Cluster policy as a tool for implementing regional development strategy

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Abstract. In the 2000s, the socio-economic development strategies of almost all regions of the Russian Federation envisaged the formation and development of regional clusters (mostly innovative industrial ones). While the cluster policy had dirigiste nature: the list of potential clusters, the circle of participants, territorial and non-territorial boundaries, the expected effects of operation were determined by regional administrations. The same type of cluster development mechanisms and tools which do not take into account regional specifics and promising economic specializations have led to premature disillusionment in the cluster concept. Full-scale mature clusters can function successfully if their profile is consistent with the specifics of the region, including restrictive factors hindering economic activity (in the Baikal region this is the so-called "Baikal" factor). The article discusses the promising directions of clustering the economy of the Baikal region in the context of the cluster development of the subjects of the Russian Federation, substantiates the role of cluster policy in increasing the connectivity of the economic space of the country and its regions.

1 Introduction

The Russian Federation is distinguished by a complex (polysystemic) territorial and economic structure with a heterogeneous political and administrative structure, implying certain independence (autonomy) of territorial parts formed on geographical, historical, economic, national and other grounds and united by the Constitution, specifying mutual relations and distribution of the governance functions to achieve common political, social, economic, cultural and other goals. Such countries have a significant territory, a large, heterogeneously distributed population, domestic economic and regional specialization and specificity (USA, Mexico, Brazil, Germany, China, India, South Africa, etc.) [1].

Even under conditions of pre-revolutionary Russia and the state-controlled economy of the USSR, one of the main tasks of spatial development was the industrial development of the territories of Siberia and the Far East, the success of which ensured the use of TPC models (territorial-production complexes) and industrial hubs serving as poles of growth. According to Russian scientists, in the Soviet School of Regional Economic Research the idea of clusters was in some ways foreseen: I.S. Ferova considers the TPC to be a prototype

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of clusters in the domestic economy (because they are formed on the principle of technological proximity) (2), and T.V. Tsihan, L.S. Markov, I.V. Pilipenko draws parallels between regional clusters and spatial TPC, noting their similarities and differences.

The main properties of clusters contribute to increasing the connectivity of the country's space:

- informal nature and lack of clearly defined borders allow to strengthen the mutual relations between neighboring regions as a result of the activities of interterritorial clusters located in several subjects of the Russian Federation;
- innovation diffusion enables technological modernization of regional industries and the economy as a whole, and the free exchange of information should lead to the emergence of a single information space for the country;
- development of competition reduces the degree of monopolization of regional and local markets removing barriers of entry for Russian and foreign actors and increasing business activity;
- high concentration of resources creates growth points (in the Spatial Development Strategy of the Russian Federation for the period up to 2025 (hereinafter SDS) provides for the development of 12 promising mineral and raw materials and 15 agro-industrial centers that will contribute more than 0.2% annually to macroeconomic growth as well as 19 world-class science and education centres redirecting migration flows and affecting the distribution of the population in the country.

At the same time, the competition that can arise between regions due to attempts to develop clusters in the same industries and areas of activity hinders cooperation and the creation of integrated infrastructure systems. Possible regionalism are blocked by linking regional strategies of socio-economic development (hereinafter SED) with the Spatial Development Strategy of the Russian Federation and industry strategies defining promising areas of economic development and priority investment projects based on a combination of global and local interests.

2 Materials and Methods

The main methods of this study consists of analysis and generalization of federal and regional regulations governing the development of Russian subjects, analysis of macro- and mesoeconomic dynamics, mapping, abstract-logical, economic-mathematical, economic-statistical and other methods.

3 Results and Discussion

The Guidelines for the implementation of cluster policy in the regions of the Russian Federation assumed that regional and local administrations would initiate the formation of cluster development organizations supporting them by providing grants for the implementation of measures to activate scientific, methodical, information-advisory, educational, coordination activities. Thus, in the 2000s, cluster policy was rather dirigiste: almost all regional socio-economic development strategies (SDS) of that time defined the list of potential clusters, the range of participants, territorial and non-territorial boundaries, expected effects of their functioning. Cluster development mechanisms and tools were often not applied, creating just a coordinating council which includes executive authorities, representatives of the business community, science, education, the financial and credit sector, trade and logistics centers and other organizations related to service infrastructure.

Currently, according to the Russian Cluster Observatory, which is leading the "Russian Cluster Map" project, there are 117 active clusters in the country. Their distribution across

the territory is extremely uneven: the bulk of clusters are concentrated in the European part of Russia, while in the Siberian and Far Eastern Federal Districts (SFD and FED) there is only 18% of the total number of cluster formations (Table 1). (9)

Table 1. List of regional SFD and FED clusters.

Regions (cluster numbers)	The initial level of organizational development	Average level of organizational development
Altai Territory (5)		• Altai Biopharmaceutical • Altai Cluster of Agricultural Engineering • Altai Cluster of Energy Engineering and Energy Efficiency Technologies • Altai polymer composite • Barnaul Industrial Chemical
Omsk Region (3)	• Agrobiotechnological Industrial Cluster of Omsk Region • Cluster of high-tech components and systems of the Omsk region • Cluster of oil refining and petrochemicals of the Omsk region	
Tomsk Region (3)	• Pharmaceuticals, medical technology and information technology in the Tomsk Region • Petrochemical • Industrial atomic	
Kemerovo Region (2)	• Biomedical	• Comprehensive processing of coal and man-made waste
Irkutsk Region (2)	• Baikal Pharmaceuticals • Machinery	
Krasnoyarsk Territory (1)	• Cluster of Innovative Technologies of Closed Administrative Territorial Unit (CATU), Zelenogorsk	
Novosibirsk Region (1)		• Scientific and Production Cluster "Sybirskiy Naukopolis"
Republic of Buryatia (1)	• Ulan-Ude Cluster of High-Tech Engineering and Instrument engineering	
Sakha Republic (Yakutia) (2)	• Cluster of furniture, woodworking and related industries • Tourist - recreational cluster "Severnaya Mozaika"	
Khabarovsk Territory (1)	• Aircraft engineering	

Note: Science and production cluster "Sibirskiy Naukopolis" belongs to clusters with a high level of organizational development

There are 17 clusters in the SFD territory, in FED there are only 4 (one of them is located in the Republic of Buryatia (hereinafter RB), formerly part of the SFD) In Siberia, the coherence level of economic space is higher than in the Far East developed on the "local" principle.

If we compare cluster development at the level of federal districts and macro-regional level, we can see one coincidental direction of specialization: the Baikal Pharmaceutical Cluster stands out in Irkutsk region (hereinafter IR), which is at the initial level of organizational development with 37 participants and 7188 employees belonging to the cluster of organizations. In FED territory Baikal Biopharmaceutical Cluster is one of a kind and has unique competitive advantages. On uniting efforts of IR and RB actors (primarily, scientists of the Irkutsk and Buryat Scientific Centers of the Russian Academy of Sciences (RAS), the Center of Eastern Medicine, the Irkutsk National Research Technical University) in the field of medicines production using the Eastern (Tibetan) formulation

and organizing the Center for Integrative Medicine, which comprehensively uses classical Western and Eastern treatment methods and developing the direction of medical and health tourism, the cluster will be able to present unique medical products and services on the Siberian and Far East markets being different from the supply of large, long-acting and successful, medical innovation centers in the Novosibirsk region and the Altai Territory.

In the IR and RB, clusters of aviation specialization are also developing, but the engineering cluster of the Irkutsk region specializes in aircraft construction, and the Ulan-Ude cluster of high-tech engineering and instrumentation) on helicopter construction (and the Ulan-Ude cluster does not go beyond the borders of its region and does not receive financial support from the state. Both Irkutsk clusters are supported by the Cluster Development Center as part of the Russian Ministry of Economic Development's program to support small and medium-sized enterprises. At the same time, the tourism clusters are not allocated by specialists of the Russian Cluster Observatory, despite the implementation of large investment projects financed from the federal targeted programs (FTP) "Development of domestic and inbound tourism in the Russian Federation (2011 - 2018)" and "Development of domestic and inbound tourism in the Russian Federation (2019 - 2025)", creation of special economic zones of tourist and recreational type (SEZ TRT "Baikal Harbour" in the RB and the "Baikal Gate" in IR) and using the world-renowned Lake Baikal brand to promote the tourist product and self-presentation of RB and IR in Russian, Eurasian and global spaces.

In Zabaykal Territory there are no genuinely functioning clusters at the moment - in this case the results of the studies of the Russian Cluster Observatory should be accepted.

However, considering cluster policy at the macro-region level, it is necessary to take into account not only the existing competitive advantages in the development of traditionally strong industrial complexes for the regions, such as the aviation industry in IR and RB formed as a result of plans for the development of productive forces in the middle of the last century, but also regional specifics.

Resource potential serving as a ground for the formation of growth centers in SPM, may not always be the basis of inter-regional clustering. Thus, for the Baikal macro-region, the absolute goal of development policy is to minimize environmental damage, and therefore even existing interregional clusters, such as the cluster of mining industries of the north-eastern territories of Buryatia and the north-western territories of Zabaykal territory can not become grounds for a broad support in state policy.

For the Baikal socio-environmental-economic system, the issues of revitalizing environmental policy, both in the traditional areas of minimizing environmental risks and ensuring environmental safety, but also on relatively new directions of effectively using environmental resources in the development of the region and the choice of directions of environmental-oriented innovation development come to the fore. From this point of view, the following areas of activity: agricultural, tourist-recreational, biotechnology will be promising directions of clustering the economy of the Baikal region contributing to using general restrictions and preferences of development as well as the possible increase in the connectivity level of the Baikal territory.

According to the Map of Clusters of Russia, the nearest competitor in tourism and recreation field is the tourist and recreational cluster (TRC) "Severnaya Mozaika" in the Republic of Sakha (Yakutia) - the distance between it and the potential Baikal TRC uniting actors RB and IR, is about 1575 km in straight lines. The other 7 TRC are located in the European part of Russia.

In Novgorod, Vologda, Rostov regions there are 3 agro-industrial clusters with a key specialization in the agricultural sector (clusters have a dairy specialization in the last two regions. In the Astrakhan region, they focus on the development of aquaculture and fishing industry, in the Republic of Tatarstan food cluster develop actively and territorial-sectoral

cluster AGROPOLIS "ALKIAGROBIOPROM", in the Rostov district - wine territorial cluster "Dolina Dona" and biotechnology cluster for deep grain processing in the Miller region, in the Omsk region - agrobiotechnological industrial cluster, the list of the main products of which includes flour, complete feed and their components, meat and meat products, confectionery).

Competition is much sharper In the pharmaceutical, biotechnology, medical and chemical industries. In total, there are 9 clusters with pharmaceutical specialization in Russia, 3 clusters with a key specialization in industrial biotechnology field, 7 in the medical industry, 4 in the chemical industry, and only 7 clusters located in the SFD being capable of competing with the Baikal Biopharmaceutical Cluster (2 in the Altai Territory, 2 in Kemerovo, 2 in Tomsk, 2 in the Omsk region). On the other hand, the Baikal Biopharmaceutical Cluster is unique in its kind and has unique competitive advantages. On uniting efforts of IR and RB actors (primarily, scientists of Irkutsk and Buryat Scientific Centers of the Russian Academy of Sciences, the Center for Oriental Medicine, the Irkutsk National Research Technical University) in the creation of medicines using the Eastern (Tibetan) formulation (plant-based medicines, dietary supplements for food - revitalizers, oils, gels, etc.) from ecologically harmless vegetable raw materials of the Baikal region and building integrative medicine center that comprehensively uses classical Western and Eastern (Tibetan) treatments and developing medical and health tourism fields, the cluster will be able to present unique medical products and services on the Siberian and Far East market which are different from the supply of large, long-term and successful, specialized medical innovation centers in Novosibirsk region and The Altai Territory.

4 Conclusions

Despite mentioning regional clusters in the SED (social economic development) strategies in almost all subjects of the Russian Federation, the dirigiste cluster policy has not justified itself: according to the Russian Cluster Observatory, at present there are 117 clusters in the country, with only fifth part of them situated in the vast and sparsely populated areas of Siberia and the Far East. However, the cluster approach can be successfully applied as a technology for managing the development of territorial economic systems, provided that coming out of the administrative borders of the Russian Federation and interregional cluster structures are formed; the main properties of clusters contribute to increasing the connectivity of the country's space and the development of inter-regional cooperation.

Taking into account the need of switching to environmental-oriented innovation development, the existing competitive advantages and objectives of SED provided in the strategic documents of the IR, RB and ZT, the following promising areas of clustering highlighted in the Baikal region: agricultural sector, tourism and recreation, development of biotechnology (Fig. 1).

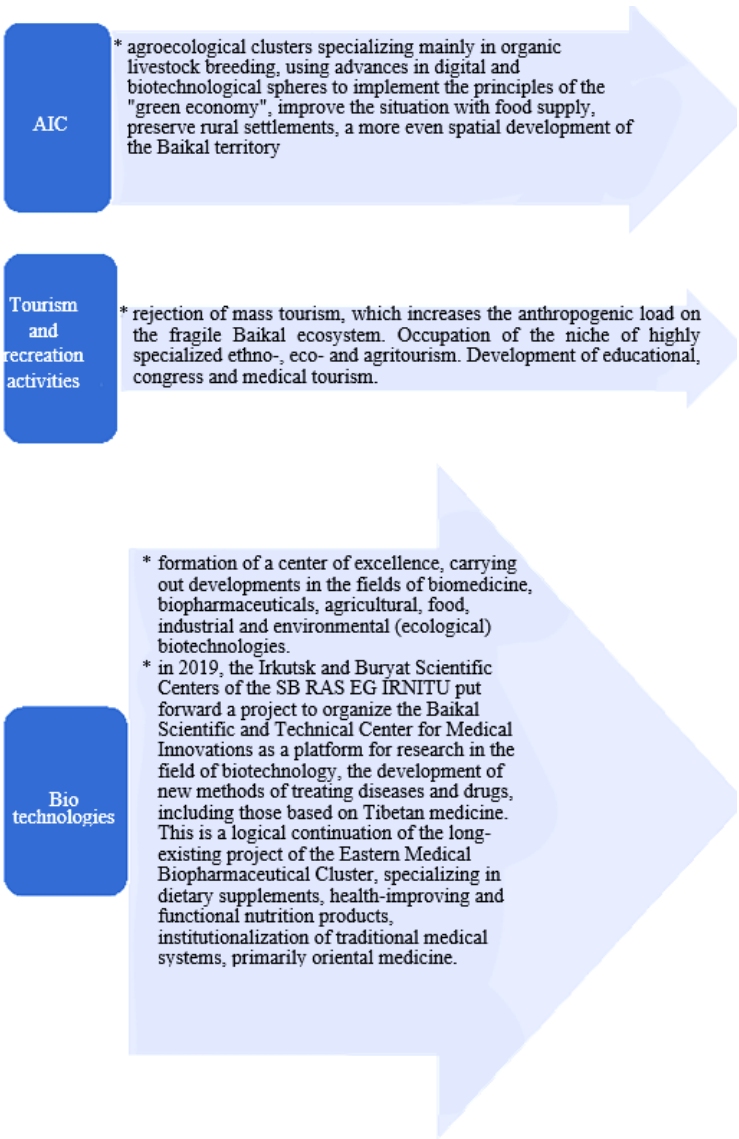

Fig. 1. Promising directions of clustering the economy of the Baikal region.

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