

The Experience of International Agricultural Clusters and its Implementation in Uzbekistan

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Abstract - This article presents the agricultural cluster. Summarizing the foreign experience gained over the last ten years of the development of cluster systems, we can say that they gave a significant impetus to the development of the regions of those countries that applied their principles. The paper reviews several problems with developed support system and further development cluster system. The paper is aimed to describe the main problems and challenges and suggest their possible solutions. The purpose of this research is to investigate the existing constraints and opportunities to improve the availability and accessibility of clusters.

Keywords: Agricultural cluster, foreign experience, the development of cluster systems, the agro-industrial cluster, Agro-processing industries, the quantitative characteristics of regional clusters.

1. INTRODUCTION

Clusterization already covers more than 50% of the economies of the leading countries of the world. Clustering is seen as a new vector of development of the world-systems of capitalism. In the “Declaration on the Strengthening of Economic Cooperation in Europe” (1997) and the “Action Plan”, which details it, the formation of clusters is declared as one of the most priority areas for the development of European cooperation. This problem was the subject of discussion at the First World Congress in Paris (January 2001), initiated by the Organization for Cooperation and Development (OECD). The first large-scale cluster development programs appeared in the USA in the 1970-80s, in Denmark in the 1989-90s, in Austria, Great Britain, Japan - in the first half of the 90s, in Finland and France - in 1995. In recent years, more and more researchers and related institutes, such as policy makers, legislatures, business leaders, academics, economic development practitioners and development agencies have paid substantial attentions to industry cluster.

2. OVERVIEW

In recent years, interest in clusters has sharply increased in Uzbekistan. Numerous examples of successful clusters are known in developed countries - Germany, USA, Japan and in developing countries of Latin America, Asia, and Africa. So, for example, in the USA, where scientists began to study the principles of development of regional economies earlier than others, and M. Porter was a pioneer-developer of the cluster model, industrial clusters became very popular. The states of Arizona, California, Florida, Minnesota and others led this process and adopted relevant programs, hundreds of cities and territories developed their cluster strategies. A vivid example of a cluster is “Silicon Valley”[1]. In the states, commissions are formed to initiate the creation of clusters. Analytical work is carried out by scientific centers and universities. The commission distributes the shares of participants, helps to overcome various kinds of difficulties. The initial capital is allocated by the state, then the funds of private companies are attracted.

The agro-industrial cluster for taking place as a viable, self-sufficient, successful and effective structure, the following basic conditions are necessary:

- Initiative - initiative and influential people from among entrepreneurs, government structures, educational institutions and scientific organizations, able to rally, interest and in practice prove the usefulness of clusters both for their members and for their authority, intelligence, organizational abilities and knowledge. region
- Innovations - new technologies in the organization of agricultural production and processing, marketing, management, financing, which can open up new opportunities in the competition;
- Information - through the interaction of the parent organization with participating organizations, new information is generated, which becomes the driving force of business activity. A single information space is being formed.
- Investments - participation in new investment projects. The experience of developed countries indicates that clusters attract much more investment than individual companies.

- Integration - the production and sale of components, equipment, tools, technologies, know-how and other intangible assets created by order of the head organization of an entrepreneurial network are intended for the manufacture of competitive products and cannot be sold on the free market for wide consumers.
- Interest - provides the basic condition for the life of an entrepreneurial or social structure, which implies the presence of interest in the participants of cluster associations and their receipt of certain economic benefits.

Initially, a unified approach to intercompany cooperation was developed in Denmark in 1989-1990. At the first stages, industrial complexes were investigated in four sectors: agriculture, textile production, production of office equipment, and environmental protection products. Then, the mechanisms of knowledge and technology transfer in three sectors were analyzed: electromedical equipment, furniture, and pharmaceuticals. It is known that in Denmark the agro-industrial complex in terms of production exceeds all other sectors of the economy combined and is the key from the standpoint of the consumer market and investment potential. A special role is played by the “milk vertical” from milk processing to suppliers of technology and equipment. The Danish Business Development Council, which is responsible to the government for developing the concept of clustering, has initiated a number of new developments in this area. The studies included the Ministry of Business and Industry, the Ministry of Research, the Ministry of Education, the Ministry of Labor, etc. In 1992, 40% of all firms in the country participated in clusters, which provided 60% of exports. In 1997, it was noted in the annual report that 513 analysts from firms, organizations, institutes, and ministries took part in the studies, which were combined into 35 working groups specializing in specific sectors. They issued 1522 proposals, of which 66 have already been implemented. Changes were required in the legislation, administrative structures, and budget allocations of ministries. The work carried out over a number of years has brought Denmark to the world leaders in clustering the economy. Today, there are 29 leading clusters. [2]

The Austrian economy gained high growth rates, where cross-border clusters with Germany, Italy, Switzerland, and Hungary began to operate, and relations with France and Great Britain intensified. Austria has developed its own version of economic policy, where the cluster approach has taken an important place. The key factor was the policy of stimulating the development of ties between research institutes and the industrial sector, the reduction of regulatory barriers in innovative programs, the specialization of clusters and the formation of centers of competitiveness.

In America, corn productions are mainly concentrated in the Midwest. At the same time, it is the biggest corn industrial area in the world. Since 1940s, the Midwest of America has become the main areas producing corns. Now the productive areas include about 15 states, from Minnesota to Texas and from Colorado to North Carolina. The planting areas and gross production there are both about 80% of the whole country. There are 5 states in which the productions are nearly 2/3 of the whole country. The corn industry impacts on animal husbandry. 2/3 of American pigs feeding and 1/4 of meet cattle are in the corn cluster. All these advance economic status and agricultural competitive strength of this corn industrial area in the global world. Meanwhile, soybean, grape and cotton all show cluster trend in America, especially the typical wine clusters in California. California accounts for about 90% of all US wine production (OVI 2006). The California wine cluster centered around the Sonoma, Santa Clara and Napa Valley and the University of California at Davis (Andrea Migone & Michael Howlett, 2010). This is a cluster with both vertical and horizontal links among its actors. It includes more than 680 commercial wineries and thousands of independent wine grape growers. They are at the core of the process in California and upon them hinges a broad set of companies and institutions, including suppliers of grape stock, irrigation and harvesting equipments, barrels, and labels; specialized public relations and advertising firms; and quantities of wine publications aimed at consumer and trader, which provide the winemakers with services and goods in both the upward (viticulture) and downward (winemaking) stages of wine production. A lot of local institutions, such as the world famous viticulture and enology program at the University of California, Davis, the Wine Institute, special committees of the California state senate and assembly, are all involved in this cluster figure 1) (Machael E. Porter, 1998). Moreover, this wine cluster also connects with three other industry clusters: the agriculture, food and catering, and wine country tourism (Machael E. Porter, 2000).

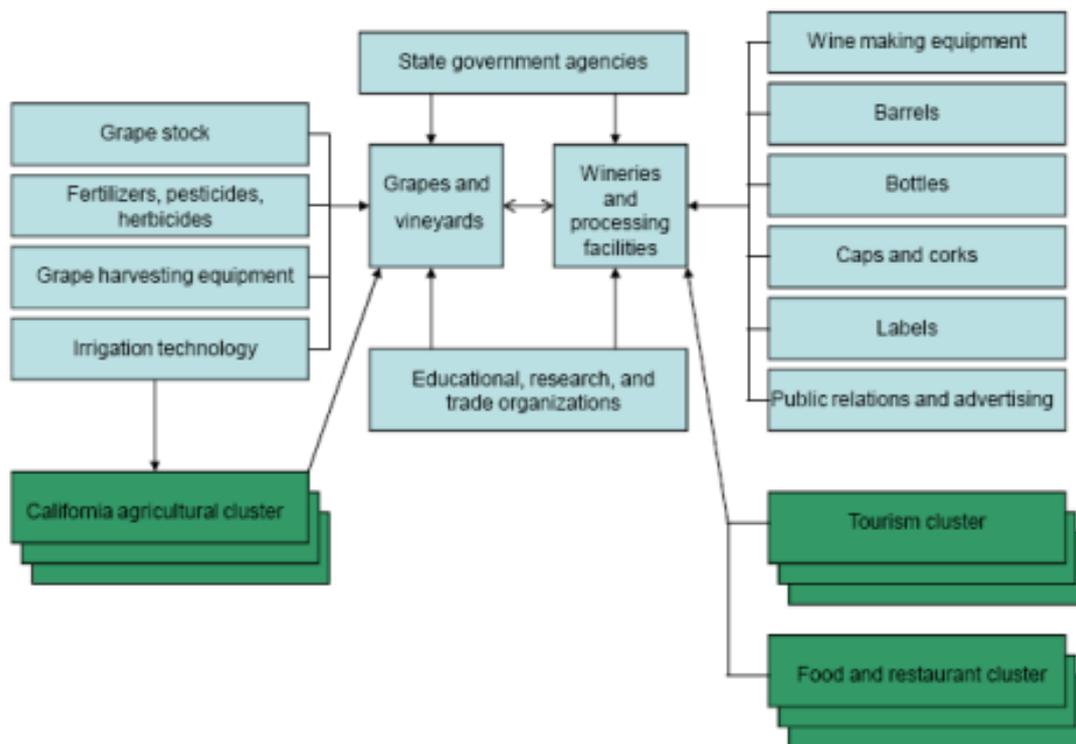


Figure 1. Diagram of the Wine Cluster in California Source: Michael E. Porter, Clusters and the new economics of competition, Harvard Business Review

American agricultural cluster has become more and more mature after decades of development. Its maturity benefits from two main aspects: on one hand, America has formed agricultural cluster centering on processing or sales enterprises. This cluster possesses high efficient organizational system which integrated with producing, supplying and marketing. Agro-processing industries, business and agricultural cooperative constitute the body of the cluster. Food processing is the biggest one among manufacturing industry, and agro-processing is the dragon-head of agricultural cluster. On the other hand, the system of law and statute insisting on agriculture and rural socialized service system are growing to perfection. American agricultural policies aim at increasing peasants' income. In last century, the government issued a series of agricultural industrial measures, including insisting the link of production policy, insisting agricultural foreign trade policy and agricultural insurance, etc. The implementations of the policies are specifically through a variety of measures, for instance, stabilizing prices of agro-product, expanding financial expenditure on agriculture, and increasing subsidies for farmers. [3]

Experts put forward two main models, within the framework of which cluster policy is implemented in various countries - liberal and conducting. Obviously, there may exist a third model of cluster policy, which would be a combination of the first and second models. We will call this model combined. At the same time, some researchers propose to call this model of cluster policy reflexive. It seems that the term "combined" cluster policy is simpler and more logical, stemming from its essence. Therefore, we prefer the term we offer. Thus, cluster policy can be classified into three types: liberal, conducting and combined. Logically, this classification implies the need to consider agrarian clusters in the formed conditions of three possible models of cluster policy: liberal (USA), conducting (Denmark), and combined (Germany) [4]

Table 1 - Overview of the results of national studies on the identification and mapping of clusters in a number of countries

Western Europe

Country	Cluster Identification Criteria	The number of detected clusters	Relevance clusters	Cluster development in the national income	Global Competitiveness Rating 2009-
AUSTRIA	- Customer orientation, horizontal and vertical relationships; - Determination of competitiveness at the international level.	16 industrial clusters	-	-	17
GREAT BRITAIN	Interviews with scientists and representatives of the private sector, concentration of specialized labor.	154 (potentially) regional clusters	40% of total employment in London and 15% in the north-west of the		13
DENMARK	A survey of 75 experts, quantitative indicators of the growth of firms and export specialization.	13 regional competent and 16 national	-	Probably the best option	5
NORWAY	- cover the labor market; - specialized labor market.	62 out of 55 regional clusters belong to industrial sectors	22% of the country's employment rate	Higher level of employment in comparison with similar firms	14
FINLAND	Data on export relations and investments, research by industries.	9 key national clusters			6
SPAIN	The local concentration of small and medium-sized businesses, where Firms collaborate on supply problems to common customers, have common cultural values.	142 local industrial systems			

ITALY	Industrial areas are local labor systems: - have more jobs; - specialized in industrial sectors; - - have a high concentration of work force.	199 industrial areas	42.5% of the total number of jobs in the country.	The profitability of companies in industrial areas is on average higher than in identical firms in the country.	48
NETHERLANDS	Studying the relationship between suppliers of goods and services and their customers.	12 major conglomerates of interconnected industrial sectors.	About 30% of the total production of goods	-	10
PORTUGAL	Industrial areas with export specialization.	33 regional clusters	-	Heterogeneous development, but clusters have a high potential for strengthening their positions.	43
FRANCE	The local production system is characterized by: - small and medium-sized businesses belong to one and different business sectors; - firms collaborate and compete; - the presence of supporting firms; - Uniform cultural norms and traditions.	114 existing local production systems and 82 under construction.	-	In general, local production systems are marked by a higher level of growth than the national average.	16

Table 1 summarizes the results of studies of the quantitative characteristics of regional clusters in several European countries on the identification and mapping of clusters. These data are of scientific interest not only because they characterize the extent of clustering, but because they reveal some possible criteria for identifying clusters, and to some extent determine the effectiveness of clustering in the sense of ensuring the growth of competitiveness of the countries of the world. The results of studies of the quantitative characteristics of regional clusters are based on different theoretical approaches, identification methods and criteria, vary widely and are not always comparable. It seems that the criteria for identifying clusters given in table 1 can be used to identify clusters in Russian conditions. For example, as in Denmark, experts may be used, but there may be cases where experts will be absent and other methods and methods will have to be applied. Distracting from specific conditions, the following can be used as criteria: indicators characterizing the concentration of any factors, resources (capital, labor, other local resources, etc.), a share in exports, a share of a controlled international market, research connections between participants in potential clusters, etc. [5] In general, it can be concluded that the application of a particular identification criterion depends on specific conditions.

Naturally, questions arise. How effective is clustering? And how can you evaluate this effectiveness? As one of the indicators of clustering efficiency, we offer indexes and a rating of global competitiveness (Table 1). The global competitiveness rating indicates that clustering was most effectively carried out in the countries of Northern Europe (Denmark - 5th place, Finland - 6th, Norway - 14th, Sweden - 4). In general, these countries form a kind of cluster of the most competitive countries in the world. Considering that Denmark is a country with highly developed agriculture (2/3 of agricultural products of this country are exported), we will take Danish agriculture as one of the objects of in-depth study of clustering.

An analysis of the data in Table 1 allows us to draw the following conclusions: use, as the guidelines given in the table, the criteria for determining specific criteria for identifying clusters in relation to certain real conditions; to study the clustering of agriculture in Denmark as one of the countries that has achieved significant success in ensuring the high international competitiveness of the agricultural sector.

3. CONCLUSION

In general, a study of the formation of clusters in agrarian foreign countries allows us to draw a number of conclusions:

- Denmark has most successfully implemented country since the beginning of the 90s. XX century cluster policy, incl. in the agricultural sector, and has reached a high level of international competitiveness of agriculture, ensuring the flow of significant foreign exchange earnings. Therefore, as one of the objects of in-depth research, the macro cluster of Danish agriculture was chosen, so Uzbekistan has a potential for macro clusters like Denmark and should obtain this experience and implement ;
- agrarian clusters in the economies of the developed countries of the world (USA, Denmark, Germany) are integrated formations that have a specialized multifunctional orientation, as a main direction, they produce a certain type of agricultural production and, at the same time, related types of products and services. Uzbekistan has some certain type of agricultural production that can specialize for cluster system. This leads to a certain diversification, including agriculture, and increasing its competitiveness. ;
- Innovation clusters are the most effective form of increasing competitiveness; therefore, the formation of innovation clusters should be provided for in the system of agricultural clusters in a region. But in Uzbekistan innovation clusters play insignificant role in economy.

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