

All-in-one approach to the formation of tourism, sports and other clusters in the Russian Federation

Arkadii Simdiankin
professor of economics and law dept.
Russian state university of physical
culture, sport, youth and tourism
 Moscow, Russia
seun2006@mail.ru
 0000-0001-9761-6183

Pavel Probin
assoc.prof. of economics and law dept.
Russian state university of physical
culture, sport, youth and tourism
 Moscow, Russia
probinpavel@mail.ru
 0000-0003-3027-7214

Egor Khludnev
assoc.prof. of economics and law dept.
Russian state university of physical
culture, sport, youth and tourism
 Moscow, Russia
hei14@mail.ru
 0000-0003-0357-2859

Natalia Ostankova
head of economics and law dept.
Russian state university of physical
culture, sport, youth and tourism
 Moscow, Russia
ostankova48@mail.ru
 0000-0002-6705-1828

Abstract—This study is devoted to the analysis of economic and legal aspects of clustering in Russia. The model is proposed to assess the floating index of the impact of stress factor on the development of clusters and the need to take it into account during the formation of relevant projects. The development of logistics and infrastructure, sales of finished products, the impact of the shadow sector of the economy, as well as the effectiveness of state support for the cluster participants were accepted as key elements that determined the basis of the recommended integral indicator.

Keywords—agglomeration processes, clustering; competition; country factor assessment; risk analysis; statutory regulation.

I. INTRODUCTION

The cluster approach to economic development is actively used in foreign countries [1]. It is not surprising that Russia followed the same path. For the first time ever the course aimed at creating clusters in the domestic economy paved legal way in 2006 in the Strategy for the development of science and innovation in the Russian Federation for the period up to 2015 [2].

The importance of clustering is reflected in a number of statutory documents where it's indicated that clustering is – among other things – a tool for solving the problems of import substitution [3] and a condition for increasing the competitiveness of the domestic economy and intensifying the mechanisms of private-public partnership [4].

Despite the fact that the vector of legal regulation aimed at clustering the Russian economy was approved relatively recently, the activities of the state aimed at creating conditions for the functioning of a group of interrelated organizations concentrated on a certain territory have been carried out for a very long time. In other words at the beginning of the 21st century clustering in Russia only received a new impact and became more centralized. But we can talk about the implementation of point cluster policy in our country with accompanying legal regulation since the time of the Russian Empire – just in those days the term "cluster" was not used in official documents.

II. LITERATURE REVIEW

We argue our position on the example of recreation and tourism – a group of resorts "Caucasian mineral waters" (CMS) included today in the North Caucasus tourist cluster [5]. After the peace of Yass in 1781 the territory where the CMS is located today became part of the Russian Empire. CMS was given the nationwide scale by Supreme Order of Emperor Alexander I on April 24 1803 [6]. In the same year the first local government bodies were formed in the Caucasian Waters [7].

An important prerequisite for the formation of CMS as an effective cluster was a foreign trip of the Minister of agriculture and state property of the Russian Empire A.S.Ermolov to study the state of balneology in Europe. Based on foreign experience, he wrote that the creation of the hydro facilities, land acquisition for resort development should be primarily the concern of the state and be funded by the Treasury. At the same he allows attracting private entrepreneurs for the construction of accommodation facilities, catering, performance and theatre halls on preferential terms [8]. This concept was the basis for the project of reconstruction of the CMS submitted to the State Council and approved in 1899. Since 1901 the specialization of funds was introduced – all revenues from the sale of mineral water and the operation of balneological facilities were intended for the expansion of resorts. These measures results in a situation when the annual budget of the CMS reached 2.5 million rubles, free capital was formed in the amount of 800 thousand rubles [9]. Thus, the state created conditions for the effective functioning of interrelated organizations in the relevant territory which complemented each other and strengthened the competitive advantages of the CMS as a whole.

Of course, tourism and recreation are not the only sphere where clustering was actually carried out long before the term "cluster" appeared in the domestic legislation. So, the Federal law of April 7, 1999 N 70-FZ "About the status of the Science City of the Russian Federation" became a law. A Science City is a municipal entity with the status of an urban

district which has a high scientific and technical potential with a city-forming scientific and industrial complex (a set of organizations engaged in scientific, innovative and other activities in accordance with the state priority areas). Inter-budgetary transfers from the Federal budget are provided to the budgets of the subjects of the Federation where science cities are located. Besides these transfers are not taken into account in the distribution of other inter-budgetary transfers from the Federal budget.

Historically the idea of creating territorial units with high scientific and technical potential and a city-forming scientific and industrial complex was implemented in the USSR in 1956 with the creation of the Novosibirsk scientific town (Akademgorodok). In the course of time the number of such formations increased and in the 1980s-90s the first wave of technical parks began to form [10].

Another early form of implementation of cluster policy in our country is the creation of restricted administrative and territorial entity (RATE) [11]. Such clusters were formed in the Soviet Union and "closed village" Sarov was one of the first. In 1946 a scientific and technical Center for the development of nuclear weapons was established in Sarov by a resolution of the Council of Ministers of the USSR [12]. Today it is called the Russian Federal nuclear center "All-Russian Research Institute of Experimental Physics" and is one of the largest scientific centers in the world [13].

Also, an example of cluster policy in the USSR is the organization in 1929 of machine-tractor stations (MTS) [14]. The reason for their creation was the inability of collective farms (formed during collectivization) to buy and serve the necessary equipment as well as to provide repair facilities. MTS played a significant role in the development of the collective farm allowing widespread use of machinery [15]. In practice the functions of MTS were much broader – they were entrusted with production control, accounting for labor costs, distribution of income and compliance with agricultural technology [16]. Almost 30 years later machine-tractor stations were reorganized into repair and technical stations (RTS) by the Resolution of the Council of Ministers of the USSR of April 18, 1958 N 425 and after that the process of selling tractors, agricultural machines and tools belonging to the former MTS to collective farms was started [17]. With all other factors this transformation indicates a desire to preserve the core clusters of the agricultural industry and therefore the cluster system itself. In our opinion the regional initiative of the Smolensk region confirms it – since 2019 the region is creating a material and technical base for the operation of machine-tractor stations (MTS).

The building up of sports clusters in Russia is associated with the development of physical education and sports in general. Among the largest clusters are often distinguished sports clusters of Sochi, Kazan, Krasnodar and Lipetsk. According to some researchers [18] the main categories of participants in a typical sports cluster can be:

- organizations specializing in core competency such as the provision of sports services, the production of sports goods;
- organizations supplying products or services to the involved organizations;

- organizations providing functioning of transport, power, engineering, nature protection, information and telecommunication and other infrastructure;
- organization providing the relevant services market infrastructure;
- educational institutions from youth sports schools to the institutions of higher sports education including sports reserve centers, Olympic training etc.;
- public associations and sports clubs;
- subjects of infrastructure that provide their support to small and medium-scale business.

Each of the examples of clusters' approach in various sectors, whether it is physical education and sports, tourism and recreation, science and innovation, defense and security or agriculture, shows that clusters are not new for Russia but they are an effective and time-tested economic model.

Clusters rarely occur artificially. They usually appear and develop naturally as a result of existing preconditions. The role of the authorities in this case is to create conditions for the development of entrepreneurship, improve the investment climate and encourage innovation [19]. And even if the cluster appears on the basis of the greenfield project it often ends with financial losses for investors as officials often find it difficult to assess the situation and effectively apply the available resources. On the other hand, the management of clusters has been under state support lobbying its own interests, regardless of the prospects of the cluster. In addition, the impact on the bureaucracy of "fashion trends" leads to money investment in industries where – due to high competition – it is difficult to become leaders, and the chances of failure are extremely high (for example, biotechnology) [20].

Abroad the popular view is that the state in the process of implementing cluster policy should not determine priority industries, finance projects and select their potential participants, based on its own, as a rule, bureaucratic interests. The task of the state should be to support existing and emerging clusters, and not only advanced and intensively developing [21]. For example, the US Federal authorities use such tools as infrastructure development and support for competitive conditions and activities in the field of science and education in the respective territories, without interfering directly with state policy but having an indirect regulatory impact [22].

Appealing to foreign experience it is time for the Russian Federation to move away from the practice of forming clusters on a purely sectoral principle. For example, in Finland "each cluster potentially includes promising sub-zones or new areas with development potential" [23] that allows clusters to develop additional sub-areas of their activities.

In our country the situation today is such that the legal regulation of the implementation of cluster policy is carried out in each industry separately and so uncoordinated that there is not even a single definition of the concept of "cluster". Thus, in the Federal law N488-FZ dated 31.12.2014 "On industrial policy in the Russian Federation" industrial cluster is defined as a set of subjects of activity in the field of industry, related relations in this area due to territorial proximity and functional dependence and located

on the territory of one subject of the Russian Federation or in the territories of several subjects of the Russian Federation. In the Federal law N116-FZ dated 22.07.2005 "On special economic zones in the Russian Federation" cluster is defined as a set of special economic zones of one type or several types, which is set by the Government and which is administered by the same management company.

So, now we need to develop a draft law establishing the basis of a single cluster policy aimed primarily at the search and development of clusters with appropriate economic potential, regardless of the sectoral affiliation of the organizations located on its territory. In addition, it is necessary to establish criteria for assessing the readiness of the territory, industries and businesses, as well as state authorities to clustering.

III. MATERIALS AND METHODS

From an economic point of view, it is advisable to introduce a floating index for assessing the impact of the state on the development of clusters in order to determine the potential ability of an individual territory or industry to cluster. We consider the possibility to implement this approach using a preliminary two-level assessment of all factors by the Delphy method. At the first stage experts determine the values of the weight coefficients of all factors, and at the second stage, they conduct a point-rating assessment of each of them. As a result, we obtain the country's factor influence (CFI) on clustering processes:

$$CFI = \left(\sum_1^4 W_i R_i + (1 - \beta) W_5 R_5 \right) \rightarrow 1,$$

at that

$$\begin{cases} 0 \leq \forall R_i \leq 1, \\ \max \sum_1^5 W_i = 1, \\ 0 \leq \beta \leq 2; \end{cases}$$

where:

W_1 is a weight number of the importance of the logistics factor, and R_1 is the score of logistics efficiency;

W_2 is a weight number of the importance of the infrastructure factor, and R_2 is a point assessment of the possible synergetic effect of infrastructure facilities;

W_3 is a weight number of the importance of state participation in the work of the cluster, and R_3 is a point assessment of the effectiveness of financial and non-financial incentives for development formed at the state level;

W_4 is a weight number of importance of influence of shadow economy on the processes of clustering and R_4 is point assessment of the degree of influence of shadow economy on the cluster that describes feedback on the principle "the less the influence of the factor the more exposed points»;

W_5 is a weight number of importance of the factor of the availability of local market for finished products, R_5 is a point assessment of the effectiveness of the system of sales of finished products manufactured at the cluster level, and β is the correction factor describing the destructive effects of

competition within the cluster project on its individual members.

To explain the coefficient β , it should be noted that the specificity of the cluster approach is aimed, among others, the harmonization of the existence of business structures of different types and scales of business. Of course, healthy competition within the cluster will contribute to the selection of the most valuable participants, characterized by a high level of quality of products at minimal cost. However, the factor of internal competition at the cluster level can also have a significant destructive impact, for example, strengthening the competitive positions of large players with the subsequent displacement of small and medium-sized businesses. In this case, the cluster initiative can be considered ineffective (table I). Thus, the problem of finding the critical value of the parameter, when there is a possibility of entropy increasing within the cluster as a system, is denoted.

TABLE I. THE INTERPRETATION OF THE VALUES β

Value β	Risk level of irreversible consequences within the cluster	Interpretation
$0 < \beta < 0,5$	Minimum	Risks of destructive impact of internal competition are insignificant, the cluster is resistant to the influence of the factor of internal competition.
$0,5 < \beta < 0,75$	Moderate	There is an increasing influence of internal competition, it is necessary to monitor the mechanism of interaction between representatives of SMEs and large business structures.
$0,75 < \beta < 1,0$	Critical	The «impairing» of the cluster by shifting the vector of economic activity towards a limited circle of persons. Objective threat to the established model of market relations.
$1,0 < \beta$	Catastrophic	The cluster becomes the sphere of influence of a closed circle of participants. Merge of competitors. Monopolization of the main types of production activities.

The sigmoidal function will best correspond to the process under consideration (Fig.1), describing – in this case - the need for clustering when reaching a certain level of accumulated potential of market participants who want to join forces or have such a need to increase profits. As you know, "sigmoid" is the most suitable function for classification problems – its behavior allows you to find clear boundaries in the prediction.

The accumulation of potential in its case will occur "avalanche" to a certain level where a decision will be made on both the possibility and the need to combine efforts by clustering according to the following scheme (table.2). At the A and B levels, there will be a quantitative and qualitative transformation of the efforts and resources of organizations into additional profits.

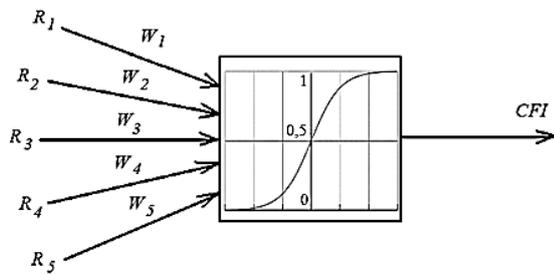


Fig.1. The transfer function proposed to describe the CFI

TABLE II. CFI VALUE INTERVALS AND THEIR INTERPRETATION

Value CFI	The class of reliability of the cluster model	Interpretation
<0,5	E	An industry or region is not capable of clustering
0,5...0,65	D	There is a low potential, there is no sense to "force" clustering
0,65...0,75	C	There is a positive trend towards the need to integrate the efforts of individual organizations and their groups
0,75...0,85	B	There is a need for financial and organizational assistance from outside (investors, in extreme cases – government agencies)
>0,85	A	An internal "crystallization point" and information consulting support (including external support) are needed

IV. PRACTICAL SIGNIFICANCE

On the basis of a comprehensive analysis of economic, historical and legal aspects of clustering in Russia, it was proposed to determine the value of the country factor on a mathematical model. It is proved not only the necessity of its consideration during the formation of relevant projects but also the methodology of its impact assessment.

The key elements of the integral indicator are the development of logistics and infrastructure, assessment of the possibility of selling finished products taking into account the influence of the shadow sector of the economy and the effectiveness of state support for cluster participants.

The proposed "rating" of territories and industrial areas will significantly minimize the effort and money when making decisions on clustering at both the business and state levels.

V. RESULTS

To search for new clusters, it's reasonable to create special interdepartmental commissions that carry out activities according to the following algorithm:

- cost-effective organizations are identified on the basis of tax reporting data,
- interrelations between the selected organizations and with other organizations are studied. The interest is, first of all, the presence of counterparty relations between them, and secondly, the factor of territorial proximity. In many cases the location of organizations may not be taken into account because, for example, clusters in the field of information technology, which have recently become widespread,

can successfully function even with a significant distance from each other of their economic entities;

- effective clusters are identified – they include groups of organizations (most of which are recognized as cost-effective) operating in one economic sphere or related economic spheres, mainly geographically adjacent and mutually complementary;
- special register of effective clusters is being formed, designed, on the one hand, to streamline the work on the implementation of cluster policy, and on the other one, to become a useful tool in the hands of investors to search for promising investment objects. At this stage a decision is made on possible measures of government support during the consultation with representatives of their member organizations. Alternative measures may include preferential lending programmes or special tax treatment.

Improvement of the concept of "cluster" should be made not so much taking into account the private points of view of scientists-economists, lawyers and sociologists but from the position of exact sciences to consider it as an already established and effectively working system (the use of clustering methods based on the analysis of the density of points).

In other words, the basis for the development of the theory of clusters, statutory regulation in the field under study should be including their mathematically accurate description as an integral system based on the conditions of fulfillment of a set of criteria and compliance with a set of common features.

VI. CONCLUSION

The results of the study were discussed at the Department of Economics and law of the Russian state University of physical culture, sports, youth and tourism. It is noted that the proposed author's methodology for assessing the effectiveness of cluster projects taking into account the country factor is universal and can be used regardless of the scale and specifics of the activities of the relevant economic agglomerations. The problem of designing sports clusters as an institution for improving economic security in the industry of physical culture and sports is of particular relevance in the light of the studied issues. In this regard, we consider it possible to use the proposed methodology to assess the feasibility of implementing sports cluster projects in Russia.

REFERENCES

- [1] Abashkin V. L., Boyarov A.D., Kutsenko E. S. Cluster policy in Russia: from theory to practice. Foresight, 2012. Vol. 6 .(3). pp. 16-27.
- [2] Strategy for the development of science and innovation in the Russian Federation for the period up to 2015 (UTV. Interdepartmental Commission on scientific and innovative policy (Protocol of 15.02.2006 N 1))
- [3] The RF Government resolution from G. 28.01.2016 N 41 "About the statement of Rules of granting from the Federal budget subsidies to the participants of industrial clusters for the reimbursement of expenses in the implementation of joint projects on industrial production of the cluster in order to import substitution". SZ the Russian Federation, 2016. Vol. 6. pp. 837.
- [4] Methodical recommendations on implementation of cluster policy in subjects of the Russian Federation // signed by the Deputy Minister of economic development of the Russian Federation A. N. Klepach of 26.12.2008 N 20636-AK/D19

- [5] SEZ in Stavropol transferred under the management of Resorts of the North Caucasus. URL: <https://ria.ru/20121230/916801344.html>G.
- [6] The Highest Order of the Emperor Alexander I of April 24, 1803 "About the device of resort establishments at the Caucasian Waters" / / Acts collected by the Caucasian Archaeological Commission. Archive Of The Main Department Of The Governor Of The Caucasus. Volume II. - Tiflis: Printing House Of The Main Department Of The Governor Of The Caucasus, 1868. pp. 252.
- [7] Belozeroва E. V. State-legal policy of the Russian Empire in relation to the resorts of Caucasian Mineral Waters. Diss. Cand. the faculty of law. sciences. Stavropol, 2011. pp. 18.
- [8] Ermolov A. S. Note of the Ministry of agriculture and state property to the question of reconstruction of the Caucasian Mineral waters in connection with the general situation of balneological business in Russia and abroad. - SPb., 1898.
- [9] Gorovoy N. K. Formation and development of the resort legislation of Russia: from the beginning of the XVIII century to the beginning of the XX century. Diss. Cand. the faculty of law. sciences'. Krasnodar, 2010. pp. 53-54.J.
- [10] Evloeva M. M. Technoparks in Russia. Scientific journal. 2016. vol. 4 (5). pp. 59.
- [11] Law of the Russian Federation of 14.07.1992 N 3297-1 "On closed administrative-territorial formation". Vedomosti SND RF and RF armed forces, 1992. vol. 33. p. 1915.
- [12] Resolutions of Council Of Ministers of the USSR N 805-327ss "About creation at Laboratory N 2 of Academy of Sciences of the USSR of design Bureau KB-11»
- [13] Vlasova E. Yu. Staffing Design Bureau 11 (KB-11) from 1946 to 1953. Clío, 2009. vol. 4 (47). pp. 98.
- [14] Resolution STO USSR from 05.06.1929 "About the organization of machine-tractor stations". NW USSR, 1929, N 39, Art. 353.
- [15] Micky N.V. Machine and tractor stations as the basis of technical re-equipment of agriculture in the Penza region. International research journal, 2016. vol. 6 (48) Part 3 June, pp. 131-132
- [16] Andreenkov S. N. Reasons and alternatives of reorganization of machine-tractor stations 1958. Humanities in Siberia, 2013. vol. 4. p.42.
- [17] Resolution of the Central Committee of the CPSU and the Council of Ministers of the USSR of April 18, 1958 N 425 "On further development of the collective farm system and the reorganization of machine-tractor stations". SP USSR, 1958, N 7, Art. 62.
- [18] Kleimenicheva, I. D. Sports clusters as a promising form of development industry. Economy and management, 2014. No. 4. Access mode : <http://elibrary.miu.by/journals/item.eiup/issue.40/article.9.html>. - access date: 12.10.2019.
- [19] Zakladowa T. T., Erdniev E. V. Foreign experience of state cluster policy. Bulletin of the University, 2014. vol. 16. pp. 83-87.
- [20] Akopyan A. R. Development of the cluster policy of foreign countries in conditions of global competition. Herald of the University. 2016. vol. 7-8. pp. 189.
- [21] Ketels, C. From clusters to cluster-based economic development / C. Ketels, O. Memedovic. International; journal. Technological Learning, Innovation and Development, 2008. vol. 1 (3). pp. 375-392.
- [22] Shekhtman A. Yu. Comparative analysis of mechanisms of regulation of development of economic clusters. Fundamental researches, 2016. vol. 3-2. pp. 438.
- [23] Umerbaeva S. K., Turemuratova Zh. M. Finnish experience of cluster policy support in the region. Proceedings Of the Academy of management: theory, strategies, innovations, 2014. vol. 1 (15). pp. 30-31.