

Problems of Sustainable Development of Mountain Territories and Ways to Solve Them

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Abstract. A systematic approach in relation to the study of the sustainability of the development of individual territories is expressed in the fact that they are considered, on the one hand, as a separate segment that has all the institutional, economic, social and environmental characteristics, functioning as a whole of constituent elements (municipalities, individual economic entities). On the other hand, this separate territory is considered as an integral element of a meso or macrosystem (depending on the administrative-territorial nature of the territory under study), which functions according to general rules and directions of development, conditioned by a single goal-setting and functionality of the national system. In accordance with the definition of the subject of our study (sustainable development of mountainous territories), we determined that mountainous areas with specific development conditions are separate territorial entities with their own internally formed functioning conditions. On the other hand, not a single subject of the Russian Federation can currently be fully classified as "mountainous territories", that is, it must be considered taking into account the general principles of sustainable socio-economic development.

1 Introduction

More than a quarter of the Earth's surface is occupied by mountain ranges of various sizes. The indispensable role of mountainous areas is to provide the population of the planet with clean drinking water. More than half of animal and plant species are concentrated in mountainous areas, which makes them unique natural ecosystems. Unfortunately, humanity is very careless about the preservation of these unique territories, leading by its actions to a violation of the ecological balance between man and nature. In addition to environmental problems, ensuring the socio-economic development of mountain territories is also of great importance, since a large number of ethnic groups and peoples are concentrated in them. The Russian Federation is characterized by a very impressive area of mountain ranges, which means that their balanced development should be based on a level system for managing territorial development. The definition of priorities for the sustainable development of mountainous areas is based on the principle of consistency, based, on the one hand, on the

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equal provision of the quality of life of the population enshrined in the Constitution of the Russian Federation, and on the other hand, on the general principles of budgetary federalism that do not provide for the legislative application of special rules for development mountainous areas. In this study, as a subject of study, we identified the problems that hinder the sustainable development of mountainous areas, substantiated their specificity in order to apply special methods for managing them. The object of the study is the regions of the Russian Federation with mountainous territories. The main purpose of the study is to systematize the problems of sustainable development of mountain territories and to form ways to solve them in modern economic conditions.

2 Research Methodology

Within the framework of this study, such methods were used as: systematic (when substantiating the relationship between the problems of sustainable development of mountainous areas and ways to solve them); complexity (when substantiating the levels of impact of a particular problem on an interacting sphere); comparisons (when studying the levels of development of mountainous and flat territories); structural-logical modeling (when forming the trajectories of regional development); extrapolations (when forming the consequences, the creation of separate clusters of sectors of the national economy); cause-and-effect relationships (when substantiating the need for sustainable interaction of all levels of government to ensure the sustainability of the development of mountain territories). The theoretical basis of the study is the scientific works of domestic and foreign economists devoted to the problems of ensuring the sustainability of the development of mountainous areas. Various well-known scientists were involved in the development of this topic, among which are: Maria Rosa Ronzoni [1]; Bianchi Michele, Caputo Maria Luisa, Lo Cascio Martina, Baglioni Simone [2]. The problems of sustainable development of mountain territories have been developed in the works of such modern scientists as: Artur Steiner, Simon Teasdale [3], Lulu Zhou, Li Wang, Kangchuan Su [4] and others.

As an object of study, the problems of socio-economic and environmental development of mountain territories are chosen from the point of view of the systemic nature of their impact on the organization of sustainable development. As methodological tools in this study, a systematic approach, logical modeling and extrapolation, a comparison method are defined, the practical implementation of which made it possible to form the author's interpretations of the theoretical basis of the study. A systematic study of the features of the functioning of mountain territories and the identification of the main problems of their development, allowed the authors to give an expanded definition of the category "mountainous region", as a structurally integral territorial entity, functioning on the basis of a balanced maintenance of the ecological balance and anthropogenic impact, taking into account the provision of living standards for the population of these territories.

3 Results and Discussions

In modern conditions, the problems of regional development are one of the fundamental vectors of the state socio-economic policy, since the further prospects for the development of the entire national system largely depend on the regional level. Regional authorities in modern conditions are faced with an unprecedented situation when they are forced to implement programs at the federal level, since the financing and subsidization of the region is due to the coherence of interaction with the center. On the other hand, regions are not always able to prioritize their own development goals, which often do not fall into the general context of country development.

One of the problems of the socio-economic policy implemented by the state is its certain stereotyped nature, which threatens the effectiveness of its implementation at the regional level due to the deep differentiation of regional systems both in terms of resource provision and the level of management. The gradation of regional development is not supported by law in any way, and the level of development of regional systems is manifested only in strategic development documents. The market economy has formed some experience in management activities in terms of ensuring the smoothing of the polarity of regional development, however, as practical experience shows, the policy of regional equality is not effective.

An analysis of the sustainable development of regional entities must be implemented based on the application of a systematic approach, the essence of which is to study all aspects of socio-economic development from the perspective of all interested stakeholders. Consistency should be manifested not only in the relationship of the categorical apparatus of sustainable development, the definition of cause-and-effect relationships that form the object of research, but also in the interdependence of the levels of interaction between management bodies. The concept of "systematic study" means that the object will be investigated from the standpoint of determining its properties, factors, development conditions, and also depending on the level of its interaction with external, in relation to the system, objects.

Mountain territories are endowed with a special ecological status, since their natural and recreational resources have no analogues and contain the main product of vital activity - drinking water reserves. The mountains are a natural habitat for various species of flora and fauna, they are the guardians of the cultural, national heritage of unique folk ethnic groups. Any intervention in the natural area inevitably has a negative impact on the ecological and natural balance of the territory, which means that, speaking about the sustainable development of mountain areas, it is necessary to understand the level of detrimental impact on them in terms of violation of the ecological balance.

The environmental problems of the sustainable development of the territory become fundamental, since it will be influenced by a change in any sphere of activity (economic, social, technological, and so on). It is from the point of view of understanding the multidimensionality of the spheres of influence that it is necessary to use a systematic approach in studying the sustainability of the development of mountain territories. Consistency in our study will be based on the study of the problems of development of mountain areas, as well as the development of tasks to overcome them (Figure 1).

The block of environmental problems includes, first of all, a high level of anthropogenic impact, as a result of which various species of rare animals and plants are gradually disappearing. For example, in the republics of the North Caucasus, as a result of poaching, the area of forest cover has decreased by 7% in the last five years alone. As a solution to this problem, it is proposed to create protective maps of mountainous areas, which will include not only the areas of reserves and wildlife sanctuaries, but also territories that are not subject to industrial development and cannot be transferred to other categories of land. Given the dispersed nature of municipalities in mountainous areas, in practice, it is quite common to revise land fund plans in favor of transferring categories of unique land resources to industrial types. It is necessary to introduce mandatory coordination of the transformation of categories of such lands with regional authorities and tighten the conditions for these transfers.

In addition to poaching cutting, an important problem is the extensive use of agricultural land, including violations of the arable regime and land reclamation requirements. It is no secret that the main type of agricultural production in mountainous areas is animal husbandry. In recent years, the priorities of the Russian Federation are aimed at import substitution, and therefore, in the republics of the North Caucasus Federal District, there has been a sharp increase in the number of animals. Unfortunately, the development of animal husbandry occurs to the detriment of the crop industry, since often any category of land, including arable land, is given over to pastures. Another problem is the use of a large number of chemicals

that lead to the degradation of land used for grazing, which leads to animal disease, soil degradation and soil erosion. The introduction of standards for rational environmental management, common for each individual region, can be presented as an effective tool for regulating a separate territory, with its natural, climatic and socio-economic features. To avoid the “template” factor of the applied unified standards of rational land use, their development with the involvement of specialists from various fields from the area of residence will allow.

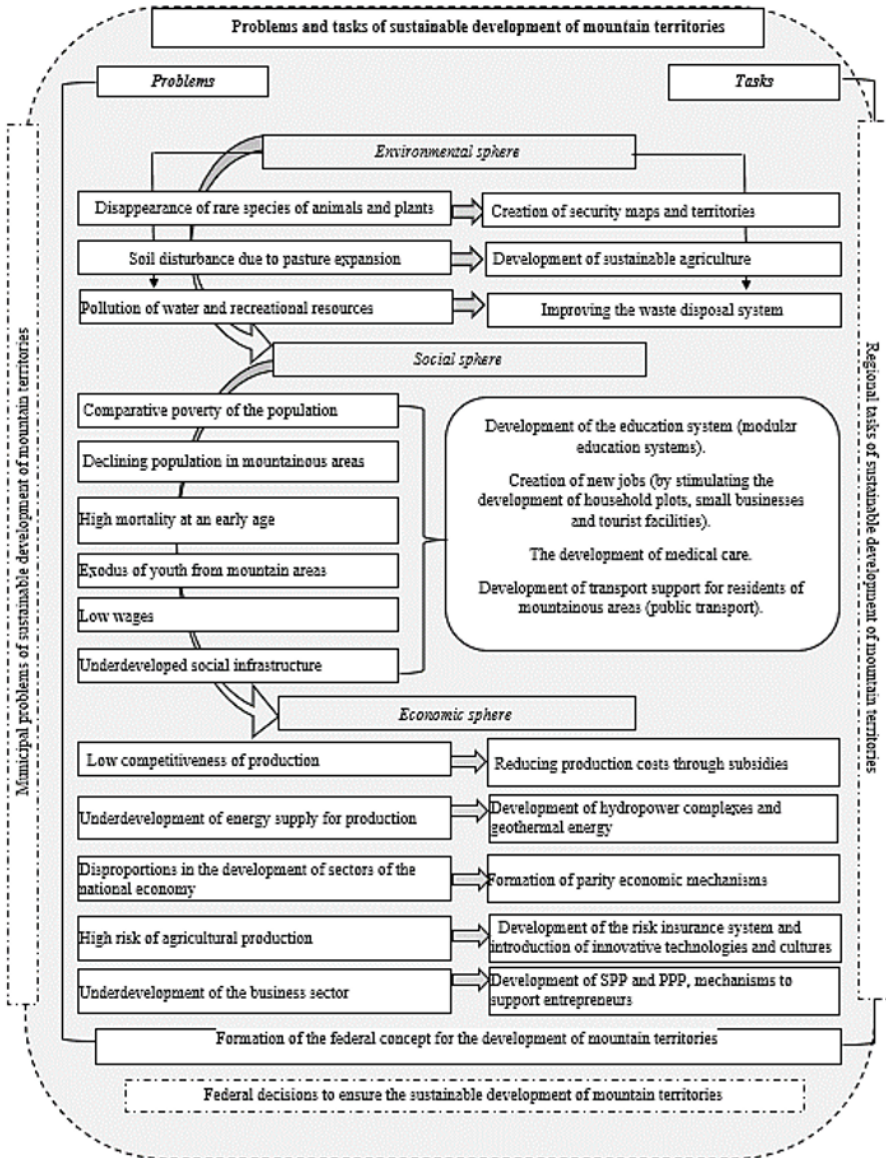


Fig. 1. Development of tasks to overcome the problem of development of mountainous territories

The issues of rational land use are also a priority for the economic sector. On the one hand, rational nature management requires additional funding. On the other hand, the violation of the ecological balance will lead to a negative economic effect, or will ensure its

significant reduction. In addition to land resources, the problem of rational use also affects irrigation subsoil. The water resources of mountainous areas are represented by: glaciers (as sources of drinking water), mineral springs (used in the balneological, recreational and food industries), as well as a system of rivers, which plays the role of a transport and logistics nature. Often, there are practically no suitable roads in mountainous areas, and river transport is used to connect with other settlements. The use of irrigation resources is accompanied by large volumes of pollution: domestic and industrial waste is dumped into the rivers; glaciers are polluted by unorganized tourists; the extraction and development of mineral water are characterized by gross violations in the applied technologies. The solution of these problems is concentrated in the application of modern technologies for the disposal of waste, both industrial and domestic. Since the construction of stationary treatment facilities is impossible in mountainous areas due to the relief, we are talking about optimizing the removal of waste to the nearest treatment plants.

A priori, sustainable development of mountainous areas cannot be realized only on a subsidized basis, and in this regard, the contradictory nature of the systematic management of such territories is manifested, the solution of which should be laid down in strategic documents. On the one hand, it is necessary to develop industrial production in order to increase the level of socio-economic development of mountainous areas, and on the other hand, it is impossible to disturb the ecological environment. Experts agree that the economic sphere is a priority among all others, since it is the economy that forms the basis of any systemic education. Among the main economic problems are the low competitiveness of production, since the very organization of production activities in mountainous areas is highly costly. In order to eliminate this disproportion between "plain" and "mountainous" areas, it is possible to use effective subsidies. Dependence on federal and regional funding once again confirms the systematic management of sustainable development of territories. The development of industrial production provides, first of all, the development of agriculture, in priority - livestock products. Taking into account the macroeconomic trends of the world economy, as well as the goals of increasing the food independence of our country, supporting agricultural producers in mountainous areas is quite realistic and economically justified, since in return the state will receive the necessary, high-quality and environmentally friendly product. In order to build up a production cluster in mountainous areas, it is necessary to solve the problem of energy supply for these territories.

At the moment, there are quite a lot of problems even in terms of domestic energy supply and gasification, therefore, in order to develop industrial production, it is necessary to use natural resources capable of generating energy. In the Russian Federation, there are examples of the formation of local hydroelectric power plants that can meet the needs of remote areas, the commissioning of which will ensure the development of rural areas, create additional jobs and stop the outflow of young people. In addition to irrigation resources, there is a successful use of solar energy in world practice, by deploying mobile solar installations. High-mountain regions are characterized by a large amount of solar energy, which is able to meet, among other things, the needs of industrial production.

The high level of preservation of the traditional way of life in mountainous areas is also manifested in the preservation of the long-term way of doing business. As a rule, these territories are characterized by high constancy of production activity and unwillingness to change it. Often, low-profit vegetable production in mountainous areas occurs only because all previous generations have done it, that is, changing the type of crops grown or switching to another type of productive activity is considered extremely negative. This trend can be reversed through the formation of pilot projects for the intensive production of agricultural products, which will become a clear example of effective activity and the possibility of its replication and promotion. In the mountainous subjects of the North Caucasus Federal District, such local agricultural clusters have already been formed, which, with the successful

interaction of public-private partnerships, have made it possible to form a local complex that includes a full production cycle. For example, the production of juices and canned vegetables in a mountainous municipal The entity, which has gardens and fields, also built vegetable stores (at the expense of a private investor) and a mini cannery (at the expense of the regional budget). Such examples allow us to say that the disproportion in the development of sectors of the national economy can also be resolved through the development of municipal-private partnerships and public-private partnerships, which will ensure the parity of economic mechanisms in mountainous areas. A complete production cycle is always more efficient than individual local production processes. In addition, the complexity of production also solves the problems of reducing the riskiness of agricultural production. When all stages of the process are concentrated in one area of responsibility (from the production of raw materials to the sale of the final product), it is quite easy to manage all areas: monitor the state of raw materials in storage; ensure the continuity of the production process; transform the range of manufactured products according to external requests; ensure innovativeness of production technologies, etc [8]. It is also necessary to expand the insurance system for agro-industrial production, which will help mitigate risks. At the moment, insurance companies are only interested in working with large agricultural enterprises, since the volume of insurance premiums for such clients is more attractive. In small mining agricultural enterprises, insurance is not developed due to the lack of necessary information from producers about available insurance programs, as well as the reluctance of insurers to contact small clients. In addition, manufacturers do not understand the priority and benefits of insurance coverage and are unwilling to spend additional funds on this, which are already lacking at such a low profitability of production.

The main direction in the development of mountainous areas is the formation of an entrepreneurial sector, which should and can improve the quality of life in sparsely populated areas [9]. It is necessary to stimulate the development, first of all, the interaction between entrepreneurship and the state within the framework of partnership in rural areas. The population has a wealth of experience in farming, formed over decades and adapted to harsh mountain conditions. The state needs to fulfill its socio-economic functions in terms of ensuring the proper level and quality of life of the population. At present, all the conditions necessary for the development of the business sector have been created in the Russian Federation, including: grants, consulting activities, development of business infrastructure, etc. A competent policy of the state will make it possible to overcome the existing disproportion in the economic development of "mountainous" and "plain" regions.

Economic problems are closely interconnected with the formation of social problems, expressed in the demographic aspect, negative migration flow and national characteristics of the life of the inhabitants of mountainous areas [10]. Demographic development is one of the indicators of the effectiveness of regional policy, however, the dynamics of vitality indicators should also be considered from a systematic standpoint. For example, the mountainous regions of the subjects of the North Caucasus Federal District, which characterizes the birth rate no less than the flat areas of the same subjects, and often more. That is, in this case, it may incorrectly identify the effectiveness of the ongoing regional policy. At the same time, in the mountainous regions of the Siberian subjects, the population of the mountainous territories is drastically reduced.

However, when comparing the volumes of the gross regional product and other economic indicators of development, the same Siberian mountainous territories surpass the mountainous subjects of the North Caucasus Federal District in all respects. Social problems are closely interconnected. For example, the relative poverty of the population leads to an outflow of young people who are trying to find better-paid jobs. That is, the lack of sufficient development of industrial production synergistically causes a large amount of social problems. The underdevelopment of medical and educational clusters in mountainous areas

gives rise to high mortality among the population and a low level of literacy. Often, in mountain villages there is only primary education, and secondary school (from the fifth to the ninth grade), as a rule, is a team, that is, one school for several municipalities.

As a solution to this problem, it is proposed to bring the practical experience of the Republic of Dagestan in creating modular educational blocks in sparsely populated areas. In order to optimize budget expenditures, a kindergarten, an elementary secondary school, as well as elementary vocational education are being formed on the basis of one building. In addition to reducing the cost of maintaining three separate business facilities, several problems are solved simultaneously [5]:

- increasing the employment of teachers and teachers (through professional retraining, teachers may well teach professional courses that allow school graduates to work in their own municipality). With small classes, the employment of teachers from the second half of the day allows you to receive additional income;
- creation of a full cycle of the educational process for residents of the municipality;
- development of competencies and professionalism of the teaching staff of the given settlement.

On the basis of the educational module, a cultural and leisure center can also be formed, thereby ensuring the development of consumer services. The ongoing projects in the Republic of Dagestan on modular education indicate that the creation of sports sections, dance and local circles on the basis of such centers largely contributes to the improvement of demographic indicators. These modules can also become a point of tourist attraction, offering the formation of local tourist routes [6].

Popularization of domestic regional tourism will create new jobs, develop entrepreneurship, and also form a brand of the municipality. Mountainous regions not only have unique natural and climatic resources for the successful development of mountain tourism, but can also successfully implement agricultural tourism, ethno-national, gastronomic, and event types of tourism. The expansion of the tourism sector through the formation of domestic routes has allowed Dagestan to triple the revenue from tourism over the past 10 years. It is necessary to understand the synergistic effect from each tourist site: to visit the site, the formation of transport logistics is required; for quality service - guides and accompanying persons; the formation of related areas (souvenirs, food, health care, security, and so on). The opening of only one tourist point of regional significance ensures the formation of an additional 4 to 15 jobs. We should also not forget about the additional consumption of the produced regional product (in case of an increase in the tourist flow), which will ensure the development of related industries.

The solution of the identified problems is quite feasible provided that the interaction of efforts of all levels of government (federal, regional, municipal) is balanced.

At the moment, interaction on the formation of sustainable development of mountain territories is carried out through a program-target approach (national project - regional development programs - development strategies of municipalities). The effectiveness of such interaction is extremely low due to the following objective reasons:

- directivity of national projects does not always take into account the specifics of regional development, such as with mountainous areas;
- dependence of regional authorities on federal funding, which is constantly declining;
- "narrow" interpretations of the direction of spending funds in national projects, where problems are often identified simply do not fall;
- the imperfection of budgetary federalism in terms of balancing problem areas and areas with potential growth volumes. Given the equality of the allocated budget funds, the regions spend them on meeting social needs, first of all, they are on the development of territories.

The presented theoretical and methodological aspects contribute to the development of the theory of sustainable regional development in accordance with the objectives of the

Concept of long-term socio-economic development of the Russian Federation [7]. Systematic visualization of the main problems of development of these territories in the context of economic, social and environmental spheres allowed the authors to identify the categorical apparatus of the study as a structurally integral territorial entity, functioning on the basis of a balanced maintenance of the ecological balance and anthropogenic impact, taking into account the provision of living standards for the population of mountainous areas. The problems presented are common to all mountainous territories of the Russian Federation and can be detailed by studying the specific features of individual subjects. The presented category made it possible to identify the key problems of the development of mountain territories, classified by the authors from the standpoint of a systematic approach into three modeling groups: economic, social and environmental (Figure 1). The study of these problem blocks made it possible to determine the priority tasks for the strategic development of these territories, to which we attributed: increasing industrial production by increasing profitability; improving the level and quality of life of the population and preserving environmental resources in full.

4 Conclusions

The main provisions of the scientific novelty in the presented study are as follows: 1) the problems of development of the mountainous territories of the Russian Federation are systematized, their specificity is determined from the position of level management; 2) proposals have been formulated to improve the efficiency of interaction to ensure the sustainability of the development of mountainous areas, consisting in: optimization of the regional municipal infrastructure in the environmental, economic and social spheres; support for priority sectors of the national economy, taking into account the increase in the targeting of recipients of funds; development of public-private partnership and municipal-private partnership in order to increase the investment attractiveness of mountain areas; the development of the tourism industry as a backbone to increase the production of related industries; creation of modules for the full production cycle in order to increase industrial production and employment; creation of modular educational clusters in order to train residents of mountainous areas with all the necessary competencies within the framework of general and primary vocational education; increasing the environmental friendliness of mountain areas by optimizing the land use system, improving waste disposal methods and developing energy supply through the use of natural sources.

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