Using results of the process-oriented approach for developing cluster policies for sustainable development of a region

N Vasilieva[1], V Nechaev[2], and O Takhumova[1*]

[1] Kuban State Agrarian University named after I.T. Trubilina, 13 Kalinin str., Krasnodar 350044 Russia
[2] Federal Research Center of Agrarian Economy and Social Development of Rural Areas - All-Russian Research Institute of Agricultural Economics, 35, building 2 Khoroshevskoe highway, Moscow 123007 Russia

E-mail: takhumova@rambler.ru

Abstract. The work reveals the priority directions of increasing the sustainable development of the country's regions, ensuring the growth of the population's welfare and economic status in the national system and the world economy. The process-oriented approach is applied in the study. The article presents a matrix of indicators characterizing the social, economic, political, environmental components of the sustainable development of territorial entities based on the construction and argumentation of individual processes of planning, development, and control. The paper calculates the sustainable development index of the Southern Federal District and compares it with the average values for the Russian Federation and the Central Federal District. Based on the results obtained in this research, the priority directions for the formation of a cluster policy for the sustainable development of the region are determined. The proposed recommendations can be used by federal and regional centers in solving the problems of building an economically stable, socially oriented state.

Keywords: region, sustainable development, process-oriented approach, cluster

1. Introduction

The sustainable development of regions is increasingly determined by their place in the system of political and socio-economic relations within the national borders and the territorial system of the world economy. Under the influence of the process of globalization and integration, economic relations are beyond the scope of any territorial entity, regardless of the purpose and specificity of the activity, which requires taking into account additional factors causing their development. For individual regions, going beyond national borders, on the one hand, provides opportunities for expanding economic activity. On the other hand, it helps to engage in foreign trade and foreign exchange operations that affect the overall efficiency. The intensity of the development of interregional cooperation in the global market dictates the need to search for new approaches to managing business processes to achieve sustainable development of regional systems. In the framework of the UN Concept for 2016-2030, this direction is outlined in 17 points of the main goal of sustainable development, the key content of which is reduced to improving the welfare of the population, developing infrastructure, and maintaining environmental safety in the direction of moving towards a "green economy" [6].

In our opinion, one of the areas of implementation of this concept in the regions can be an assessment of the objective conditions for the formation of sustainable development based on a process-oriented approach, which also implies the introduction of a phased management mechanism. Such an approach, in contrast to the current one (functional), will be able, according to a certain technology, to provide a ready-made result that represents value to the consumer at each stage of its implementation (Fig. 1).

Fundamental foundations and basic concepts forming a mechanism for managing regional systems based on the process approach, as well as research methods of this subject area are reflected in the works of Russian scientists (Yu. P. Adler [1], V. I. Galleev [4]; V. G. Eliferov [5], B. I. Kevin [8]; A. V. Panin [9]; K. M. Rakhlin [10]; M. Z. Svitkin [12]; and others). Approaches to the substantiation of the sustainable development indicators of the authors N. P. Tarasova and E. B. Kruchina [17] are also of great interest. The definition of threshold values for sustainability indicators is considered in the works of O. S. Kushnarev and Yu. G. Migunov [16]. The orientation theory (based on 122 indicators of sustainable development) was proposed by H. Bossel [1]. However, despite the diversity of scientific papers, the problem of managing regional systems as a factor in achieving sustainable development remains strategically and urgently important.

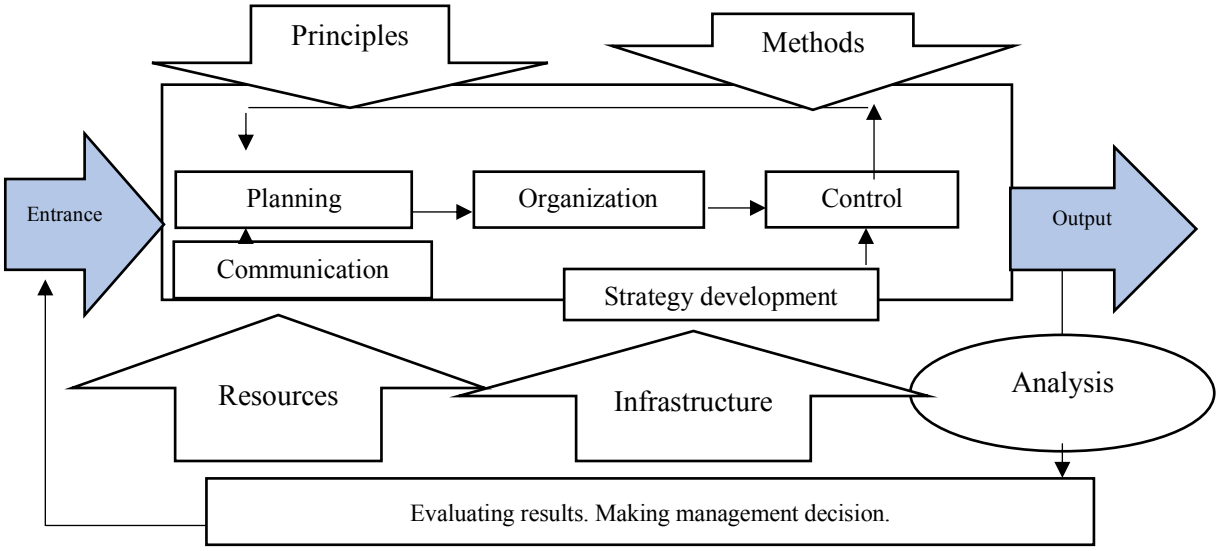

Figure 1. The process approach to managing the sustainable development of a region.

The process approach includes the stage of planning, organization, control and, as an end result, the development of a strategy for the sustainable development of a region.

2. Materials and Methods

Sustainable development of the region is characterized by a system of indicators reflecting the availability, deployment, and effective use of the resource potential over a long period of time. The study begins with the justification of procedures at the planning stage (Fig. 2).

The process of organization within the framework of the process approach involves the formation of a matrix of indicators reflecting the level of sustainable development of the region, based on identifying key factors.

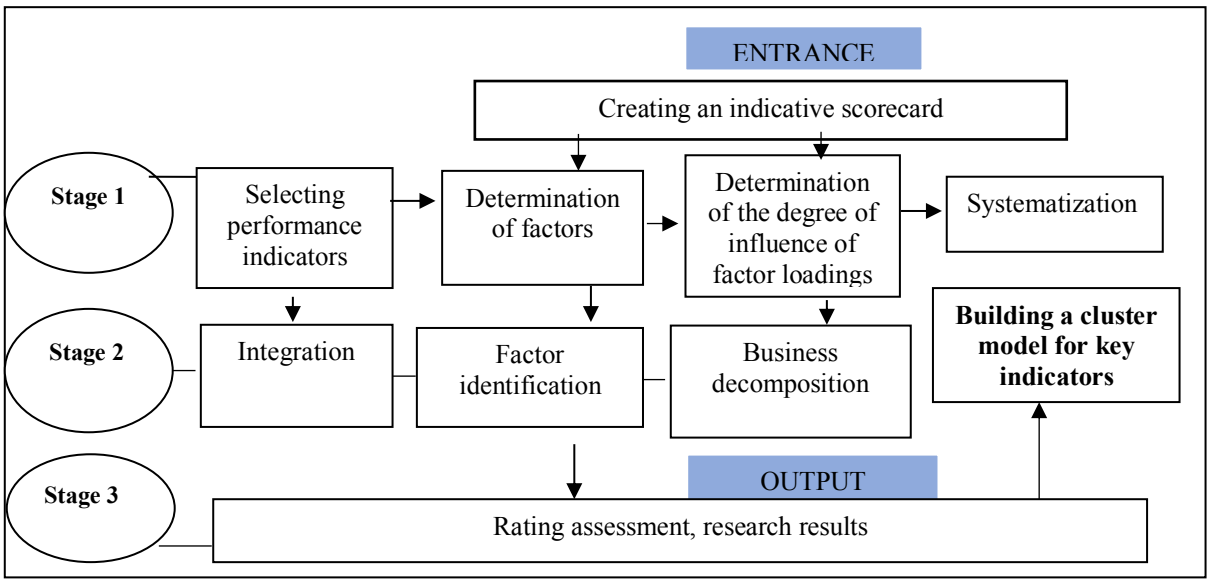

Figure 2. The stages of planning, organization and control in a process-oriented approach.

3. Results

The generalization of world experience, methodological recommendations of the UN, and previous studies allowed to form a system of indicators characterizing the social, financial-economic, political and environmental dimensions of regional development (Table 1).

Table 1. Matrix of indicators of sustainable development of a region.

Subsystems	Single indicators	Regulatory evaluation intervals	Integral indicators
Social Sustainability Index I_{x1}	The level of education of the population	50-100 %	Education Indicator
	Unemployment rate	0-50 %	Employment Indicator
	Employment rate	50-100 %	Employment Indicator
	Lifespan	50-85 ye	Vitality Indicator
	The proportion of the population with cash incomes below the subsistence minimum	0-100 %	Welfare Indicator
Financial and Economic Sustainability Index I_{x2}	Share of investment in fixed assets in GRP	0-30 %	Investment activity
	The proportion of organizations implementing various innovations	0-20 %	Investment activity
	GRP growth rate	1-10 %	Economic growth
	Production increase	0-20 %	Production potential
	The proportion of profitable organizations in the total number of organizations	0-100 %	Entrepreneurial activity
Political Sustainability Index I_{x3}	The level of public confidence in the government [7]	0-100 %	Political stability
	Crime level [8]	0-30 crimes per 1000 people	Life Safety Indicator
Environmental Index I_{x4}	Environmental safety level	0-100	Ecological safety of a region

The estimated intervals are based on the recommendations of the UN Statistical Commission and depend on the average values of the selected indicators. Based on the standardization of indicators for

assessing sustainability, bringing to a comparable form, taking into account the optimality of possible values, and consistently determining their arithmetic average, the obtained indicators were aggregated into an integrated index of sustainable development:

$$I_{sdi} = \frac{1}{4}\sum \mathrm{I_{xi}} \quad (1)$$

where I_{sdi} – Integrated Index of Sustainable Development of a Region;
I_{x1} – Social Stability Index;
I_{x2} – Financial and Economic Sustainability Index;
I_{x3} – Political Sustainability Index;
I_{x4} – Environmental Index.

The proposed approach was implemented using the data on the Russian Federation, the Central Federal District, and the Southern Federal District, including the Krasnodar Territory, which isone of the most unique, rich, and beautiful regions of Russia. The resulting composite indices of sustainable development of territorial entities for the period of 2017-2018 are presented in Figure 3.

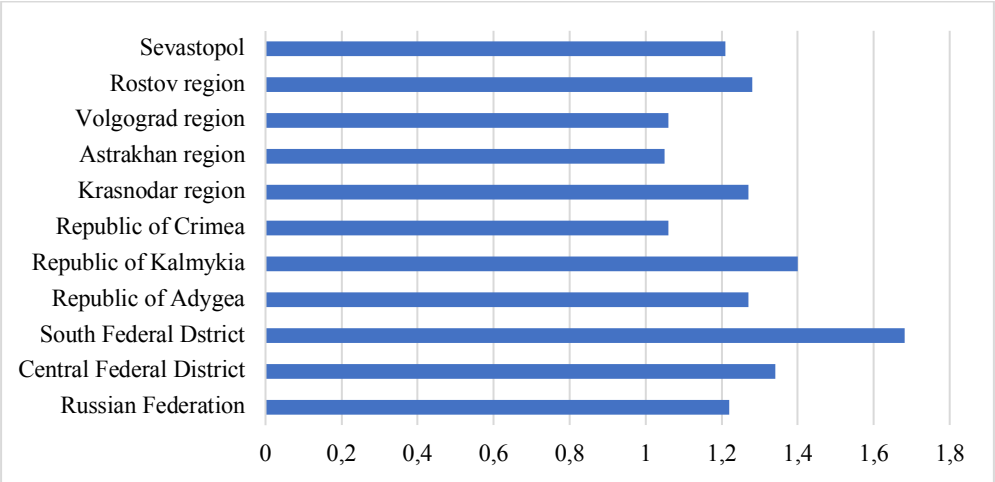

Figure 3. Sustainable development indices of the regions of the Southern Federal District in comparison with the average values of the Russian Federation and the Central Federal District for 2017-2018.

The results of the analysis allow us to note that Krasnodar Region is the second in the Southern Federal District in terms of the integrated indicator of sustainable development. The negative block among the obtained characteristics is a group of indicators reflecting the social component in the development of the region. This fact is confirmed by the cluster organization of regional systems based on indicators of resource efficiency and the level of development of production and social infrastructure (Fig. 4).

The current situation requires the formation of an effective mechanism for managing sustainable development, taking into account the multidimensionality of socio-economic, political processes, and the ecological situation in the region.

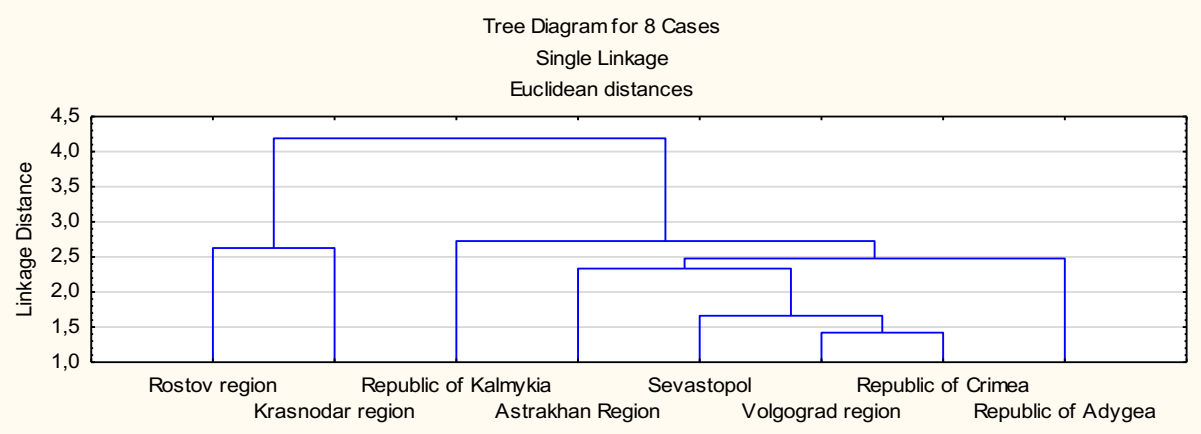

Figure 4. Cluster organization of regions in terms of resource efficiency for 2018. Source: [5].

Based on the results of our cluster assessment, the priority areas of regional policy are justified. These areas include the planning, organization, and development of the cluster, the formation of conditions for its functioning, demonstrating the interrelation of various types of processes (Fig. 5).

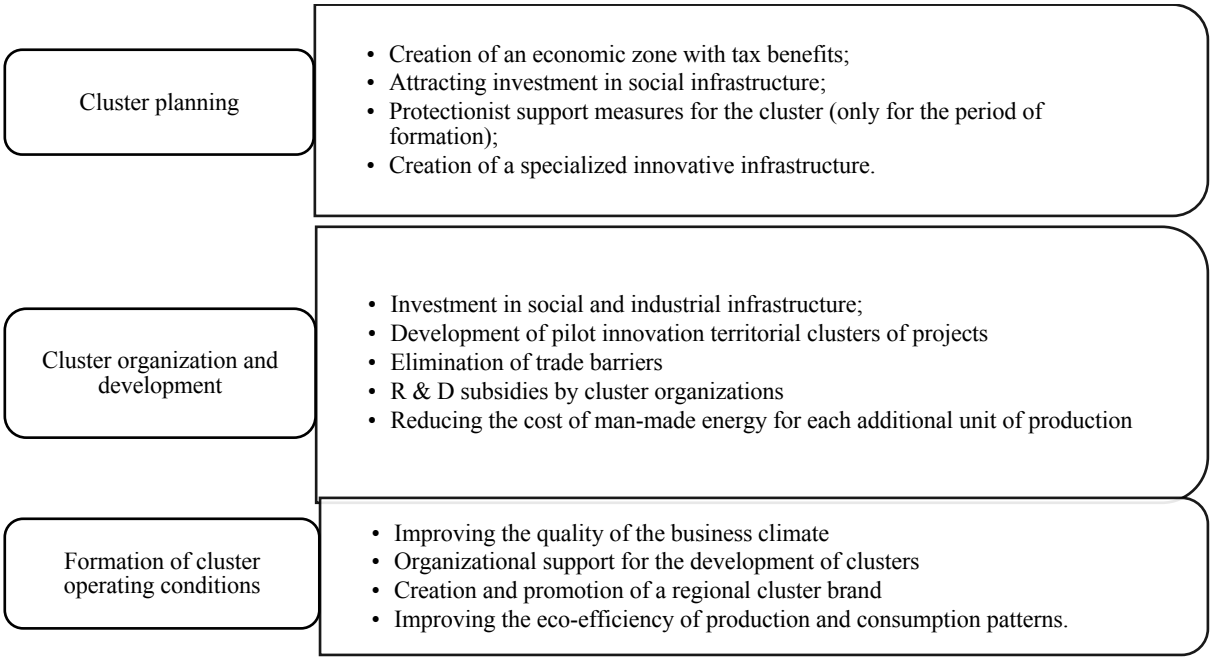

Figure 5. Priority directions and cluster policy instruments, taking into account the level of sustainable development of a region.

A certain set of tools for implementing cluster policies corresponds to each of its directions. At the same time, for the most socially and economically developed regions, issues of ensuring sustainable functioning and development come to the fore. For the regions with a low level of sustainability, issues of creating conditions for the organization and development of a cluster are the most important ones.

4. Discussion

The presented results of a process-oriented approach for the development of cluster policies for the sustainable development of a region comply with international standards. More than that, they boil down to improving the welfare of the population, developing infrastructure, and maintaining environmental

safety in the direction of moving towards a "green economy." Thus, the disclosed essence and functional purpose of the process-oriented approach to the formation of the sustainable development of a region define a number of significant advantages compared to the existing functional management mechanism. According to the authors, the development of regional cluster policies will become dominant in ensuring and enhancing its sustainable development.

5. Conclusion

The process approach has a number of functions that highlight its importance:

- Considering the processes from the standpoint of real value for the population;
- Achieving concrete results at every stage of the implementation process;
- Continuous improvement of the processes based on the comprehensive analysis and evaluation of their effectiveness.

These basic functions of a process-oriented approach in managing the sustainable development of a territorial entity determine the sequence of implementation of other processes, such as planning, organizing, controlling, making sound decisions that ensure mutually beneficial cooperation. The main goal is to increase the social status of a region, achieving stable economic growth. Ultimately, this is consistent with the goals of the UN Sustainable Development Concept for 2016–2030, paragraph 8 "Promoting sustained, inclusive, and sustainable economic growth, full and productive employment".

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