

Attitude of the Population to the Activities of National Parks: Territorial Aspect (on the Example of a Survey of Residents of the Khorug and Murgab Region)

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Abstract

The article describes and interprets the results of a study aimed at studying public opinion about the activities of national parks. The attitude of the local population to the activities of the State Institution “National Park of Tajikistan” was studied. A total of 40 respondents from local residents were surveyed. Fifteen local residents of Khorog, most of them educated people, students of Khorog University and teachers of the Biological Institute of the Pamirs who are familiar with the Tajik National Park in the vicinity have carried out several scientific studies. Twenty-five respondents of the residents of the Murghab district are directly the population who live in the park. They have less education, and they are more prone to a rural lifestyle, and livestock far more knowledgeable about the Tajik National Park than the residents of Khorog. Interviewed residents of the Murgab and Karakuls villages believe that the activities of the Tajik National Park should be more efficient and lay down ways to improve its activities and form a positive image. In their opinion, the employees of the national park should interact more with the local population, take into account their interests, improve information carrying out activities of the national park. Proceeding from the answers of the respondents, we can conclude that the Tajik national park is already widely known to the circle of researchers and scientific applicants as a place or testing ground for research. For the local populations who live in the park, they use it as a place for animal husbandry and natural resources. During the survey, it turned out that the park is currently being used by all means, but not

protected in any way. The results of a public opinion poll conducted in the September of 2021 in the settlements of the Khorug town of the Gorno-Badakhshan Autonomous Oblast GBAO region, belonging to the central ecological zone of the Pamir natural territory, are presented. The attitude of the local population to the activities of the Tajik Nation Park was studied. Interviewed residents believe that the activities of the Tajik National Park should be more efficient and lay down ways to improve its activities and form a positive image.

Keywords

National Park, Tourism, Ecology, Survey Respondents

1. Introduction

Changing forms of management, socio-economic and environmental changes in the post-independence years are prompting the Central Asian countries to seek their own sustainable development paths. In the structures of government bodies and non-governmental organizations in Tajikistan, an understanding is coming that the development of the national economy, as well as efforts aimed at reducing poverty [1] [2], should be linked to the vision of the foundations of the systematic management of natural resources. This is due, among other things, to the fact that the population that is increasing year by year, for the most part poor, has a negative impact on land and water resources.

In addition, household economics and agricultural practices in the use of land and water resources are costly and inefficient. Such use of natural resources leads to the aggravation of existing environmental problems, the emergence of new ones, especially in the mountainous regions of the Pamirs [2] [3].

The main problems include the inefficient use of water resources, land degradation, and the reduction of biodiversity. Many of these problems are directly related to climate change: Climate change (warming) caused melting in the 20th century and the disappearance of more than 1000 small and medium-sized glaciers in the mountains of Central Asia—the main sources of drinking and irrigation water. The decrease in strategic fresh water reserves makes a real threat to food and environmental security in the Pamirs. Obviously, due to climate warming, the forecast for agriculture will also be unfavorable. Already, soil erosion and a drop in land productivity in the mountains of Tajikistan have reached a critical level. To this it should be added that in mountain ecosystems, which are particularly sensitive to natural and anthropogenic impacts, the process of depletion of biological resources continues.

Flora and fauna are being destroyed in the Pamir Mountains, and medicinal herbs are being collected uncontrollably and excessively. There is an active pressure on forest ecosystems, trees and shrubs and even orchards are cut down

to meet energy needs. In the Soviet period, it was not so dangerous for conservation biodiversity, but in the last 20 years, wild nature is threatened by overexploitation. The rigid attitude of mountain dwellers to the natural resources around them is associated with the difficult living conditions in the mountains and the poverty that prevails in mountainous regions. The level of poverty in the mountains of Tajikistan is high everywhere, but in the Pamirs it is even higher. Industrial and agricultural production in the region is characterized by low competitiveness and is not attractive enough for investment. The established economy, especially in Gorno-Badakhshan Autonomous Oblast (GBAO), provides primarily reproduction (“survival strategy”), and not a development strategy, since subsistence farming prevails in its structure. The region’s economic activity based on animal husbandry and its secondary products, the suboptimal use of pasture and farming resources has a negative impact on ecosystem services.

The study is carried out within the framework of ecological sociology, the foundations of which were laid by representatives of the Chicago School in the 1920s of 20th century [4] [5] [6]. The theoretical and methodological foundations of this direction are associated with global changes in the public consciousness regarding the problems of ecology and nature management [7] [8]. The problems of interaction between nature and society became especially relevant at the end of the 20th century in connection with the deterioration of the ecological state of nature, with a number of man-made disasters and their impact on the life and health of people, with a violation of the stability of the ecosystem [2] [9].

The reduction of biodiversity and the destruction of the main elements of biological systems leads to a violation of the ecological balance, degradation and impoverishment of various forms of unique mountain geosystems [1] [10]. Overcoming the crisis is possible only under the condition of rational use and sustainable conservation of the main components of biodiversity at different levels of its existence [11] [12]. Limited opportunities for crop production, low biological productivity of dry and semi-dry farming forced mountain communities, especially during the period of privatization, to use virgin lands for cultural phytocenoses, replacing natural ecosystems with anthropogenic ones [13] [14]. This practice of developing mountain territories has led to the destruction of biota and the destabilization of ecosystems and landscapes [15] [16]. Destruction of natural ecosystems and uncontrolled use of biological resources is the main threat to biodiversity conservation. Under the influence of such anthropogenic factors as grazing, haymaking, recreational use, laying roads, introduction and landscaping of territories, there have been changes in the floristic composition, productivity of plant communities, replacement of natural phytocenoses with artificial ones, changes in formations and type of vegetation [9] [17]. The juniper forests are in a particularly difficult condition. Over the past 60 - 70 years, they have suffered a brutal process of degradation: environmental causes (dry climate,

slow tree growth), socio-economic conditions (need for firewood and overgrazing) have reduced this resource by 60% [12] [18]. The felling of other trees and shrubs is also increasing, especially in forests growing near and around settlements, young juniper sprouts of natural origin have been destroyed. This led to a strong sparseness of forests, desertification of slopes, and erosion in the lower mountain subbelt [1] [19]. In the Western Pamirs, on some valley bottoms, remnants of dense forest areas have been preserved, which contrast with the desert landscape around. They survived only because they are too far from the villages of the upper part of the Bartang valley. Existing legal protection (including nature reserves) in Kyrgyzstan covers only 8% of forests, in juniper forests even less [3] [20]. Herbaceous vegetation has been destroyed, forest and pasture lands are littered with weeds and inedible plants, and the teresken, which is on the verge of extinction (Eastern Pamir), is being exploited for destruction. Teresken is not only a fuel and feed for animals, but also a shrub that performs an important anti-erosion function in ecosystems. The destruction of the teresken becomes the cause of rapidly spreading soil erosion, which leads to a decrease in the productivity of high-altitude desert pastures and to their desertification, *i.e.* increases the risk of natural disasters. The deterioration of desert ecosystems directly affects to a decrease in the population of such herbivorous mammals, such as the Pamir argali, Siberian ibex, red marmot, hare, as well as birds (Tibetan saja), since teresken communities are a habitat for wild fauna [21] [22]. The number of snow leopards (*Uncia uncia*) has decreased from 1990 to the present everywhere by 2 - 10 times. In recent decades, the corsac fox (*Vulpes corsac*) and the red-tailed marmot (*Marmota caudata*) have become objects of hunting; the population of the Central Asian otter may disappear due to habitat destruction, as well as the Alai mole vole (*Eligius alaicus*), which is known only from the Alai Mountains. Thus, one of the main reasons for the unsparing attitude to biological resources is the standard of living and poverty of the population [23] [24]. In this regard, the issue of nature conservation is considered from a broader and more economically realistic point of view, the purpose of which is not only to obtain economic benefits, but also to protect and preserve the natural environment. In this regard, in September 2021, a survey was conducted among local residents of the Tajik National Park to find out what the level of knowledge of local residents about protecting the park and how ready they are to protect the park.

2. Methodology

2.1. Study Area Descriptions

The National Park of Tajikistan occupies more than 2.5 million hectares in the east of the country, in the center of the so-called "Pamir Knot", the meeting point of the highest mountain ranges of the Eurasian continent. There is so much to discover within the borders of Tajikistan's Pamir National Park. You will find the esteemed Pamir mountains, one of the tallest mountain ranges in

Central Asian with some of its peaks towering over 6000 meters above sea level. On top of its impressive Tajik mountains, there are around 170 named rivers and more than 400 lakes in the park—and that is only the beauty that has been recorded. So much remains largely untouched. The park is home to rich species of flora of both the southwestern and Central Asian floristic regions, inhabited by rare and endangered birds and mammals (Marco Polo sheep, snow leopards, Siberian goats and others) It offers a unique opportunity to study plate tectonics and subduction phenomena [12] [25] [26].

2.2. Material and Methods

The survey was directed exclusively to the local residents of the park who directly live in integration with the nature of the national park. It was determined that at the moment 5 regions of GBAO that are located on the territory of TNP live and exist at the expense of TNP [24] [27] [28]. This type of research were conducted from Switzerland students Qobiljon Shokirov, Norman Backhaus & Jennifer Bartmess and actually of research was about co-management in Pamir Nation park and realizing this method for improving of livelihood indigenous people. We focused on local people's perceptions of conservation issues and management practices. We used interviews as well as participatory observation and asked how park management impacts the communities' livelihoods and who benefits from tourism and hunting concessions. We asked how communities use park resources and to what degree park rangers and communities are involved in planning and implementing the management plans of the park. We also touched on the capacity-building needs of the community, especially how specific issues could be carried out effectively and efficiently in and around the park 40 respondents from local residents were surveyed. There were only 10 questions in the questionnaire: five of them with answer variants and five without variants, which the respondents had to beat themselves to write the answers. All questions in the questionnaire were relevant and determined the level of their anthropogenic impact on the Tajik national park. For analysis, we used International Business Machines (IBM) Statistical Package for the Social Sciences (SPSS) Statistics v. 28.0.0.0 [29], (SPSS, I., in *IBM*.) and Microsoft Excel [30]. Software gave us effectively analysis answer. The Jamie W. McCallum, Maja Vasiljevi, Innes Cuthill in his paper "Assessing the benefits of Transboundary Protected Areas: A questionnaire survey in the Americas and the Caribbean" in *Journal of Environmental Management* comparisons between median response scores were done with Manne Whitney U tests (abbreviated MWU) with exact p-values quoted. All simple association and MW U tests were carried out using SPSS v.18.

3. Results

Answers to the question about what a national park is showed (as shown in **Figure 1**) that many respondents living in the Khorug town associate the existence

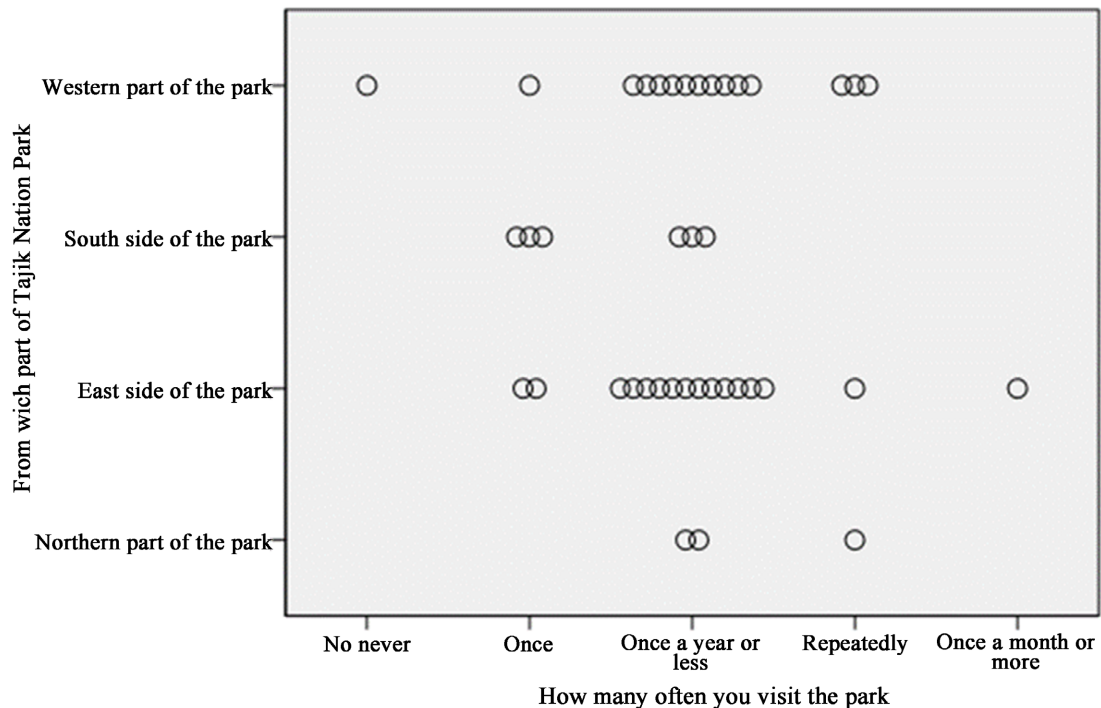


Figure 1. Frequency of going to the park according their location (according to the survey data of 40 respondents living in the park).

of national parks with tourism. 39.4% of the surveyed residents of the Khorug town believe that the national park is a place of recreation for tourists and the local population, 16%—in the Murgab region. In addition, according to respondents, a national park is a limited natural area visited by tourists 22.7% in Khorug town, 33% in Murgab region.

As shown in **Figure 2** the answer option—“a territory where certain types of human activity are limited” was chosen by 22.2% of respondents in Khorug town, 25%—in Murgab region. In Murgab region, respondents are more critical of the activities of the national park; 29% of respondents answered this question as “a forbidden area that makes life difficult for local residents,” and 6.6% in Khorug. In Murgab region, only one person believes that the national park can be considered a source of income for the local population, in Khorug, 8.1% of respondents think so. In the Murgab region, as shown in **Figure 3** the answer was also received: “a place for hunting security forces and officials”.

More respondents consider the existence of the Tajik National Park justified than those who believe that a national park near their territory is not needed. In the Murgab region, 45% of respondents believe that the existence of a national park is justified, which is not justified by 26%, in the Khorug—40.9% and 27.4%, respectively, the rest of the respondents found it difficult to answer.

4. Discussion

Respondents believe that a national park is needed, it is necessary to protect the unique animals and plants of the lake, protect the forest and extinguish fires, and

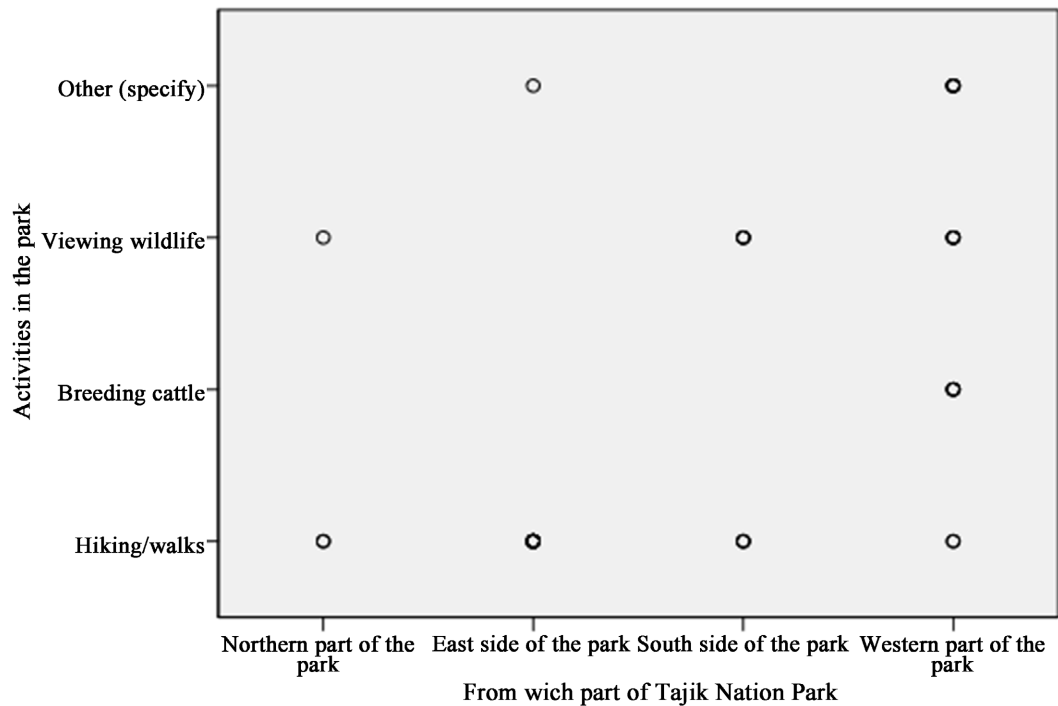


Figure 2. Frequency of communication according to the levels of their cooperation and location (according to the survey data of 40 respondents living in the park).

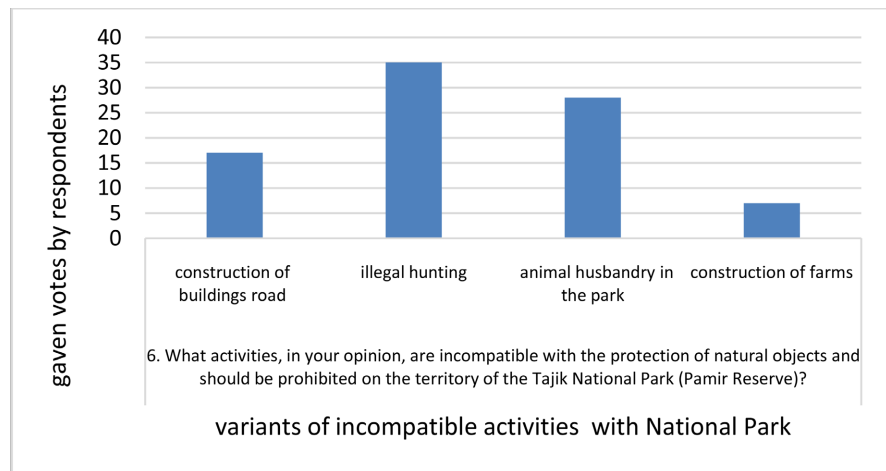


Figure 3. Level of incompatible activities on territory of National Park according to the survey data of 40 respondents living in the park.

protect nature from the destructive impact of tourists. The arguments of the opponents of the national park near their territory as shown in **Figure 3** are as follows: “cutting is going on, construction in the water protection zone is for the rich”, “ecology is not respected”, “they do not work, the activity that should be carried out by the park is not visible”, “does not correspond to the concept of national park”, “they themselves cut down the forest and fish, but the locals are forbidden.”

Answers to the question about what prospects opened up for local residents after the territory bordering them was granted the status of a national park

showed that most of the respondents from Khorug town highlight positive prospects, while in Murgab region they are negative (as shown in **Figure 4**). 35.1% of respondents in Khorug believe that thanks to the activities of the Tajik National Park, local business is developing in the form of opening home hotels and boarding houses for tourists, manufacturing and selling souvenirs, services of guides, and creating other jobs related to the development of tourism. 14%—in Murgab. According to 14.7% of respondents from Khorug town, thanks to the activities of the national park, municipal and federal authorities are beginning to pay attention to the settlements and invest in the development of local infrastructure: the construction of roads, trails, electricity, gasification, only 5% in Murgab region think so respondents. 30% of respondents from Murgab region believe that that the influx of tourists begins to interfere with local residents, there is active pollution of the territory, the likelihood of fires increases, in the Khorug town 18.3% of respondents think so. A consequence of the activities of the Tajik National Park, according to 29% of respondents from Murgab region is that the inhabitants of the settlements do not have the opportunity to grow wild plants, engage in hunting and fishing, which is a negative tradition and quality of life. In Khorug town, only 9.4% of respondents think so.

Exactly the same survey was conducted by Sidorova N.V. Candidate of Sociological Sciences, Associate Professor of the Department of Sociology and Psychology of the Irkutsk National Research Technical University and Guzik M.V. Candidate of Historical Sciences, Associate Professor of the Department of Sociology and Psychology of the Irkutsk National Research Technical University of the Russian Federation. In their article, they described and interpreted the results of a study aimed at studying public opinion about the activities of national parks. The results of a public opinion poll conducted in the spring of 2017 in the settlements of the Slyudyansky municipal district of the Irkutsk region, belonging to the central ecological zone of the Baikal natural territory, are presented. The attitude of the local population to the activities of the Federal State Budgetary Institution “Zapovednoe Pribaikalye” was studied [31].

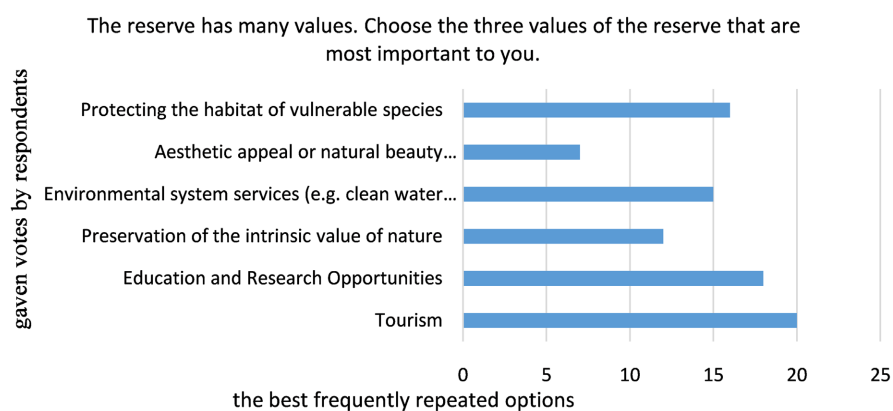


Figure 4. Opinion of respondents about protecting Nation Park according to the survey data of 40 respondents living in the park.

The conducted survey of the residents of the Khorug town made it possible to formulate the following conclusions. According to the majority of respondents, national parks are necessary in order to protect nature. Some respondents believe that the presence of the Tajik National Park near their villages creates problems for local residents and limits the possibilities of using natural resources. The study showed that the residents of the Murgab and Karokuls village have a more critical attitude towards the activities of the Tajik National Park than the residents of Khorug town. Many respondents do not have clear ideas about what park employees do. Residents of the villages in which the survey was conducted do not have sufficient information about the activities of the national park.

In the final block of questions of the questionnaire, the respondents were asked to comment on the proposed ways of further development of the Tajik National Park and the formation of a positive image of the organization in the eyes of tourists and the local population. Respondents addressed various areas of the organization's work: legal, administrative, educational, organizational, economic, etc. A special place was occupied by answers concerning the problem of grazing and nature protection, the destructive impact on the nature of local residents.

The productivity of pastures in the Pamirs is very low, in the range of 0.05 - 1.2 t/ha of dry matter. Thus, in the Murgab district (the pilot site of Chechekta) in 2008, the shortage of feed was 35% for cattle and 30% for small cattle. Currently, in the Pamirs as a whole, the provision of livestock with fodder in the winter period is 60% - 70%, and in the winter period 35% - 50% of the total diet.

The lack of fodder is also due to a decrease in the acreage for fodder. According to the Statistics Committee of GBAO, the area under crops in the Murgab district decreased 15 times (from 2651 hectares in 1990 to 172 hectares in 2000).

Hence, the main task for the time being is to create systems of specially protected natural areas (SPNA) and increasing the efficiency of public services in ensuring environmental safety. Protected area networks in Alai and Chon-Alai are underdeveloped. There are three protected areas in the Eastern and Western Pamirs, including the Tajik National Park with an area of more than two million hectares that has existed for almost 20 years. The park was created to preserve the unique alpine flora and fauna, however, due to the civil war in Tajikistan from 1992 to 1997 and subsequent economic problems, the park did not realize many of its tasks. Until now, trophy (currency) hunting and poaching are practiced on its territory. The situation is aggravated by the fact that there is no hunting law in Tajikistan. The country is not a member of CITES (Convention on Trade in Rare and Endangered Species of Animals and Their Derivates). The state guard staff is small, unprofessional and has no material incentives to fight illegal fishing. Indirect factors contributing to poaching, including cross-border poaching, are lack of financial, human, infrastructural resources, material and technical equipment for environmental control, as well as a weak legal frame-

work for transboundary relations. Thus, one of the main reasons for the unsparing attitude to biological resources is the standard of living and poverty of the population.

5. Conclusions and Recommendation

In general, according to the results of the study, it can be said that the assessment of the activities of the Tajik National Park by the local population is low. In addition, the majority of respondents insist on providing them with more information about the activities of the park and on the close interaction of its employees with local residents, based on cooperation.

As recommendations for improving the efficiency of the Tajik National Park, the following can be proposed:

- increasing the information component of the activities of the Tajik National Park in the Pamirs through the organization of systematic work with various levels of media bodies;
- development of the educational and educational sphere of own activity throughout the territory of the Tajik National Park through the implementation of new modern forms of interaction with various target groups of the population;
- improvement of the tourist direction of activity based on a deep analysis of the situation and possible forecasting of the consequences of the impact of tourist flows, taking into account the maximum recreational load of the park territory;

To involve the local population in biodiversity management, develop financial mechanisms to increase the share of the exploitation of bioresources. Introduce the creation of public protected areas with various protection regimes (seasonal reserves, micro-reserves, recreation areas, etc.). A special role in increasing the activity of the local population should be played by targeted environmental education and upbringing with various programs for youth, adults, farmers, hunters and gatherers.

A special role in the conservation of biodiversity should be played by local traditions, customs, religious canons, which requires the involvement of aksakals, priests, local historians in the activities of local governments, the search and publication of folk legends, parables.

It is necessary to create based on specially protected natural areas and in schools children's clubs: young ornithologists, foresters, ecologists. In the environmental non-governmental organizations existing in the region, it is necessary to create youth and children's sections to attract young people to active environmental work, create forest patrols, public inspectors

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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