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CLUSTER APPROACH TO THE DEVELOPMENT OF REGIONAL AGRO-INDUSTRIAL COMPLEX BASED ON THE MATERIALS OF AKMOLA REGION

**АҚМОЛА ОБЛЫСЫНЫҢ МАТЕРИАЛДАРЫНДА АЙМАҚТЫҚ
АГРОӨНЕРКӘСІПТІК КЕШЕНДІ ДАМУҒА КЛАСТЕРЛІК КӨЗҚАРАС**

КЛАСТЕРНЫЙ ПОДХОД К РАЗВИТИЮ РЕГИОНАЛЬНОГО АГРОПРОМЫШЛЕННОГО КОМПЛЕКСА НА МАТЕРИАЛАХ АКМОЛИНСКОЙ ОБЛАСТИ

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Abstract. The role of cluster policy aimed to improve the effectiveness of regional development of Akmola region is presented. The specifics of regional clusters are highlighted in accordance with the theoretical concepts of cluster theory. The main factors affecting the activities of regional meat cluster are identified. On the basis of indicators characterizing the efficiency of meat industry of the republic, the coefficients of localization, specialization and per capita production are

calculated, indicating the possibility of its formation in the territory of Ak-mola region. The advantages of clustering of regional economy at micro and macro levels are presented. It is shown that the growth of production efficiency is possible only through the formation of a regional cluster. The authors proposed a cluster model based on the example of the livestock complex of Ak-mola region, its main elements -are the cluster core (breeding farms, reproduction farms, private farms, feedlots, slaughterhouses), service structures, feed preparation enterprises, logistics and transport. The participation of these enterprises in the cluster is justified, their role and importance in the proposed model are defined.

Аңдатпа. Ақмола облысының өңірлік дамуының тиімділігін арттыру үшін кластерлік саясаттың рөлі көрсетілген. Кластерлік теорияның теориялық тұжырымдамаларына сәйкес өңірлік кластерлердің ерекшеліктері бөлінген. Аймақтық ет кластерінің қызметіне әсер ететін негізгі факторлар анықталды. Республиканың ет саласының тиімділігін сипаттайтын көрсеткіштер негізінде Ақмола облысының аумағында оны құру мүмкіндігін көрсететін оқшаулау, мамандандыру және жан басына өндірісінің коэффициенттері есептелген. Микро және макродеңгейлерде аймақ экономикасын кластерлеудің артықшылықтары ұсынылған. Өндіріс тиімділігінің өсуі өңірлік кластерді құру есебінен ғана мүмкін екендігі көрсетілген. Авторлар Ақмола облысының мал шаруашылығы кешенінің мысалында кластер моделін ұсынды, оның негізгі элементтері – кластердің ядросы (асыл тұқымды шаруашылықтар, репродукторлар-шаруашылықтар, фермерлік шаруашылықтар, бордақылау алаңдары, мал сою цехтары), қызмет көрсететін құрылымдар, жемшөп дайындау кәсіпорындары, логистика және көлік. Бұл кәсіпорындардың кластерге қатысуы негізделген, олардың ұсынылатын модельдегі рөлі мен маңызы анықталған.

Аннотация. Отражена роль кластерной политики для повышения эффективности регионального развития Акмолинской области. Выделены особенности региональных кластеров в соответствии с теоретическими концепциями кластерной теории. Выявлены основные факторы, влияющие на деятельность мясного регионального кластера. На основе показателей, характеризующих эффективность мясной отрасли республики, рассчитаны коэффициенты локализации, специализации и душевого производства, указывающие на возможность его создания на территории Акмолинской области. Представлены преимущества кластеризации экономики региона на микро- и макроуровнях. Показано, что рост эффективности производства возможен лишь за счет создания регионального кластера. Авторами предложена модель кластера на примере животноводческого комплекса Акмолинской области, его основные элементы – ядро кластера (племенные хозяйства, хозяйства-репродукторы, фермерские хозяйства, откормочные площадки, убойные цеха), обслуживающие структуры, предприятия по заготовке кормов, логистика и транспорт. Обосновано участие этих предприятий в кластере, определены их роль и значение в предлагаемой модели.

Keywords: agri-industrial complex, clusters, regional development, livestock production, specialization, localization, logistics, transport, forage procurement.

Түйінді сөздер: агроөнеркәсіптік кешен, кластерлер, аймақтық даму, мал шаруашылығы, мамандандыру, оқшаулау, логистика, көлік, жемшөп дайындау.

Ключевые слова: агропромышленный комплекс, кластеры, региональное развитие, животноводство, специализация, локализация, логистика, транспорт, заготовка кормов.

Introduction. Research of a role of cluster policy in improving competitiveness and ensuring a sustainable development of the regions, research of such issues as formation and development of the clusters in modern times are very urgent.

Currently, cluster development is a recognized tool that facilitates sustainable innovative development and improvement of competitiveness of the region agriculture and agrarian complex as a whole. Using the cluster form of arrangement of agricultural activi-

ties is provided in a wide range of legislative, regulatory and program documents, which include: Decree of the Government of the RoK No.633 dated June 25, 2005: "On Approval of Plans on Creation and Development of Pilot Clusters in Priority Economic Sectors" [1], Address of President of the Republic of Kazakhstan N.Nazarbayev to the people of Kazakhstan dated December 14, 2012 "Kazakhstan 2050" Strategy: New Political Course of the Developed State" [2].

In 2013, the Government of the Republic of Kazakhstan under the Order of the Head of State N.A. Nazarbayev developed the "Concept of Formation of Perspective National Clusters of the Republic of Kazakhstan till 2020". The Concept reflects the goals, objectives and areas of development of the national clusters of the Republic of Kazakhstan with due consideration of the "Kazakhstan 2050" Strategy: New Political Course of the Developed State". This Concept has been designed to develop institutional, methodological, organizational frameworks for development of the perspective national clusters, their educational, infrastructure and personnel support [3].

So far, the issues of improving efficiency and competitiveness of the agricultural enterprises based on a cluster approach have become much more urgent. This is due to the fact that currently the clusters have been developed in many countries of the world, regardless of a level of agriculture development.

Material and methods of research. For researching of the animal husbandry sector in Akmola region for possible establishment of a cluster, Yermishina's methods have been used which includes the following three stages [Ik.1]:

- quantitative analysis of the competitive sustainability, i.e. determination of a market position of the regional sectors;
- qualitative analysis of an availability and a structure of the resource base necessary for competitiveness of the regional enterprises in certain areas, i.e. the conditions of competitive sustainability;
- identification of those specific economic sectors where it is possible to achieve the competitive advantages of the regional enterprises, i.e. analysis of clusters.

Quantitative analysis of the competitive sustainability of meat sector in Akmola region specifies the following indicator:

- localization coefficient;
- per capita production coefficient;
- coefficient of regional specialization on this area.

According to the Yermishina's methods, if an estimate indicator is more than 1, then the area being under research (cattle meat production in our case) can be a basis for cluster establishment. Indicators for meat sector of Akmola region, namely: localization coefficient, per capita production coefficient and specialization coefficient, all are more than 1. Thus, we can make a preliminary conclusion about possible establishment of the meat cluster in Akmola region.

Results and their discussion. The regional cluster acts as a tool, since it promotes

development of the region, develops special favorable environment for development of small, medium and large business and has a multiplier effect which both have a positive impact on agricultural development and promotes increasing a level and quality of life of people in the region.

The following features of regional clusters are identified:

- any leading firms able to have a significant share in domestic and foreign markets, added by designated service organizations;
- concentration of the cluster participants within the restricted area which has unique benefits;
- interaction of the cluster participants among each other to release products being competitive in the domestic and foreign markets;
- competitiveness among the cluster participants;
- prompt diffusion of innovations through the developed data transmission network [4].

In accordance with identified features, it is proposed to specify *the regional cluster* as a group of geographically and technologically interrelated competitive enterprises to be combined for release and sale of products or services based on continuous innovative process and, thus, mutually promoting a growth of competitiveness of each other.

Akmola region, among main factors that have an impact on development and establishment of the meat regional cluster, can specify the following:

- geographic concentration and proximity: key cluster participants, so called core of cluster – feed yards, feed mills, meat packing plants are located within the geographic proximity to each other and have the opportunities for active interaction;
- any competitive advantages in the region: advantageous geographic position, access to the raw materials, highly qualified human resources, specialized educational institutions and research institutes;
- competitive enterprises, industry export orientation;
- active implementation of the state programs on development of animal husbandry export capacity.

Sales market: proximity to Astana and to the border areas of Russia.

Geographic location of the region and agricultural climatic features significantly impact on establishment and development of the cluster. Akmola region located in the center of Eurasia borders with several Kazakhstan

regions and today is one of the largest investment attractive regions of the North Kazakhstan [5].

Table 1 shows indicators that describe the meat sector of Akmola region. These indi-

cators calculated by an author according to statistics of Akmola region show a possible establishment of the meat cluster in this region.

Table 1 – Indicators of establishment and functioning of the clusters in animal husbandry sector

Estimat coefficients that confirm a possible establishment of a cluster	Akmola region
Localization coefficient	3.33
Specialization coefficient	1.85
Per capita production coefficient	1.25

If coefficients of localization, specialization and per capita production are equal or more than one, these activities are types of market specialization and they either have the clusters or their establishment is possible [6].

The main goal of cluster establishment is to improve production performance through achieving the maximum economic effect by increasing output of included enterprises and related organizations operating in the certain field, featured by community of activities and complement each other.

The authors proposed model of the regional animal husbandry cluster in Akmola region (figure).

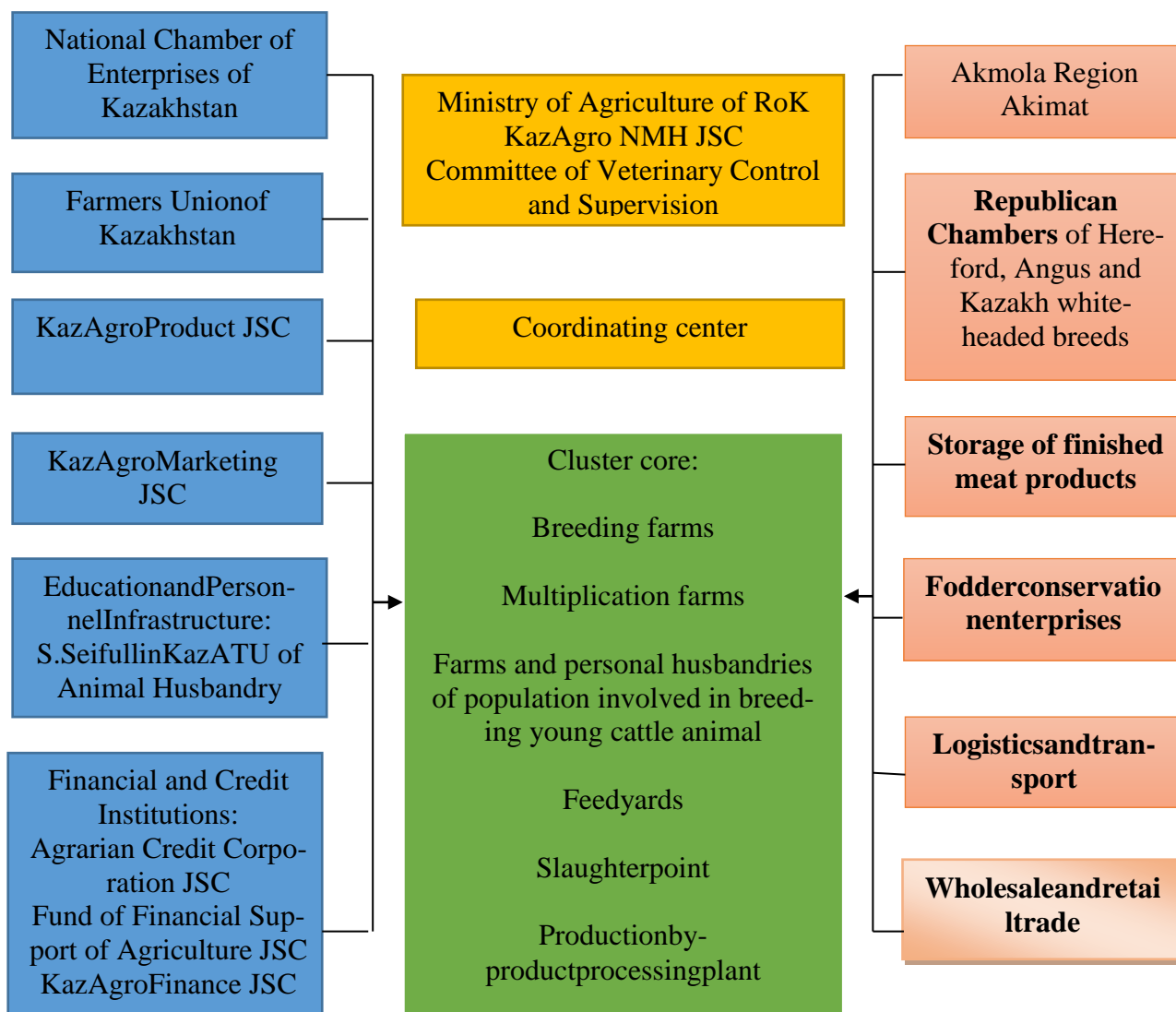


Figure – The model of the regional meat cluster

The proposed author's model of cluster has the following elements which functions include as follows:

1. *Participation of the state* in cluster shall be performed through the interaction of the enterprises with the ministries and agencies. The main government institutions and agencies include the Ministry of Agriculture, Akimats, tax and customs authorities, standardization and certification authorities, sanitary and epidemiological and veterinary services.

Role of the state shall come down to ensuring a possibility of clustering development. The Government should concentrate its efforts on joining activities on establishment of clusters into the general economic strategy based on improvement of conditions for performing activities in the country as a whole [7].

2. *Control of quality* of produced meat raw materials in the region, as well as meat to be processed in meat packing plants and sausage making shops of Akmola region from outside (from other Kazakhstan regions) is planned to be entrusted on the Committee of Veterinary Control and Supervision.

It is supposed that all beef farming cluster entities will be closely interconnected on the principles of cooperation, that finally allows producing high-quality meat and processing its products being competitive in the market. All relations between the farms, feed yards and breeding farms shall be on the contractual basis and governed by the Cluster Coordinating Center.

3. *Cluster Coordinating Center (Council)* will be the permanent consultative expert advisory authority. The main purpose of activities of the *Cluster Coordinating Center* is establishment and development of an intercluster relations system that allows using resources of the cluster participants to obtain sustainable competitive advantages.

Composition of the Cluster Coordinating Center consists of the cluster entrepreneurs, public authorities, and local authorities [8].

4. *Meat raw materials producers* in the regional cluster model are agricultural producers of various forms of farms involved in cattle breeding and fattening. Formation of the cluster core is based on a specific product and its producer, and all necessary communications on production of specific product on an innovative basis shall be performed with direct participation of the state and its regulation.

The proposed cluster model combines the enterprises involved in production of raw materials and finished products. This combination will promote cooperation of agrarian

and processing enterprises, science and the state.

The supported cluster sectors (*cluster infrastructure*) will be the enterprises involved in fodder conservation and production, research institutes responsible for development of new high-productive breed, training centers, universities, financial organizations that support the commodity producers.

5. *Financial institutions*. Financial support of the agricultural producers is provided by the subsidiaries of KazAgro National Holding – Fund of Financial Support of Agriculture JSC and Agrarian Credit Corporation JSC.

6. *Information support*. Since 2011, KazAgroMarketing JSC has been participating in implementation of the project "Development of Export Capacity of Cattle Meat". As part of this area of activities, the company provides the consulting services for agrarian complex entities, including on the issues of receiving the loans through the financial institutes of KazAgro Holding, conducts field appraisal on the results of projects, and performs general and coordination of the project.

7. *Research institutes, universities*. The mandatory condition for functioning of the cluster is a scientific support of a production process.

From our point of view, among others problems in agriculture there is a problem of qualified personnel involved in rural areas. This is caused by reduction of a number of secondary vocational schools where these specialists are trained. Therefore, the educational segment of the proposed cluster will be aimed at providing the sector with middle and lower personnel, agricultural specialists.

Thus, by summarizing I would like to note that establishment of the cluster means a mutually beneficial cooperation of all business entities aimed at production of quality products. Functioning of the proposed cluster in the region is focused on respect of the interests of all cluster participants, from meat producers to consumers. The main condition is production of both quality and inexpensive products. Decreasing cost of products and, accordingly, its cost in the market is possible subject to decrease of expenses related with fodder when producing cattle meat. It is possible first on the specialized feed yards (through an effect of the production scale), second subject to interaction of science and production.

Meat regional cluster to be developed in Akmola region may have an impact on competitiveness in the following areas:

- increase in labor productivity at the enterprises included in the cluster;
- creation of prerequisites for development of innovations and economic growth;
- saturation of both domestic market with meat products and entrance to the world markets;
- stimulation of establishment of new business [9].

As a result, the developed cluster model of the meat regional cluster in Akmola region is oriented on improvement of competitiveness of the animal husbandry sector in the regional economy. Functioning of the cluster, under which it is possible for the science, business and the state to cooperate, may have an effect both for enterprises included in the region and for the region as a whole. Synergy describes a possibility to have a more economic effect as a result of combination of elements than from activities of separate elements. Thus, the establishment of the cluster in Akmola region will result in spreading this effect on the region as a whole and on enterprises participated in the cluster.

For enterprises that release the products, an effect will be in product differentiation, sales of products at the agreed prices, product sales guarantee.

For *scientific institutions* – the public contracts for new researches in the field of animal husbandry, veterinary, economy of agriculture, aimed at development of new improved ration of feeding, improvement of genetic capacity of the existing breeds and development of new lines, elaboration of recommendations on product promotion, etc.

For *educational institutions* – order for training of personnel, specialists for work at the cluster enterprises.

For the region, establishment of the cluster will lead to the following effects:

- meat cluster products enable entering new markets, which will result in enrichment of the region, and it will, in turn, have an impact on development of other sectors of Akmola region;
- increase in profitability of the enterprises will result in improvement of their competitiveness, and as a consequence of competitiveness of the region;
- an existence of the cluster in the region will result in its branding, those, increasing investments in the region [10].

Establishing this cluster is one of the areas for solving the main problems of the animal husbandry sector in the Republic. Studying the global experience of clustering enabled to define a term “regional cluster”, describe the

cluster models proposed by domestic and foreign scientists.

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