Some features of forest cluster management

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Abstract. The article addresses the problem of effective management of forest industry cluster. Cluster is a promising organizational form in the industry. However, creating a cluster is a difficult task. The article shows the need to create a single governing body. The principal structure of the cluster and its main elements are highlighted.

1. Introduction

In the structure of the Russian economy there are three main forms of business organization: large, medium and small-scale production. The first group is represented by the most powerful and economically wealthy enterprises. They determine the main directions of the state economic policy. The second group brings together fairly large participants in the business, but at a more local level. Small business is the most numerous (by the number of enterprises) and the most vulnerable link in the economy. The successful functioning of all forms of business at various levels gives the economy of any country the complexity and effectiveness of development. One of the methods for achieving such goals is the cluster strategy of economic development [1]. It implies the creation and integrated development of geographically neighboring interconnected companies (manufacturers, suppliers, consumers, etc.) and related organizations (educational institutions, government bodies, infrastructure companies). These enterprises operate in a specific area and complement each other [2]. However, alternative variants of integration processes are also possible: strategic alliances, contract manufacturing under a foreign brand, etc. But the clusters are currently the most successful form of association of enterprises all over the world. This determines the interest in them for the successful development of industries in Russia [3].

Analysis of the factors of development and the formation of such clusters in Russia indicates the need to take into account the peculiarities of regional and local (local, urban) development. According to its structure, a significant part of Russian cities is characterized by mono-production. They are dominated by one or two large manufacturers. They provide revenues to the budget, jobs and the economic well-being of the city and region [4]. Thus, the existing organization of the country’s economy contributes to the creation of economic clusters based on such mono-production. Classical examples of successfully functioning clusters are the technology cluster in Silicon Valley, the Italian footwear cluster, the Finnish wood processing cluster, etc. Creating a cluster in Russia will require a significant change in the existing domestic forms of production, management, marketing, innovation, interaction with all participants in the process. This is necessary for the implementation of the cluster approach:

- increase in the number and type of organizations involved;
- increase the list of goods, services and information produced;
- improving the efficiency of the use of internal and external resources.

One of the promising industries in this direction in Russia is wood processing. It is able to transform into a cluster in the near future [5, 6].

2. Material and methods
The objects of research were wood processing enterprises of the Krasnoyarsk Territory area with the main center in Lesosibirsk city. The main methods used were analysis, statistical and mathematical planning, modeling, standard forecasting methods, etc. The study used data from statistical and accounting reporting of timber industry enterprises of the Krasnoyarsk Territory. The theoretical base was the development of domestic authors in the field of creating cluster structures.

3. Results
The current state of the global wood processing industry is characterized by the increasing production of high-tech products. Its important element is the maximum involvement of woody biomass in technological processes. However, at present the Russian forestry complex is characterized by a serious lag behind the leading countries in this field. The main problem of domestic timber processing enterprises is the lack of significant financial interventions on the part of potential investors (government, large foreign and Russian business) for the introduction of modern technologies, expanding the range of products, switching to low and waste-free production. Morally obsolete technologies, physically obsolete equipment, high production costs determine the low utilization of raw wood and secondary resources. At the same time, deep processing can significantly improve the economic situation of enterprises [7].

The Lesosibirsk forest industry complex is characterized by similar problems. As a result, it is proposed to form a timber industry cluster at its base (Figure 1).

One of the main directions of its development should be the processing of secondary wood resources. At the same time, the current areas of production will be significantly expanded. Its leading enterprises should be:
- functioning large wood processing plants: Lesosibirsky LDK No.1 (“LDK No. 1”), JSC “Novoyeniseiskiy Wood-Chemical Complex” (“NE”);
- planned in the near future pulp and paper production;
- promising in the creation of hydrolysis production.

The main suppliers of raw wood in the cluster are small and medium-sized private logging, wood processing and timber chemical enterprises of the Lesosibirsk timber industry complex, their own forestry [7].

The Central Council of the Cluster implements the main functions of coordinating and managing the activities of enterprises, their interaction and making informed decisions. It includes representatives of all Cluster organizations [8]. The duties of the council are to fully protect the interests of all Cluster members in government bodies, industrial and infrastructure organizations, etc.
Figure 1. The scheme of interaction of enterprises in the proposed forestry cluster of the Krasnoyarsk Territory [7].

The structure of the council consists of four divisions (working groups): economic; production and technology; environmental and social. Each of them coordinates the work of the enterprises in the cluster on the corresponding list of issues.

The economic department performs the functions of the economic justification of decisions made by the Cluster Council. Thus, the main responsibilities of this structure are: selection and search for optimal solutions for the use of cluster resources (financial, raw materials, labor, etc.), attraction of resources from external sources, economic justification of measures implemented in the cluster, etc.

The technological development department is responsible for the introduction of advanced technologies in the field of timber production and related fields in the cluster enterprises. It interacts with scientific organizations in the region and the world, determines the technical solutions necessary for implementation, and concludes agreements with third-party organizations for their development and implementation.

The Environmental department is responsible for monitoring and preventing the Cluster’s excessive environmental impact. Its role will increase with the creation and expansion of the activities of the pulp and paper mill and wood chemical enterprises. Their activity can cause significant damage to nature [9].

The Department of social affairs is responsible for ensuring that the staff of the cluster enterprises have proper working conditions, develops and monitors the degree of implementation of the policies of individual organizations and the entire cluster in the field of social security and support.

The main tasks of the Council and its departments [10]:
1. Attracting investment,
2. Improving the speed and quality of communications within the cluster,
3. Providing assistance to enterprises in choosing prospects for the development and use of their existing capabilities,
4. Infrastructure development,
5. Representation and protection of the interests of cluster members at various levels,
6. Development and implementation of mechanisms for interaction of cluster members,
7. Commercialization of advanced developments in the field of timber production and related fields,
8. Implementation of social, educational, economic and other programs,
9. Creating a single resource field for cluster members.

Successful implementation of all tasks will increase to get good financial results. Success and failures extend to all Cluster members. Competent management is the key to success for all enterprises. Management relies on key functions: planning, organization, motivation and control (Figure 2).

**Figure 2.** Tasks and Results of Management Processes in a Cluster.

### 4. Discussion

The most important and complex aspect of the functioning of a cluster is the division of costs, economic results and responsibility between the participants. This question is the most debatable. Based on the study, two options are proposed for distinguishing rights, duties, costs, and profits from the Cluster’s activities [11]:

1. The composition of the departments and the central council is formed in a free form. It consists of specialists independent of commercial structures. This leads to minimization of the influence of individual enterprises on the management and operation of the Cluster. The costs of providing management are evenly distributed among the cluster members (or as a percentage of the total annual performance results).
2. Formation of management structures and services occurs at the expense of employees of the Cluster enterprises. The main factor is their contribution to gross output. Large enterprises have
greater representation in the Cluster Council. However, they carry increased costs to maintain its functioning.

5. Conclusion
The research identified the key aspects of the formation of timber cluster. In particular, creation of Lesosibirsk industrial centre would need the following [12]:
- development of a network of competitive small and medium-sized enterprises for processing of wood waste;
- improvement of investment policy in the Krasnoyarsk territory;
- creation of a target regional credit program for small and medium-sized businesses in the forestry sector;
- development and implementation of long-term development plans for all enterprises of the cluster;
- building an effective structure of relations between enterprises of the cluster based on economic relations and basic principles of corporate culture;
- development of research and development (R & D) component and others.

The main directions in the formation and development of enterprises in the Lesosibirsk city as the main part of the timber cluster is the organization of infrastructure and integrated efficient processing of raw wood material. The cluster organization can significantly improve the economic and social situation in the region. This will be one of the key factors in the modernization and development of regional economy. In particular, creation of hydrolytic production (processing of sawdust using related products and wastes) contributes to the significant development of the cluster. However, comprehensive state support is the most important factor in the development of large industrial structures. This issue must be considered. Efforts should be directed not only to the support individual enterprises and industries. It is necessary to develop relationships: between suppliers and consumers, between end users and producers, between producers themselves and government institutions, etc. [13]. It is also necessary to conduct an economic justification of all elements, planned for the implementation of measures.

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