activities are being implemented, especially in almost all sectors of agriculture. This, in turn, will be an important impetus for the development of agro-industry clusters in our country. In the remaining areas, cluster activity is being implemented step by step. Based on this, it is recommended to pay attention to the following aspects, analyzing the experience of foreign countries:

Organization of various branches of clusters and development of the system of agro-industry clusters based on the specialization of regions;

Strengthening interdependence in various fields of production by using the foreign experience of countries with developed cluster activities;

In the process of formation and development of clusters, it is necessary to use foreign experience correctly, take into account the natural and economic geographical location of the regions and the characteristics related to the population.

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