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FEATURES OF THE CONCEPTUAL CONSTRUCT AND METHODOLOGY OF SOCIO-ECOLOGICAL AND ECONOMIC RESEARCH

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Abstract

Difficulties in cognition arise from an insufficient theoretical elaboration of the relationship between scientific participants studying territorial processes and are related to the fact that researchers are in their conceptual worlds. This leads to linguistic fragmentation in territorial research, which is the first challenge to overcome, but it requires a conceptual construct aimed at integrating the knowledge of complex environmental, economic and social territorial problems, which is based on an interdisciplinary approach. Currently, several types of socio-economic environments are distinguished by different authors. The economic environment is viewed primarily concerning productive activities and is the result of a combination of many actions and factors that create conditions for the development of specific economic activities. The merger of technical, natural and social sciences in the study of balanced development of territorial problems has led to the development of a new methodology. System branches of knowledge have moved forward. Changes in scientific methodology with the transition to systematic research have revealed several objective contradictions that previously went unnoticed and the opening of which reveals the factors stimulating social development. Consequently, interdisciplinary territorial research requires a conceptual construct that combines environmental, social and economic approaches. Therefore, the study considers the balanced development of territorial economic activity as a complex dynamic system in which environmental properties, the structure of economic activity and the social process are continuously interacting. The reported study was funded by RFBR, project number 20-010-00195.

Keywords: Balanced development, material and energy flows, alternative energy, environment, territorial economic activities.

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1. Introduction

The analysis of regional economic systems shows that their dynamic efficiency is largely ensured by an optimal combination of environmental, social, and economic balance. There can be no stable society without social justice, environmental security and economic efficiency. The very maintenance of such optimality, which does not allow for distortions, implies qualitative changes in these three pillars of territorial systems, that is, improving the standard and quality of life of the entire population. The creation of predictive scenarios of effective development of economic activity considering socio-ecological and economic balance is an urgent scientific task. Such a theoretical task has been little explored in Russian economic science. There is a contradiction in this regard: the organization of harmonious development of territorial economic activity and the insufficiency of the conceptual construct and scientific and methodical base.

2. Problem Statement

In recent decades, a new view of the laws of social development – synergy – has begun to emerge at the intersection of physics, chemistry, biology, ecology, sociology, psychology, and economics. The term "synergy" comes from the Greek "synergeia", which means "commonwealth, cooperation", and emphasizes the coherence of the interaction of parts in the formation of a structure as a whole. Synergetics is defined as "the scientific direction studying the links between the elements of structure (subsystems) that are formed in open systems". In such systems, there is a consistent behavior of subsystems, resulting in an increased degree of orderliness, i.e. reduced entropy (increased self-organization).

Saving energy, i.e. reducing the work associated with the self-organization of the natural environment and its constituent parts, is its driving force. In nature, there is a constant demand for self-organization caused by the conditions of distribution of forces ensuring its integrity since the energy of bound particles in the system is higher than the total energy of the same particles in the free state. Consequently, the more ordered a system is, the more economical it is due to the resulting communication interactions. Thus, the process of self-organization is continuous in specific natural conditions (Lipenkov, 2012, p. 73).

The main difference between territorial systems and other self-organizing systems is that a person studies this system and manages it, being inside and one of its elements. The process of self-organization of the territorial system, as an anti-entropic process leading to an increase in the order of economic activity, is implemented through the adoption of decisions providing a balanced socio-ecological and economic development of systems, under which the authors understand complex, dynamic, spatially expressed formations that integrate the "nature-population-economy" triad.

3. Research Questions

Research questions are as follows:

3.1. Formation of a conceptual construct aimed at learning the integration of complex environmental, economic and social territorial problems

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A solution to the problem of formation of the conceptual construct allows creation of harmonious territorial economic activity, instead of its separate kinds – ecology, economy, and social areas, so that considering real restrictions and objective processes to provide the maximum possible economic, social and natural benefits, i.e., to create conditions of functioning without threat of imbalance between kinds of activity. Removing the imbalance between economic growth, social satisfaction, and environmental security will provide an opportunity to address the issues of improving the quality of life of the population and will have a positive impact on global environmental processes.

3.2. Identifying the contradictions of the scientific methodology in connection with the transition to systematic research

Traditionally, most management decisions at the regional level usually correspond to departmental, rather than general public interests. The results of such tasks can contradict each other in many ways. Local extremes may be far removed from the optimum when addressing specific environmental, economic and social issues. It is necessary to create a scientific methodology ensuring the harmonization of environmental, economic and social interests and ways of transition to balanced economic activity, i.e. to harmonious territorial development.

4. Purpose of the Study

The successful business activity requires considering the interrelation of strategic territorial interests – environmental, social, and economic (Sedov, 2016). The objective of the study is to show how their interaction determines the harmonious functioning of economic activity in the territorial system and its development. For this purpose, the author's specific components of economic activity are distinguished in the theoretical scientific and methodological bases of regional studies. Linguistic concepts and definitions are provided.

5. Research Methods

The main research method is the analysis of the economic, environmental, and social interests of business entities. Ideally, the territorial interests of society should be balanced in such a way that the realization of social needs does not lead to the infringement of economic or environmental interests and a corresponding distortion of economic and environmental needs. In this case, one can talk about the safe, balanced development of the territorial system.

6. Findings

Theoretical components that reflect the specifics of the study of territorial economic activity include essence, concepts, object, subject, priorities, properties, stages of development, methods, principles, factors, and tasks.

Production of public goods without profit orientation is the essence of territorial economic activity. The concept of a spatial socio-ecological and economic system is a complex and dynamically expressed

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spatial formation that includes the "nature-population-economy" triad. This system is the object of the study, and the subject is the relations arising from the provision of social and economic benefits to the population. At the same time, economic activity is understood as the production of public goods, and its main properties are dynamism, inertia, and sustainability. The system dynamism refers to the processes of the structure change. Inertia is keeping the structure for a long time. Both dynamism and inertia may be both positive and negative, and therefore determine the degree to which the territorial system is balanced (Davankov, Dvinin, & Postnikov, 2016, p. 1033).

The entry of territorial economic activity on the trajectory of balanced social and environmental-economic development should be considered in the context of three consecutive stages: stage of adaptation development, stage of innovative development and stage of balanced development.

The content of priorities for the spatial development of balanced economic activity should be defined as follows:

- in the economic area: improved efficiency in the use of local resources (Korhonena, Honkasalo, & Seppala, 2018, p. 37);

- in the social area: the achievement of social justice in the distribution of public goods, optimization of personal consumption;

- in the environmental area: maintaining an optimal habitat;

- in the environmental-economic area: development of alternative energy.

Factors are the starting points for the study of the spatial socio-ecological and economic system:

- state of balance or imbalance of social, environmental and economic subsystems;

- interests, values, motives of the behavior of the population in complex socio-ecological and economic systems;

- individual and social characteristics of the population.

Tasks are aimed at identifying:

- acceptable thresholds for a spatial mismatch between economic growth, changes in the natural environment, and living standards;

- priority areas of the system's development based on identifying "weak links" and "failures";

- coordination of the vector of interests of arising problems based on various alternatives;

- the level of dynamics of social and technical fatigue of the environment and ways of solving the arising stresses.

It is necessary to consider the scientific basis for reconciling environmental, economic and social interests and directions for the transition to balanced economic activity. Territorial interests are formed based on the interests of the population and economic entities (Pryakhin & Sedov, 2016, p. 16). The economic interests are based on the physiological needs of people satisfied with the benefits of nature. Since the population has many economic, environmental and social interests, they are classified according to the criteria of need. A comparison of the criteria shows that the production and reproduction of economic benefits are likely to come from nature and vice versa, which means a corresponding increase in economic and environmental interests (Giljum, 2011). Ideally, the territorial interests of society should be balanced so that the realization of social needs does not lead to compromising economic or environmental interests. In this case, one can talk about the safe, balanced development of the territorial system. The study of the

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alignment of interests requires answers to the questions: what is the level of current and future satisfaction of the population's interests with social and economic benefits; have all the interests been identified; what is the degree and quality of satisfaction of the interests. The research process identifies existing problems, pain points and suggests ways to optimize the system management to meet needs and interests.

The initial concepts of designing a mechanism to ensure the strategic interests of the territory are a balance of social, environmental and economic subsystems (Grinberg & Savchenko, 2019). Here it is necessary to maintain the proportions between technogenic material and energy flows (Schiller, 2009) created by economic activities and natural ecological and energy processes (assimilation potential) expressed in energy capacity units (Davankov & Kocherov, 2016). In this case, entropy decreases, the level of self-organization increases, and socio-ecological and economic activities become more harmonious. Consequently, increasing the efficiency of economic activity is the creation of conditions under which anthropogenic flows of economic activity do not exceed the flows of natural ecological and energy processes capable of neutralizing negative consequences of technogenesis (Belik, Starodubec, & Yachmeneva, 2017). Assimilation potential is not only the energy capacity of natural complexes of the territory to produce a certain amount of oxygen and absorb carbon dioxide, but also to neutralize a certain part of the negative consequences of economic activity (Nikulin, 2008). The quantitative values of ecological and energy characteristics of natural complexes and the overall energy potential of the Earth's biosphere were developed by Russian scientists at the end of the 20th century (Gorshkov, 1995). Earlier studies were carried out for several Russian regions (Dvinin & Davankov, 2018), indicating a high level of imbalance of natural and technogenic processes. Recently, alternative energy has been widely developed (Keiko, Takanori, Takashi, Ken-ichi, & Takashi, 2016), its feature is used energy already circulating in the biosphere, i.e. unlike traditional energy, it does not have a significant impact on the change in natural material and energy flows. In doing so, it can meet the reasonable needs of present and future generations (Davankov, Kosareva, & Kocherov, 2017).

7. Conclusion

As a result of the study, the following conclusions were drawn:

7.1. The formation of balanced territorial economic activity requires updating the conceptual construct, which is explained by the need to use an interdisciplinary approach to solving complex environmental, economic and social territorial problems. Based on the specifics of the study, the following components of the conceptual construct were theoretically substantiated: essence, concepts, object, subject, methods, priorities, properties, stages of development, principles, factors, and tasks.

7.2. The need to balance social, environmental and economic subsystems determines the maintenance of proportions between the technogenic material and energy flows generated by economic activities and natural environment and energy processes. Only in this case, social and environmental economic activity becomes harmonious. This result can only be achieved through

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the widespread use of alternative energy, as its key feature is that it does not have a significant impact on the change in natural material and energy flows and can meet public needs.

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