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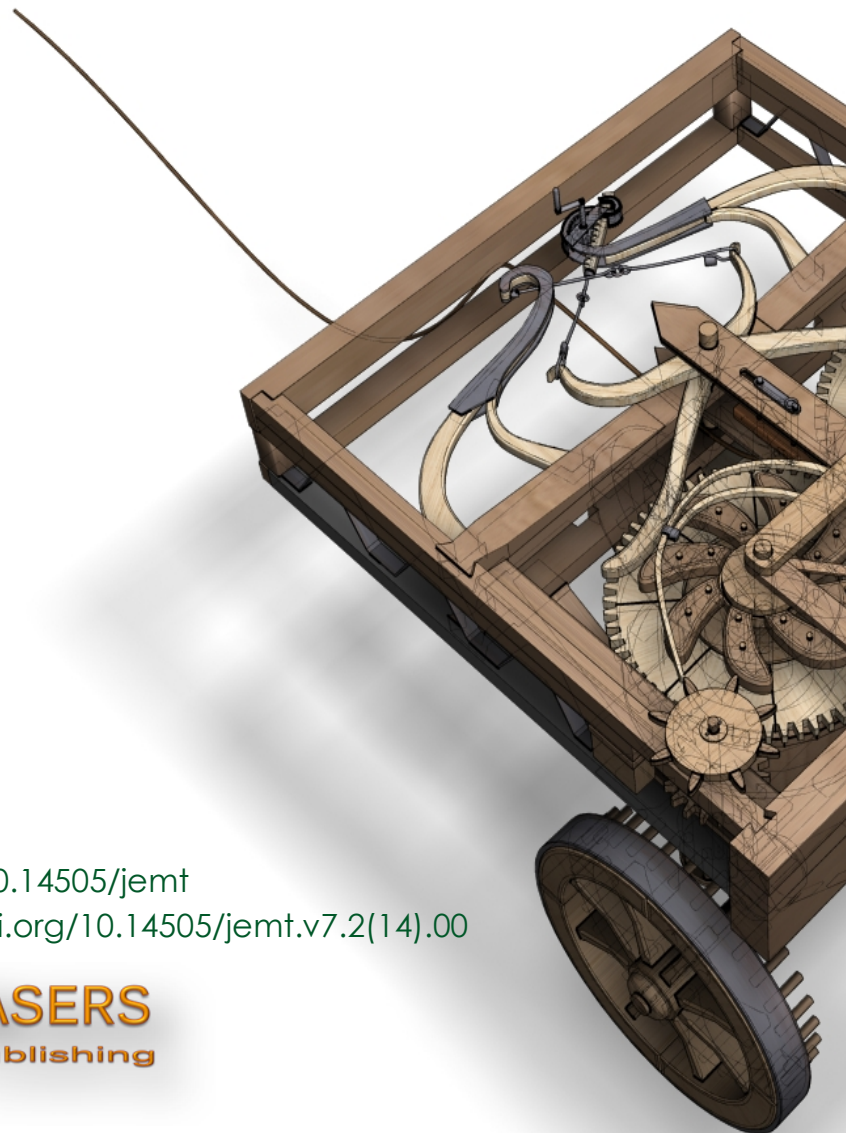
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On the Concept of Sustainable Recreational Use of Natural Resources of Cross-Border Areas of Altai

Evgenia O. HARMS

Institute for Water and Environmental Problems
Siberian Branch of the Russian Academy of Sciences⁸, Russia
garms@ngs.ru

Maria G. SUKHOVA

Institute for Water and Environmental Problems
Siberian Branch of the Russian Academy of Sciences
Gorno-Altai State University⁹, Russia
mar_gs@ngs.ru

Nina A. KOCHEEVA

Gorno-Altai State University, Russia
nina_kocheewa@mail.ru

Alexander I. MINAEV

Gorno-Altai State University, Russia
minaev-alex@yandex.ru

Andrey V. KARANIN

Gorno-Altai State University, Russia
vedmedk@bk.ru

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Abstract

The article describes the geo-ecological principles and their relationship with the sustainable development of natural resources. The authors propose conceptual illustration of sustainable recreational use of natural resources of cross-border areas of Altai and analyze the main diversification paths of the tourism product of the region. Cross-border cooperation between the countries of the region and the organization of a single eco-economic and recreational space is of special importance as it is the basis of sustainable mutually beneficial economic development. The authors carried out the systematization of the concepts of sustainable recreational use of natural resources and grounded its geo-ecological principles as exemplified by cross-border areas of Altai.

Keywords: Altai, recreational resources, tourism, sustainable development.

JEL Classification: Q26, L83.

⁸ 1, Molodyoznaya St., Barnaul 656038, Altai Territory

⁹ 1, Lenkin St., Gorno-Altai, Altai Republic, 649000, Russia

1. Introduction

The Altai is an attractive tourist destination, which boggles the minds of people by variety of natural conditions, a wide range of recreational niches and offers. The popularity of this tourist attraction is largely determined by its landscape richness and diversity (Sukhova and Garms 2014, Sukhova 2013).

Tourism and recreation management as well as sustainable development in mountain areas are closely interrelated, and in this regard, the research in this field can be a priority for both concerned regions and surrounding areas. Unfortunately, to date, poorly regulated territorial organization of tourist attractions is dominated in travel industry that is characterized by large disparities in tourism development in many mountain regions (Dunets 2011, Tourism Market Trends 2010, Liszewski 1995).

The purpose of present article is to systematize the ideas of sustainable recreational use of natural resources (RUNR) and the substantiation of its geo-ecological principles as exemplified by the cross-border areas of Altai.

There are many interpretations of sustainable RUNR, though they all come down to three pillars of sustainable development: social equity, economic efficiency and ecological safety. As defined by the World Tourism Organization, sustainable RUNR meets the today's needs of tourists and host regions, while preserving and enhancing opportunities for the future. Management of all resources should be carried out in such a way as to meet economic, social, and aesthetic needs, to preserve the cultural integrity, essential ecological processes, as well as biological diversity and life support systems. In our study sustainable RUNR is understood as the harmonious relationship between society and the natural environment while meeting the recreational needs and providing balance between social, economic and environmental concerns, as well as ensuring the efficient use of natural and recreational potential, the preservation of optimum quality of recreational environment for future generations (Yakovenko 2001, Yakovenko 2004, Lysenkova 2006, Oborin *et al.* 2014).

2. Methods

According to Privalovskaya (1999), the territorial interpretation of the sustainable development concept assumes the territorial organization of natural, economic and social subsystems according to its bio- and anthropocentric grounds. The criterion of sustainable development of regional recreational use of natural resources is the achievement of a certain socio-ecological and economic balance, i.e. mutual colligation, coordination, and unity of the priority objectives of the three main spheres of the RUNR – social, economic and environmental. When developing the conceptual foundations of the regional development strategy of the RUNR, we should bear in mind the pursuit of each of the areas to internal balance.

Substantiation and development of the sustainable development concept of the RUNR in a particular region should be based on research in four areas:

- 1) The analysis of the prerequisites for sustainable development of the RUNR:
 - the analysis and assessment of natural and ecological development factors of the RUNR;
 - biological and landscape diversity of the territory;
 - status of protected natural areas in the regional system of use of natural resources.
- 2) Assessment of the basic level of sustainable development of the RUNR:
 - carrying out or analyzing the existing system of functional zoning;
 - identifying interests and conflict of natural resource users in the region,
 - identifying and diagnosing the most urgent problems of the RUNR and their territorial differentiation.
- 3) Theoretical and methodological substantiation and elaboration of sustainable development models of RUNR.
- 4) Elaboration of constructive concepts for the sustainable development of the RUNR in the region.

3. Discussion and results

Current status of the RUNR in the cross-border areas of Altai is characterized by the following problems and inconsistencies:

- Environmental issues:
 - digression of natural recreational land with excessive recreational load (the vicinities of Mount Belukha and Lake Kanas);

- uncontrolled proliferation of tourists on off-road vehicles, destroying the soil and the grass cover (this concerns particularly fragile tundra steppe ecosystems of Ukok);
 - deterioration of undergrowth and grass cover in areas of excessive development of horse-riding tourism;
 - the increase in poaching damage;
 - littering of recreation areas with glass, polymers and waste paper.
- Social issues:
 - small role of recreation in local employment;
 - lack of socially oriented types of recreation service (for the disadvantaged population, children and the disabled persons);
 - insufficient information support of participants of the RUNR.
 - Economic issues:
 - the lack of a diversification strategy of the regional tourism product;
 - low level of innovative-investment activity in the recreation sphere (with the exception of the Republic of Altai);
 - underdeveloped general and special recreational infrastructure and tourism;
 - negligible state support of regional tourism development programs (with the exception of the Republic of Altai).

Based on studied works, as well as own research, the authors have highlighted the geo-ecological principles, which laid the basis for further derivation of principles of sustainable recreational use of natural resources of cross-border areas of Altai.

The *principle of consistency* implies taking into account the close interrelationship between all the components inside the territorial system, as well as relationship with other structures of larger rank. The use of this principle in planning of sustainable development of the RUNR involves: interrelated consideration of all system elements and relations, both at the stage of creation and their functioning; taking into account the influence of recreational activities on possible change in the natural component; forecast of reverse impact of modified nature on the RUNR; and the measures to preserve system properties of the RUNR.

The *territorial principle* implies taking into consideration functioning and development of the RUNR depending on the natural and socio-geographical conditions of each specific region.

The *principle of management* implies: manageability of the RUNR involving designation in its structure of subjects and objects to management; regular monitoring over the operation and development of the RUNR. Adherence to this principle is possible only at the developed management body; prevent negative effects of recreational activities. Each of the three designated geo-ecological principles became the theoretical basis for the development of specific rules of sustainable RUNR as:

- *The rule of anticipatory management* (synergy of the countries of cross-border region). The rule of anticipatory management (work coordination) consists in the following. Management bodies with a clear territorial organization guide, coordinate, and unite the efforts of various organizations that make up the service complex for tourists. This complex includes the enterprises of the main branches of tourist specialization (travel agencies and tour operator companies) as well as services enterprises (accommodation, catering, transport and communications, entertainment).
- *The rule of natural environment preservation*. Creating tourist infrastructure and planning tourist activities should be carried out in such a way as to protect natural ecosystems and their biological diversity.
- *The rule of cultural heritage preservation* implies creation of conditions to prevent the standardization of local culture and provide socio-cultural exchange.
- *The rule of accounting for social conditions*.

The management of tourism activities should be carried out in such a way as to minimize the negative impacts of a social nature, resulting from the development of tourism (increase in crime rate, migration of labor resources, the increasing role of unskilled labor, etc.).

Further, according to these rules, we developed measures and solutions aimed at the sustainable progression of the RUNR in the region. Hierarchical relationship of the geo-ecological principles and rules of

sustainable development of the RUNR, as well as possible effective measures are shown in Figure 1. Next level is the regional specific, which offers and implements specific actions in the framework of the concept of sustainable recreational nature management in the cross-border areas of Altai. Each action is derived from and justified by the above mentioned principles and rules.

The principle of consistency provides instruments for sustainable RUNR such as:

- *The establishment and operation of monitoring stations.* Today they exist only in the reserves such as Katun, Altai, Tigirek, and some others, because stations' functions include protection and monitoring of natural environment, including biosphere nature reserves, which must be monitored according to their status: Calculation of admissible recreational load; Inventory of unique natural and cultural historical monuments of the region; Creation of tourist certificates of the regions.
- The management principle and arising rules of sustainable RUNR for trans-border areas of Altai are performed through:
 - carrying out functional zoning with the designation of the following zones: recreational and nature-oriented, economic and recreational, nature-oriented and recreational, recreational and economic, and economic and nature-oriented; as well as carrying out business activities according to the priority lines of the zones.
 - cooperation between adjacent protected designated natural areas. To date, a positive effect is observed in the Katun reserve with the Katon-Karagay National Park. Also joint activities are planned between Saylyugemsky National Park and National Park Silkhemin, as well as Ukok Nature Park together with Kanas and Altai-Tavan-Bogd Nature Reserves.

The principle of territoriality and the relevant rules for accounting of natural features and social conditions of the region, in our view, is implemented through diversification of the regional tourism product. It is noteworthy that Sevastyanova (2008) uses a concept such as the potential of diversification, *i.e.* the opportunities for diverse use of environmental, organizational, socio-cultural, recreational and other potentials that increases the sustainability of recreation as the entire system with regard to external and internal destructive influences, and creates conditions for the most efficient use of resources in a changing situations and system objectives.

The possibility of diversification can be considered as one of the ways for sustainable development of recreation in the region. Thus, we have given possible alternatives of recreational activity types for each of the four countries (Figure 1). Currently, the development of tourism in cross-border areas of Altai region can be built on the recreation activities that do not require developed infrastructure (adventure, hunting and fishing, ethnographic tourism, etc.) or have a well-developed infrastructure that requires upgrading (mountain skiing, historical and cultural tourism, recreational tourism, etc.).

Based on known principles, the authors developed recreational-commercial zoning for the studied cross-border areas of Altai. Thus, the whole territory was ranked from the standpoint of development prospects of various recreational activity types, economic use and nature conservation status.

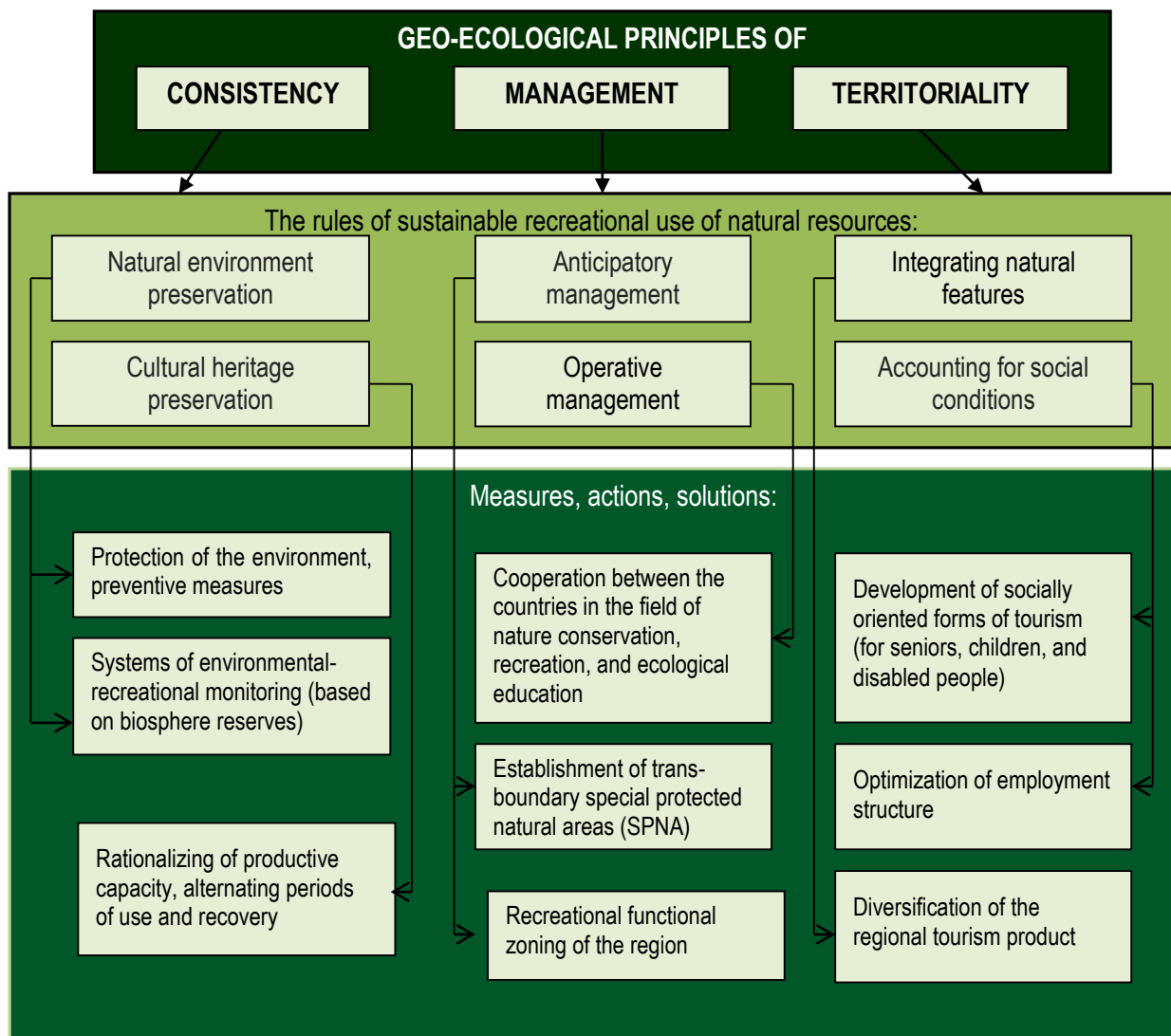


Figure 1 - A diagram of the sustainable development concept of the RUNR in cross-border areas of Altai

The conducted zoning was based on the assessed degree of recreational favorability of natural environment components (technological, physiological, and psycho-emotional), the comparison of environmental constraints with recreational attractiveness of the land, the definition of recreation specialization of natural recreational areas, as well as characterization of natural-economic systems of the Russian Altai, identified by Chernykh (2012).

As a result of conducted comprehensive analysis, it was reliably revealed that the whole territory of the region has varying degree of favorability in terms of being involved in recreation use of natural resources. In some regions recreation is a priority type of use of natural resources, while in other regions it is just concomitant and secondary, though available anyway.

Following Isachenko and Chizhova (2012) we believe that one type of use of natural resources must be accompanied by another, because the more diverse economy, the more sustainable it is. At the same time, favorable natural recreational resources should be used also in traditional land-use management and vice versa. In addition, it is necessary to consider nature conservation status, as there are sufficient numbers of special protected natural areas of different levels. This approach is reflected in the names of the functional zones. The emphasis and semantic priority in double names is made on the first word, while the second word reflects the accessory type of use of natural resources. To classify the zones, we have constructed the matrix of the three main types of use of natural resources in the region (Table 1). Here the economic management refers to a set of component-wise and branch-wise resource use (forestry, crop production, animal industry, and extraction of minerals).

Table 1 - Matrix of the functional areas

Type of use of natural resources	Recreational	Nature-oriented	Economic
Recreational	Properly Recreational	Recreational and Nature-Oriented	Recreational and Economic
Nature-oriented	Nature-Oriented and Recreational	Properly Nature-Oriented	Nature-Oriented and Economic
Economic	Economic and Recreational	Economic and Nature-Oriented	Properly Economic

In our opinion, from the nine resulting intersections of the matrix, the following functional areas are unreasonable: properly recreational, because throughout the region there are no places where recreation could be developed as an exclusive sector of the economy; properly nature-oriented, because currently recreational tourism is developing even in the reserves; properly economic, because according to the conducted assessment, the entire region is somehow favorable for recreation; and recreational and nature-oriented, since special protected natural areas, depending on the severity of their status fall into the recreational and nature-oriented or nature-oriented and recreational area.

Thus, the contemporary natural-cultural complexes of cross-border areas of Altai, in terms of their recreational zoning, can be combined into recreational and nature-oriented zones, economic and recreational zones, nature-oriented and recreational zones, recreational and economic and economic and nature-oriented zones.

Recreational and nature-oriented zone includes part of southern Altai (Katon-Karagay) and the Chinese part (Kanas). Basically these are sites with a bright and vibrant mountain landscapes, with established and developing systems of organized recreation. These natural recourses are favorable for sport tourism and mountaineering. In the longer term, it is appropriate to focus here on recreation as the main type of use of natural resources with concomitant preservation and maintenance of the natural environment. Here are the Katon-Karagay National Park and Kanas nature reserve.

Nature-oriented and recreational zone: part of the southern Altai with the Lake Markakol, Katun Ridge, Chulyshman Plateau and the Julukul Basin. Here are Nature Reserves of Markakol, Katun, and Altai, as well as Nature Park Belukha. Therefore, the development of recreational activities here should occur with a focus on the conservation of natural and natural-cultural complexes.

The main issue concerns the implementation of conflict-free integration of two types of natural resources management: nature conservation and recreation. The designation of recreational and conservation areas in the system of natural resources management will help to reduce the acuteness of the ecological situation and save their natural and cultural potential from depletion and degradation. Theoretical developments of this problem were actively carried out in olden times by prominent scientists: Alpatov A.M., Armand D.L., Vedenin Yu.A., Gdalin D.A., Zhekulin V.S., Zabelina N.M. Isachenko A.G., Preobrazhensky V.S., Razumovsky V.M., Reimers N.F. and others. However, to date there is no universally accepted concept of "environmental-recreational use of natural resources". Usually this type of use of natural resources is understood as the administrative and economic way of organizing the territory, in which two types of nature use, namely, nature conservancy and recreational activities interact closely with each other.

Part of the Rudny Altai, the southern part of the Mongolian Altai, almost entire North-Western Altai, the Chuya and Kurai steppe of South-Eastern Altai, the Chinese part of Altai except of the Kanas form the *economic and recreational zone*. In these places, favorable for the traditional economic management (the logging, Siberian red deer breeding and other livestock industry) and possessing unique historical and cultural potential, it is advisable to focus on the restoration of the traditional economic complex with a concomitant development of recreation, sport and ethnographic tourism. Here the recreational use of natural resources must be used to support traditional use of natural resources.

Recreational and economic zone includes part of the Northern Altai, Uimon Valley, Ukok Plateau, the North and South Chuya ridges, and Ulagan Plateau. Here economic activity is carried out along with the recreation development. Economic activity involves mostly pasture breeding. In addition, Abai, Uimon, and Katandinsky basins, as parts of this zone, are most suitable for agriculture in the internal parts of the Altai.

Economic and nature-oriented zone includes Tigireksky part of the Northern Altai and the greater part of the Rudny Altai. There are Tigireksky and Western Altai small reserves, and therefore economic activity (agriculture, extraction of minerals) should be correlated here with nature conservation areas.

The social significance of different types of natural resources use is not the same that must be taken into consideration in economic practice. In each particular case, the priority should be given to certain types of use of natural resources (recreation or conservation), depending on the urgency of the relevant public needs as well as importance of specific natural territorial or economic properties for some or other functions. Table 2 presents the areas of contemporary recreational management of selected zones as well as the proposed ways of their optimization.

Table 2 - Recreational and functional zones in cross-border areas of Altai

Recreational functional zones	Current recreational use	Optimization paths of a recreational use of natural resources
Recreational and nature-oriented zone	<ul style="list-style-type: none"> ▪ Mountaineering; ▪ Therapeutic recreation at Rakhmanovsky Kluchi. 	<ul style="list-style-type: none"> ▪ Creation of ecological trails in the special protected natural areas; ▪ Development of cultural-historical tourism in Katon-Karagay National Park and Kanas Reserve
Economic and recreational zone	<ul style="list-style-type: none"> ▪ Active recreational tourism, ski, transit, ecological tours in Saylyugemsky National Park (5 walking tours, horse riding, driving routes with a total length of 400 km). 	<ul style="list-style-type: none"> ▪ Creation of the necessary infrastructure for sports tourism; ▪ Development of ethnographic tourism in Mongolia.
Nature-oriented and recreational zone	<ul style="list-style-type: none"> ▪ Ecological tours in the Altai Tavan Bogd National Park, Katun, Altai and Markakol Nature Reserves (10 routes with a total length of 418 km); ▪ Mountaineering; hunting and fishing tourism. 	<ul style="list-style-type: none"> ▪ Regulation of the tourists flow, estimation of admissible recreational load, assessment of the environmental degradation and appropriate measures.
Recreational and economic zone	<ul style="list-style-type: none"> ▪ Ethnographic tourism in Uimon Valley on the Ukok; ▪ Mountaineering in North- and South-Chuysky ranges. 	<ul style="list-style-type: none"> ▪ Development of sports and recreation as well as educational tourism providing the necessary infrastructure.
Economic and nature-oriented zone	<ul style="list-style-type: none"> ▪ Ecological trails in Tigireksky and Western Altai Nature Reserves (7 routes with a total length of 401 km). 	<ul style="list-style-type: none"> ▪ Development of active tourism and ecotourism in special protected natural areas.

Depending on the specifics of the natural and social processes, the cross-border areas of Altai are differentiated into several zones, for which it is appropriate to frame different development scenarios, while maintaining the general sustainable strategy.

Conclusion

The growth rate of the recreational flow in the cross-border areas of Altai can be assessed as a progressive factor in the further development of the region and its special infrastructure. However, the growth can be limited by permissible recreational load and the resilience of natural systems (especially in the Republic of Altai and Chinese part of the region).

Implementation of the proposed concept requires the joint efforts of tourism companies, public authorities, international agreements, and scientific organizations. However, it differs from other similar concepts by the fact that here we propose specific instruments to achieve sustainable recreational use of natural resources. At that, they are regional in scope. Some of them were made in the course of the study, namely: functional recreational zoning of the cross-border areas of Altai, diversification of the tourist product of the cross-border areas of Altai.

In the further development of this research we expect to take part in the creation of tourist resources cadastre of the cross-border areas of Altai. Currently there is no summary statistics of natural recreational resources. Surely, there are also many measures that can be carried out based just on the political will and power, such as:

- organization of a unified system of recreation resource management of the cross-border areas of the Altai region with a view of their most efficient and rational use;

- development and creation of routes connecting the selected natural recreational resources into a single network; creation of the necessary infrastructure, including the improvement of transport system;
- searching for own niche in the global tourism market; creation by the bordering states with similar natural and recreational potential of joint tourist products.

The geographical location of the cross-border areas of Altai and the availability of historical and cultural centers, numerous objects of cultural and natural heritage, as well as relatively well-developed transport network and a sufficient amount of labor resources, create favorable conditions to strengthen here international and domestic tourism, based on the development of recreational use of natural resources and preservation of natural and historical-cultural potential. Providing the rational organization of these areas and strengthening tourism and recreation structures of the territory, Altai could become a new economic basis for the development of the predominating depressive regions and districts. The cross-border cooperation of the countries of the Altai region is of special importance, as well as the organization of a single ecological-economic and recreational space, being the basis of good-neighborly relations and mutually beneficial sustainable economic development.

The study and analysis of the opportunities for recreational cooperation of the four states within cross-border areas of Altai can be the scope of further research.

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