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STUDY OF TERRITORIAL TIMBER INDUSTRY DEVELOPMENT: PRACTICAL ASPECT OF CLUSTER APPROACH

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Abstract

The advantages of the territorial production cluster model are opportunities to use the potential of interaction not only with suppliers and with consumers of the cluster group products, but also with other stakeholders of the regional and municipal development (local population, state government bodies, local authorities). To determine the goals, tasks, and priorities of the cluster development, the diagnostics of its activity has been carried out and the main problems have been identified. The SWOT analysis of the cluster activity has shown competitive advantages and limitations hampering the development of forestry enterprises. For further growth, the most serious problems need to be eliminated. The research shows that the Arkhangelsk Region as a major dedicated timber industry center holds the significant potential for clusterization: infrastructure, notable experience of operations within integrated structures in the past (timber production association 'Arkhangelsklesprom'), differentiated labour supply, local trade between firms, technology and innovation transfer; a high degree of outsourcing, etc. The timber complex has a prominent place in the regional and national economy. The production facilities account for 9 per cent of the Russian commercial timber output, 8 per cent of sawn wood, 31 per cent of pulp cooking, 29 per cent of cardboard.

Keywords: Timber industry , Russian North, Arkahngelsk, cluster approach, territorial production efficiency.

1. Introduction

Following the reform of the centrally planned economic system as a result of the weakened state influence on economic dynamics, control of economic sectors decreased. In the given circumstances, an essential task for the economic development is restoring the lost economic relations and establishing new systemic horizontal and vertical economic ties, which comply with the digital society conditions to boost economy (Rozhkov, 2009). Clusters are able to ensure maximum sustainability of the regional economy and build its competitive advantages based on synergy in sales of products; operational control; finance and investment activities; management. Establishing regional clusters is a global trend. A cluster improves the efficiency of enterprises within the sector, decreases costs, enables technology transfer, retains innovations, boosts personnel potential within a given area (Churkina, 2011).

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2. Problem Statement

While digitizing the Russian Federation in the current period of the economic mechanism institutional transformation, the economic diversification of the regional timber industry economic activities should be paid special attention to, which is an important prerequisite for establishing and forming the balanced forest management in general. The study of the overseas and domestic experience related to cluster system development would resolve economic, environmental and social problems of regions to the fullest extent, stabilize the stakeholders' economic activities (in the crisis conditions), create jobs, increase salaries; focus every cluster participant on the market needs; improve the economic efficiency of the cluster members; facilitate access to brand new technologies, innovative production organization methods, as well as professional training (Pugoev & Nikolaychuk, 2017).

3. Research Questions

The research object is the influence of integration processes in the timber industry on the regions' economic development dynamics. The Arkhangelsk Region possesses every condition and prerequisite for the timber industry cluster, because timber sector companies, technologically and economically connected, are situated in the area. The research shows that the Arkhangelsk Region as a major dedicated timber industry center holds the significant potential for clusterization: infrastructure, notable experience of operations within integrated structures in the past (timber production association 'Arkhangelsklesprom'), differentiated labour supply, local trade between firms, technology and innovation transfer; a high degree of outsourcing, etc. (Pinyagina, 2009).

The timber industry significance and social, economic status in the regional economy are high, the sector is one of the top three sectors, contributing half of the gross regional product; in the processing industry it ranks first in terms of shipping products volume and tax payments, provides employment for the rural population. The timber complex has a prominent place in the regional and national economy. The production facilities account for 9 per cent of the Russian commercial timber output, 8 per cent of sawn

wood, 31 per cent of pulp cooking, 29 per cent of cardboard (Forest Products Annual Market Review 2012 – 2013, 2013).

An important prerequisite for regional cluster organization is a high level of production localization/concentration (large and small enterprises) (Borisova, 2014). This fact in turn creates conditions for building effective chains, increasing competition and prospective projects invariance (Orlov, 2017). The forestry cluster is a technologically balanced complex of the timber industry subsectors and production facilities (UN, 2015). 1371 organizations operate in the timber complex sector. Enterprises of the largest vertically integrated structures in Russia function in the Arkhangelsk Region, among them Ilim Group, Arkhangelsk Pulp and Paper Mill, Titan Group, Segezha Group, ULK Group, which can be considered as the timber cluster members. In addition, in the 2000s small and medium enterprises were actively developed. In the Arkhangelsk Region over 700 small business owners and 1535 self-employed entrepreneurs operated. Small enterprises were widely represented in the joinery and construction production, where their share accounted for 82 per cent in 2012. In window and door manufacturing, their share equaled 30.1 per cent. The share of small businesses in furniture manufacturing is constantly growing; in 2002 their share accounted for 25.3 per cent of produced furniture, whereas in 2012 it achieved 50.7 per cent. Small enterprises' share in logging is characterized by slower growth, constituting 12 per cent of timber haulage and 8.3 per cent of timber sawing (UN, 2017).

4. Purpose of the Study

The purpose of the study is to resolve the scientific problem related to identification of economic integration conditions for clusters and cluster process influence on the economic development dynamics of regional timber complexes. At the given stage, the objective was to provide economic evaluation of regional clusterization processes given there are timber industry performance features, as well as to identify qualitative parameters characterizing the timber cluster development.

5. Research Methods

The analytical part of the project research is based on the principles of economic, managerial and statistical analysis, express analysis and expert forecasting. The research methodology draws on fundamental principles of the systemic approach to studying economic development being undergone by regions and territories during the institutional economic transformation in order to establish integrated economic associations.

6. Findings

Weak cooperation and disconnection of the Arkhangelsk Region timber industry companies, utilizing the common timber supply area within the region, transport and energy supply infrastructure, research and education organizations' services, are a hindrance to development and competitiveness enhancement of the regional timber sector. As the international practice shows, the most progressive and effective approach to the regional development is the cluster approach. The main advantage of the latter is integration of all regional development levels, from regional authorities to specific enterprises and infrastructure facilities. The Arkhangelsk Region is characterized by a high localization of timber

production (pulp and paper mills, sawmills, plywood and furniture manufacturing, small and medium businesses), infrastructure facilities, research and educational organizations, service providers for the timber sector companies (Kravchenko & Pinyagina, 2014). The region has a direct access to the Northern Sea Route, the railway line from Arkhangelsk to Moscow, M-8 federal motorway 'Kholmogory'. When the advantages of the cluster association for technologically dependent enterprises were identified, the timber industry cluster 'PomorInnovaLes' was initiated. One of the article authors, N. Pinyagina, prepared the administrative and organizational documents for the territorial cluster 'PomorInnovaLes'.

The goal of the cluster is stated to be the formation of cooperative ties among the timber industry enterprises, infrastructure-related organizations, research and education establishments of the Arkhangelsk Region as a result of their territorial proximity and operational dependence to achieve a common synergy effect. The cluster consists of thirty companies and organizations within the region. Based on the technology chain, they are classified into different blocks: consuming companies, end-use producers within the cluster, raw material suppliers, infrastructure, service providers, etc. In general, the functional chart of the cluster members was developed in such a way that the added value would increase following the technology chain and the cluster would benefit from the synergy effect (Fig. 1).
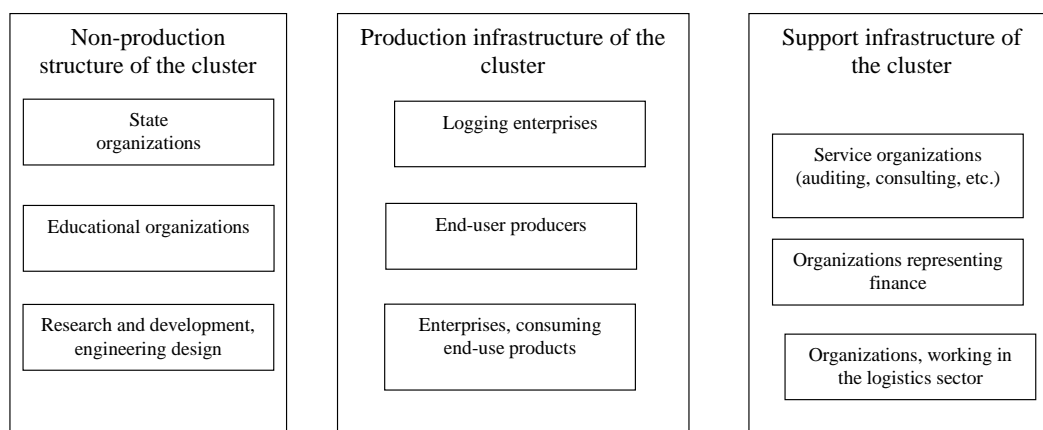

Figure 01. The functional chart of the Arkhangelsk Region cluster members

To determine the goals, tasks, and priorities of the cluster development, the diagnostics of its activity has been carried out and the main problems have been identified. The SWOT analysis of the cluster activity has shown competitive advantages and limitations hampering the development of forestry enterprises. For further growth, the most serious problems need to be eliminated:

1. Unevenness of forest management, lack of economically accessible and transport accessible forest resources.
2. Insufficient level of deep timber processing and complexity of its use, poor development of wood waste utilization enterprises producing biofuel, forest chemistry products, etc.
3. High level of forestry costs, especially in logging.
4. Weak development of transport and technological forest infrastructure.

5. Lack of all-season roads, axle load limits for large-scale timber transport vehicles.

6. Lack of market infrastructure serving commercial needs of cluster participants - engineering, IT and consulting companies.

7. Shortage and low skill level of engineering, technical personnel and workers, imbalance of educational programs and professional standards.

A passport of the forestry cluster development program has been formed, where a list of targets is presented (Nazarova & Galliamova, 2016), which should justify the effectiveness of implementing the program activities and projects:

-   Growth of the cluster industrial production volume index.

-   Increase in revenue from sales of products manufactured by the cluster participants.

-   Growth of the total added value of industrial products manufactured by the cluster participants.

-   Dynamics of export of deep timber processing products, both traditional ones such as lumber, glued plywood, pulp, paper and cardboard, and new types of products with high added value.

-   Production growth of import-substituting types of timber products at the cluster enterprises.

-   Growth of labor productivity and the number of high-performance jobs at the cluster forestry enterprises.

•   Volume of investments attracted by cluster participants for the implementation of industrial production modernization projects.

Below you will find the analysis of the whole chain of cooperative connections and infrastructure serving cluster enterprises. The most important problems of cluster development have been singled out.

7. Conclusion

In the conditions of world globalization and emerging new problems and threats for the national economy of Russia, it is necessary to search for industry innovations that promote the innovative development of the forestry sector (Stepanov, 2010). Achievement of the main strategic goal - economically and environmentally sustainable and safe development of forestry industries on the basis of the balance of interests of forest harvesters and processors - is impossible without increasing integration tendencies, formation of large economic entities, uniting into a single production and technological, organizational and economic flow timber utilization and processing activities, strengthening market positions and financial condition of individual enterprises.

The basic principle of clusters formation in the forestry sector is to ensure a rational combination of competitiveness growth of these systems and sufficient development of the internal competitive environment (Khairov & Prokofyeva, 2016). A deeply integrated alliance is flexible to fluctuations of the economic conditions of both the national and the world economy due to the increase of the market segment. Meanwhile, the effect of uncertainty in the economic development of the production environment is reduced, which at the national level leads to the destruction of the competitive environment and the development of monopolistic tendencies, whereas at the world level - to transnationalization and globalization.

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