

Results of Nature Management in the Baikal Natural Territory

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Abstract – Assessment of environmental activities in the Baikal natural territory is an important direction of nature management rationalization in the region due to the high nature-oriented status of the territory as a World Heritage Site and the uniqueness of its natural, ecological, cultural and historical features. Analysis of the existing structure of nature management in the Republic of Buryatia has shown a vast variety of natural benefits that are not fully used at the present time, and in this connection, it is necessary to identify priority areas of using natural resource potential with an increase in the scale of environmental activities. It is extremely important to identify current and potential conflicts of nature management associated with the state regulation of environmental protection and the search for priority investment objects, the daily activities of the population living in specially protected natural areas. Modern legislation concerning the protection of lake Baikal needs to be revised, due to the inability of local population to conduct the necessary activities in the Baikal natural territory in the conditions of environmental restrictions.

Keywords: *structure of nature management, nature protection activities, conflicts of nature management, lake Baikal, Baikal natural territory*

I. INTRODUCTION

Baikal natural territory is a concept widely used in scientific, journalistic works, in policy-making and legislative documents. It is an area that includes: lake Baikal; water protection zone adjacent to lake Baikal; its catchment area within the territory of the Russian Federation; specially protected natural areas adjacent to Lake Baikal, as well as the territory adjacent to lake Baikal up to 200 km wide to the West and North-West; the so-called "buffer zone". Any economic activity near the unique lake Baikal and its catchment area is carefully regulated. Current legislative acts of the federal and regional levels have formed the foundation for legal regulation of environmental relations at the Baikal natural territory. At the same time, the practice of their implementation has shown that the legislation in the field of this area's protection is imperfect [1]. There are urgent issues concerning the need to preserve the ecological framework of the territory and its economic development. In the current situation, conflicts between different types of nature management are frequent [2]. Though there is also a positive trend of development of cooperation ties with the Republic of Mongolia on the matter of improving the condition of lake Baikal [3].

The given research is devoted to the system analysis of nature management. It has been carried out within the framework of one of the RFFR (Russian Foundation for Fundamental Research) projects implemented by the Chair of Environmental Management (Faculty of Geography, Lomonosov Moscow State University) [4]. Possibility of carrying out a comprehensive analysis of nature management at the Baikal natural territory, including ecological-geographical, ecological-economic, historical-geographical, socio-cultural aspects, is determined by the need to optimize nature management in various regions of Russia, including the Baikal region [5].

The research novelty and relevance is determined by the fact that a large deal of research devoted to the Baikal region, and Baikal natural territory, in particular, are very field-specific, while, there is a need for more comprehensive studies of nature management as a complex system "nature-man-economy-culture". Acute conflicts of nature management that take place at the Baikal natural territory serve as a proof of that. In particular, such situation has developed in the Baikal, Transbaikal and Tunka national parks; in the vicinity of settlements located within the Central ecological zone of lake Baikal; in the territories of indigenous and small peoples of the North and the old-age population.

The research aim is to reveal ways to optimize environmental management for sustainable development of the Baikal natural territory through integrated ecological and geographical studies.

The given aim required the following tasks to be solved:

1. Identification of natural and socio-economic features of the studied territories.
2. Decoding of aerospace images with subsequent verification in key areas of the Baikal natural territory.
3. Analysis of current and potential conflicts of nature management.

Initial data for the analysis of nature management include literary, cartographic, fund and other sources, as well as expedition studies, held annually in the Baikal natural territory by the Department of rational nature management (Faculty of Geography, Lomonosov Moscow State University).

Model territories have been selected for complex research. They have been chosen in such a way as to be able to cover the whole complex of natural and anthropogenic systems within which conflicts of nature management are observed or may be observed. Conflicts arise most often when environmental restrictions do not allow the local population to conduct the necessary economic activities.

II. MATERIALS AND METHODS (THE MODEL)

To identify the current environmental situation, which resulted from the interaction of man with nature, it is necessary to study the nature management that has developed in different regions of the Republic of Buryatia. Understanding the specifics of regional nature management is important for revealing compliance with the territorial economic organization of resource and environmental capacities of the regions of the Baikal natural territory. Regional differences in nature management result in a set of different environmental problems observed in the territories.

Differentiating the territories of Buryatia according to peculiarities of the existing structure of nature management required making up a survey map "Natural economic zoning of the Republic of Buryatia". This is special zoning, designed to display the results of interaction between man and nature, clearly visible on cartographic maps and on satellite images [6]. The map compiled using numerous sources of information, including the results of satellite images decoding, reflects the actual pattern of differentiation of the territory of the Republic into areas with the different spatial and temporal structure of nature management, historically developed in certain natural and socio-economic conditions.

The map provides insight into general geographical regularities of nature management in the Republic of Buryatia as a result of regional differences in sectoral and territorial structure of nature management, which in turn imposes differences on the environment [7]. A series of satellite images with different resolution and in different ranges, as well as a wide range of natural and socio-economic maps have been used in the process of map drafting, which provided the necessary reliability of information regarding the spatial location of natural and economic complexes.

Differentiation of the Republic of Buryatia is based on the analysis of spatial heterogeneity of natural conditions and resources, the existing specifics of economic development of the territory, modern territorial and industrial structure, as well as the patterns of population settlement in the region. This made it possible to assess the features of interaction of natural, social and economic factors affecting different types of nature management. The following key features should be mentioned: prevailing types of zonal and azonal landscapes, the natural resource potential of the territory, degree of the territory's development, patterns of settlement, etc.

The work required using numerous statistical, literary, fund and cartographic sources, including those created and published in the Irkutsk Institute of Geography (Siberian Branch of Russian Academy of Sciences), Baikal Institute of Nature Management (Siberian Branch of Russian Academy of Sciences), as well as remote sensing data and

information from official websites of the Ministry of Natural Resources of the Republic of Buryatia, the Ministry of Culture of the Republic of Buryatia.

Analyzing the natural and socio-economic conditions of development of recreational nature management of Buryatia required studying the features of the sectoral and territorial structure of nature management of the Republic, their compliance with the resource and environmental capabilities of the region. The most important role is played by the factors determining the features of the structure of nature management, among which should be mentioned geological-geomorphological, bioclimatic and anthropogenic factors. Special attention in anthropogenic factors is paid to the history of development, ethno-social and economic conditions of the region's development. Such conditions include mining [8] and its mapping [9], as well as climate change and anthropogenic loads [10].

Allocation of areas with a combination of different types of nature management has also been carried out taking into account the existing territorial and industrial structure and the specifics of settlement. It has been established that in the territory of the Republic of Buryatia the leading factor of territorial differentiation and allocation of natural-economic areas, especially in the mountainous North and West of the Republic, is a geological-geomorphological one, while in the Central and Southern parts of the Republic, the leading role is played by bioclimatic and anthropogenic factors.

As a result of spatial analysis of various data on natural and economic structures, as well as generalization of the results obtained, the differentiation of the territory into areas differing in zonal (tundra, taiga, forest-steppe and steppe landscapes) and regional characteristics of natural conditions and resources has been carried out, which largely determined the specifics of the territorial structure of nature management in the Republic of Buryatia.

III. RESULTS AND DISCUSSION

The revealed regional and local specificity of nature management structure served as the basis for allocating ten natural and economic areas in the territory of Buryatia, the boundaries of which do not always coincide with administrative areas. The most developed areas are confined to river valleys, forest-steppe and steppe landscapes in the South of Buryatia. Underdeveloped areas occupy large territories in the North and Central part of the Republic. These mainly include high-altitude and mid-mountain areas.

The Zapadno-Stanovoy District is characterized by small-scale and fragmentary traditional hunting and fishing, with separate areas of deer farming. The district is also characterized by developed ecological and sports tourism, by the presence of natural monuments, thermal and mineral springs. Alluvial and ore gold is mined here. The Baikal-Amur Mainline passes across the area.

The Vitimsky District is characterized by local deer farming, hunting and fishing in the middle-mountain undulating hill. Alluvial and ore gold, as well as jade, are mined here. Timber harvesting and processing is carried out in the South of the district. The district is also characterized by developed ecological and sports tourism.

The Barguzinsky District is characterized by agricultural use of steppe and mountain-valley landscapes mainly through grazing of cattle, sheep; fodder and grain crops; horse breeding. Hunting, fishing and harvesting of non-wood products are developed. Sports, recreational, cultural, educational and ecological tourism is widespread in the district. There are numerous natural monuments, mineral springs, religious objects.

The Yuzhno-Vitimsky District is characterized by agricultural use of steppe, mountain, and river valleys as well as flat hollows. Pasture and arable lands used for cattle breeding, agriculture and horse breeding prevail in the district. Fishing and hunting are also developed. Mineral springs are used. Sports and health tourism is developed. There are deposits of polymetallic ores, gold, coal, building limestone.

The Ulan-Burgasinsky District is characterized by forestry use of mountain taiga pine, larch and dark coniferous landscapes, agricultural development of steppe plain landscapes of valleys. Timber harvesting, hunting and fishing are also developed. The district is characterized by a large number of thermal and mineral springs. Sports and health tourism is developed.

The Tsentralny District is characterized by intense agricultural use of mountain steppe valley landscapes with crops of grain and fodder crops, dairy and meat livestock and horse breeding. Suburban agriculture and industry of Ulan-Ude, as well as timber industry, food and light industry in the settlements, are developed. Medical and cultural recreation is widely represented. There are numerous natural, cultural and historical monuments. Wood and non-wood products are harvested.

The Yuzhny District is characterized by agricultural use of valley steppe landscapes with chestnut and black earth soils, which are used for grain and fodder crops, potatoes and meat and dairy farming, horse breeding. Forestry and hunting are peculiar of mountain taiga larch and pine forests of low mountain ranges. Medical recreation, cultural and educational tourism, timber industry and food industry, brown coal mining by quarry method are developed. There are mineral springs and natural monuments.

The Khamar-Dabansky District is characterized by forestry use of mountain taiga dark coniferous and deciduous landscapes for industrial timber harvesting, hunting, fishing, harvesting of non-wood products. Agricultural use of valley forest-steppe and steppe landscapes characterized by meat-dairy, wool and meat-dairy-grain directions is also peculiar of the district. Mining of stone coal and brown coal is developed. There are numerous archaeological sites. Sports, cultural and educational tourism is developing.

The Tunkinsky District is characterized by nature conservation, as its territory is home to the Tunkinsky National Park. Nature protection, research activities, medical recreation on the basis of numerous mineral springs are developed. There is small-scale suburban agriculture, horse breeding.

The Vostochno-Sayansky District is characterized by local hunting and fishing use of high- and medium-mountain highly fragmented loam, sub-loam, mountain taiga larch

landscapes. Sports tourism, gold and jade mining are developed. There is subsidiary agriculture, including the breeding of sheep, horses, yaks.

The Severo-Baykalsky District of the Republic of Buryatia was one of the key areas of research. The choice of this territory is conditioned by the following circumstances. Firstly, it has the longest Baikal coastline and diverse nature of the coasts as compared to other districts of the Republic of Buryatia. This increases its recreational appeal in comparison with other areas [11]. Secondly, the Evenks people still live here and conduct their economic activities. The district is in a difficult situation associated with the need to develop territory and nature protection. Traditional nature management is in a weakened state, so it is important to restore the historically established economic framework of life support for indigenous peoples and, ultimately, to preserve small ethnic groups through creation of specially protected areas – Areas of traditional nature management.

Such areas may be the result of natural-historical development of ethnic groups, the factor of their life support and preservation. At the moment, the rationale for creation and allocation of such protected areas is one of the urgent socio-economic and socio-environmental problems of most Northern and Eastern regions of Russia, including the Baikal Region. The creation of areas of traditional nature management and the development of traditional industries with state support can be seen as an attempt to cope with the crisis situation for certain territories, as aboriginal people have largely retained the experience of traditional nature management on the lands of their ancestors. Many of them are excellent experts in the environmental issues and, most importantly, are eager to engage in traditional nature management on their ancestral lands.

An important circumstance is the fact that so far no district of the Baikal Region has its own brand, different from others, which could attract tourists. Development of ethno-ecological tourism with the involvement of representatives of the Evenki clans in the ancestral lands, the opportunity to get acquainted with the mountainous and coastal territories, can serve as a good prospect for the Severo-Baykalsky District, and as its difference from all other areas. We have gathered information and carried out an analysis to substantiate the creation of areas of traditional nature management, which can help in solving complex issues of nature conservation, recreation and traditional nature management.

The Pribaykalsky District and the Barguzinsky District are other key research areas. They are prospective from the viewpoint of developing recreational nature management within the whole Baikal natural area. However, there is still no clear inventory of recreational resources, there are few well-developed tourist routes and cartographic material devoted to this topic. Quality of management is low for unique Baikal natural territories. Insufficient attention is paid to studying the history of settlement and development of the territory; promoting knowledge about nature and culture of the native land among the local population; non-use of unique knowledge in planning of economic and recreational activities.

Another problem is related to the need for defusing social tensions caused by environmental restrictions on the

use of natural resources by local residents. The coast of Lake Baikal locates a large deal of mass tourism and recreation sites, which have different recreational potential, different degree of degradation as a result of mass exploitation, as well as the different level and quality of territorial management.

Recreational use of the region, taking into account the high environmental requirements, proves an urgent need for developing organized recreation. For this purpose, the project on creating a Special economic zone (SEZ) of tourism and recreational type "Baikalskaya Gavan" (Baikal Harbor) is being currently developed in the Pribaykalsky District. It is important to take into account that tourism is an industry that can be a key factor of economic development for the areas under study since the creation of SEZ entails a multiplier effect. For example, this project has already resulted in the district's infrastructure improvement, roads and other communications reconstruction, new landscaped areas and recreational facilities development, public services of settlements improvement [12].

This, in particular, concerns the Trans-Baikal National Park, located in the Barguzinsky district, 130 km from Gremyachinsk provided with an asphalt road. Organization of excursions for tourists visiting the Baikalskaya Gavan has good prospects.

Specially protected natural areas of different categories occupy a major part of the Baikal region, especially within the Central ecological zone (CEZ) of lake Baikal. Many protected areas have settlements where local residents conduct their economic activities. Their activities are largely limited not only by existing environmental restrictions but also by the special status of lake Baikal, as well as by the Federal Law "On specially protected natural areas" (14 March 1995, No. 33-FZ).

On December 30, 2013, Federal Law No. 406-FZ of 23 December 2013 "On amendments to the Federal Law 'On specially protected natural areas' and certain legislative acts of the Russian Federation" came into force. The main changes that have been established by this document relate to the aspects of creation and development of different categories of specially protected areas and their management, as well as the transformation of protected areas from one category to another.

The amendments introduced by Federal Law No. 406-FZ to Federal Law No. 33-FZ provide for the collection of fees for visits by individuals to the territories of national parks (except for areas located within the boundaries of settlements) for the purposes of tourism and recreation by Federal state budgetary institutions managing national parks. Thus, today, in order to visit national parks, individuals who are not related to managerial staff, must make a certain payment in addition to obtaining the permission of the authorized body.

The amendments introduced by Federal Law No. 406-FZ establish the peculiarities of harvesting wood by citizens for their own needs and the conclusion of contracts for the purchase and sale of forest plantations in relation to protected areas. These restrictions have seriously worsened the situation of local residents. They actively resist these legal innovations. This results in serious conflicts between

different types of nature management, such as nature-protection, residential, traditional, resource and commercial ones.

Our studies have shown that serious changes in nature management affected the territories of national parks (Baikal, Transbaikal, Tunka) as well as some reserves and sanctuaries. Due to the fact that a significant part of protected areas is located in the central economic zone of lake Baikal, local nature management has undergone significant changes and is developing in accordance with the environmental legislation provided for economic activities within the protected areas and the Baikal natural territory.

This situation raises difficult issues of nature protection and legal conflicts of nature management. Environmental legislation on the Baikal natural territory has a pronounced prohibitive nature, concerning the development of economic activity and settlements. No measures have been taken to financially support the local population.

Sociological studies have been conducted in a number of districts which territories were included in the CEZ. The following are just a few examples of legal conflicts that local residents face on a daily basis. Due to the closure or restriction of production, people have become unemployed; they do not have the right to privatize and expand their land plots; cemeteries cannot be expanded; there are big problems with storage and garbage disposal. Landfills cannot be placed within the CEZ according to the Law. In this case, garbage disposal becomes very expensive for local residents and, as a result, most residents and numerous tourists dump garbage in unprepared places.

Many local residents are very negative about this not fully thought-out organization and development of protected areas. There must be a decent life and guarantees for the local population and their children. Unfortunately, their rights spelled out in the basic Law of the Russian Federation – the Constitution, are not spelled out in the basic laws governing economic activity in the Baikal natural territory.

IV. CONCLUSION

The present study continues testing a systematic approach to the analysis of nature management in key territories of the Baikal natural territory in order to find ways of its optimization.

The proposed zoning of the territory of Buryatia creates a basis for determining further guidelines and making management decisions at the federal and regional levels in order to reduce environmental tensions in certain regions, as well as create a sustainable system of environmental and recreational nature management. Rational nature management should meet the needs of the region as a whole, while supporting the environmental and resource-forming functions of natural landscapes.

In the Central ecological zone of the Baikal natural territory it is forbidden to conduct economic activities and construct capital objects of industry and energy. Thus, article 11 of the Federal Law "On the protection of lake Baikal" prohibits transfer of forest lands occupied by protective forests to lands of other categories. As a result, it becomes impossible to build and develop industrial life-support facilities, in particular, power lines, communication

lines and infrastructure, as well as places for the processing of household waste and garbage. This situation can be resolved only by amending environmental legislation.

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