

Opportunities and Limiting Factors for Tourism Development in the Khibiny

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Abstract., the Khibiny attracts more and more attention as an interesting and promising object attracting flows of tourists and athletes not only from a number of regions of Russia, but also from abroad. In this regard, significant changes are taking place in Kirovsk in the structure of economic activity, associated, first of all, with the reorganization of recreational activities. However, the presence of mining facilities in this area has caused a large load on natural ecosystems. As a result, an adverse environmental situation is developing in the study area, which limits the development of recreation here. To assess the current state and identify opportunities for the development of recreational activities in the Khibiny, in particular, in the city of Kirovsk and its environs, comprehensive studies were carried out in January 2019, 2020 and in August 2021. The results show that this region is a very attractive recreation center, and vacationers and local residents are interested in the development of tourism in this area. At the same time, the studies revealed a number of problems limiting the development of tourism in the Khibiny, which include, first of all, the deterioration of the quality of the natural environment associated with the emergence of technogenic landscapes as a result apatite-nepheline mining. socio-economic factors that reduce the tourist and recreational attractiveness of the Khibiny include the low level of development of tourist infrastructure and the quality of services.

1 Introduction

Currently, the Khibiny attracts more and more attention as an interesting and promising object attracting flows of tourists and athletes not only from a number of regions of Russia but from abroad. In this regard, significant changes are taking place in Kirovsk, in the structure of economic activity, associated, first of all, with the reorganization of recreational activities [1]. However, the presence of OAO Apatit mining facilities in this area has caused a large load on natural ecosystems (Figure 1).

Such an increased concentration of industrial enterprises and dumps in a relatively small area in one way or another negatively affects the state of both natural geosystems and the environmental situation in the region as a whole. The direct consequences of environmental pollution are: oppression of the vegetation cover in the vicinity of processing plants due to clogging of the stomata of plants with dust and subsequent drying out, changes in the mechanical composition of soils due to enrichment of the sand fraction, eutrophication of lakes, formation of destructive mudflows descending from the slopes of the dumps of open pits, violation of

the aesthetics of landscapes, etc. Indirectly, they have an adverse effect on the health of the population: the development of diseases of the skeletal system due to strontium pollution, broncho-pulmonary and allergic diseases due to air pollution, etc. [2]. According to the Kola Science Center, the main air pollutants in the mining area are: dust particles containing strontium, zinc, lead, phosphorus, aluminum salts, magnesium, sodium, calcium, potassium, carbon and nitrogen oxides; for water reservoirs: molybdenum, lead, phosphorus, nitrogen, nickel, copper, lead, sulfates.

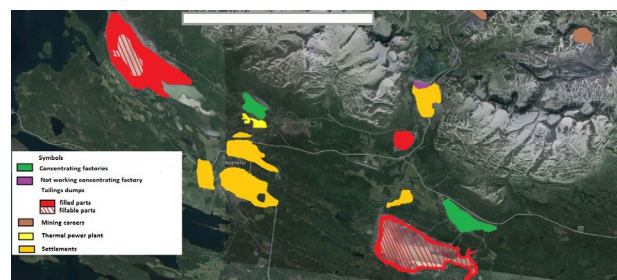


Fig.1. Industrial facilities of OAO Apatit

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The development of recreational use of natural resources, which, by the nature of its exploitation, has a limited impact on ecosystems in comparison with other types of nature management, can become a serious alternative to industrial nature management [3] and will contribute to improving the environmental situation in the Khibiny region.

Comprehensive studies were carried out in January 2019, 2020 and in August 2021 to assess the current state and identify opportunities for recreational development in the Khibiny [4], in particular, in the city of Kirovsk and its environs, as well as environmental and socio-economic factors limiting the development of recreation in this area.

2 Methodology

A variety of methods have been used to identify opportunities and limiting factors for the development of tourism in the Khibiny. extensive literature, cartographic, statistical data concerning the natural and socio-economic conditions for the development of this type of nature management in the study area were studied beforehand. By analyzing satellite images and their interpretation, the location of the main objects that pollute the environment was determined. Further, based on the data of environmental studies carried out in the Khibiny in different years, the main environmental problems associated with the extraction and processing of apatite-nepheline ore were identified. Having studied the scientific literature, the main anthropogenic loads resulting from the development of recreational activities were identified. analysis of statistical data made it possible to identify the number of the main flow of tourists and their distribution by seasons of the year.

It also seemed necessary to conduct sociological survey [5] in order to assess the tourism infrastructure and opportunities for local residents in connection with the development of tourism in the Khibiny. To conduct the survey, a questionnaire was prepared for people of different target groups. When processing the information of the survey, the method of serial sampling was used.

3 Results

In the study area, there is an unfavorable environmental situation, which limits the development of recreational activities here due to the presence of mining facilities. The main environmental problems associated with the extraction and processing of apatite-nepheline ore in the study area are:

- alienation and disturbance of natural landscapes, destruction of soil cover and vegetation, increase in the area occupied by dumps, tailing ponds
- pollution of atmospheric air by dust particles containing strontium, carbon and nitrogen oxides, dioxins
- pollution of water bodies by deposited toxic particles of dust, phosphorus, nitrogen, chemical reagents used in blasting, flotation and industrial processes

- noise pollution (in the areas closest to the blasting operations)
- development of dangerous natural phenomena in the production areas (anthropogenic earthquakes, water and mud flows, avalanches, etc.).

Of special concern is "aesthetic" pollution in the areas of operations of mining and ore processing enterprises, since the aesthetic attractiveness of landscapes is especially important in the development of recreation and tourism. In the Khibiny, one can observe a violation of the landscape aesthetics (destruction, often irrevocable, of natural landscapes): for example, in the places of mining and storage of mining waste, there are mechanical disturbances of slopes, soil and vegetation, which, undoubtedly, significantly reduces the aesthetic value of the territory [6]. Significant and irreparable damage as a result of mining operations has been suffered by: Mounts Aikuayvenchorr, Rasvumchorr, Koashva, Kukis, Nyorkpakhhk, Yuksporr. Many of OAO Apatit's production areas have created obstacles to popular hiking trails - it is forbidden to stay on their territory and passage is prohibited. For example, now the trail to the Gakman gorge is blocked, there is no passage to Mount Eveslogchorr, etc.

Sociological research [7], which serves as a link between theoretical studies and reality, allowed us to assume the presence of new trends in the development of recreational nature management in the Khibiny, and to identify a number of limiting factors associated with the development of tourism infrastructure.

representatives of various Kirovsk institutions, local residents [8] and tourists took part in the survey.

As a result, data were obtained from a survey of different segments of the population of Kirovsk and its environs. A total of 102 people were interviewed (local residents - 53, tourists - 49). The sample was random and included people of different gender, age, nationality, education and income level. We were interested in the following: 1) how local residents feel about the development of tourism in their region; 2) whether local residents consider it necessary to develop industry and new deposits in the region; 3) for what purpose, mainly, tourists visit the Khibiny; 4) where tourists come from; 4) how people assess the tourist infrastructure of the city and development of recreation in the region; 5) about proposals for improving tourist infrastructure and safety [9]. The results of the survey were compiled into 43 diagrams and one table.

Among tourists 49 people were interviewed, the majority of respondents - 55% - were young people between 17 and 22 years old, 39% were adults between 23 and 55 years old; the overwhelming majority of 49% were students. Most tourists come from cities and villages of the Northwestern Federal District, where the Khibiny is located, and 70% from St. Petersburg. 90% of the interviewed tourists came here for skiing and recreation, 6% to visit, and 4% came for work. 45% arrived by train, 35% by car, and 20% by plane.

Tourists mainly stay in the private sector - rent apartments (47%). 29% stay in hotels, and 24% stay with relatives or friends. tourists themselves explain this by the fact that renting an apartment by a group of people is

cheaper than a hotel room. So, the average price for a hotel is 2,190 rubles/day, and the price ranges from 500 rubles/day for a bed in a hostel to 5,000 rubles day for a hotel. You can rent an apartment for an average of 2400 rubles per day.

When asked "Why did you come here?" 46% of respondents answered that they came to a good ski resort, with good slopes and beautiful nature, because they like it here, or at the advice of friends (Figure 2).

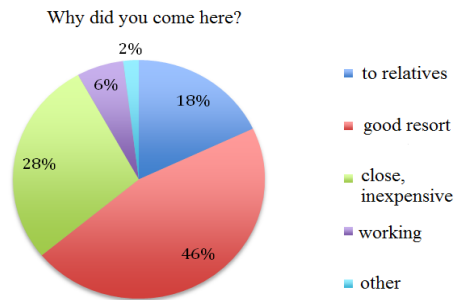


Fig. 2. The reason why tourists come to the Khibiny

Most tourists (61%) learned about the place from relatives, friends and acquaintances. 21% of tourists always knew about this place, 14% learned about it from the Internet, and 4% have been to these places for other reasons.

57% of all tourists came to the Khibiny for vacation for the first time. And of those who have vacationed here before, half of the respondents have been to this place more than 4 times, and they come here regularly - if possible, every year or several times a year.

The infrastructure was rated by tourists on a 5-point scale. The average rating of the accommodation was 4.06. respondents suggested building more hotels and hostels with affordable prices, located near ski resorts, renovating old hotels and improving the appearance of the city. Transportation was rated 3.9. Tourists suggest updating the vehicle fleet and increasing the number of public transport, to make transport accessible (more routes to the ski resorts), to provide transport on time make sure the roads are cleared of snow. Guests also suggested the introduction of more regular and affordable flights from other cities. The quality of service was rated 4.2. The average score for entertainment is 4.06. Here tourists mainly suggest an increase in the number of leisure facilities for youth: Internet cafes, cinemas, bars, clubs, etc., as well as more establishments with good food and places for children's entertainment.

The highest priority goal of the trip for tourists is skiing and snowboarding, as well as free ride for fans of extreme sports (Table 1).

In general, tourists are satisfied with the quality of tourist infrastructure: the place of residence - by 85%; transport - by 73%; technical level of equipment and quality of service - by 94%. Despite this, guests have a number of suggestions for improving the tourist infrastructure. As for accommodation and transport, the suggestions coincide with the previous answers: to build

more modern hotels and hostels of different price categories, to adjust the prices at the market of tourist services (price-quality ratio); to increase and renew the fleet of public transport, to expand air accessibility of Kirovsk to Russian and foreign cities. In terms of the technical level of equipment, it is proposed to replace drag lifts with chairlifts and equip more trails. It is also necessary to improve the qualifications of the personnel serving tourists.

Table 1. The purpose of the tourist trip by priority

Type of tourism Priority	Downhill skiing	Free ride	Ice- fishing	Hiking	Visit to the mine	Cross-country skiing
1	36	10	0	2	0	0
2	7	12	4	12	0	8
3	3	7	2	6	4	14
4	2	6	2	6	6	7
5	0	1	10	7	5	3
6	0	2	10	0	12	3

96% of the interviewed tourists are ready to return to the Khibiny again, because, according to their answers, it is beautiful here, ski resorts have been created, snow lies long, there are slopes of different degree of complexity, designed for any training of vacationers and athletes, close location to the center of European part of Russia, one can engage in other types of tourism and see the northern lights. Some guests would like to come here not only in winter, but also in March-May during the "velvet season", and in summer, to enjoy their holidays in the Khibiny at this time of year.

Tourists in the Khibiny (63%) are ready to do other kinds of recreation besides downhill skiing: cross-country skiing, snowmobiling and ice skating, and in the summer to go hiking, ride ATVs, bicycles, scooters, go mountaineering and diving. However, 37% of respondents want to do only one type of recreation in the Khibiny, because other types of tourism in this area do not attract them.

Tourists assess the level of tourism development in the Khibiny mainly (63%), as "good". 21% of the interviewed tourists assessed it as "excellent" and 16% assessed it as "satisfactory".

Fifty-one people were interviewed among local residents. Those who have lived in Kirovsk for more than 25 years are 63%, and those who are going to live and work here further - 71%. 43% of respondents want their children to stay in Kirovsk, but almost a third of respondents do not want that. When asked "Do you know the history of Kirovsk?", only almost half answered "yes, fine," and 12% answered "no".

The geographical location, size of the city and other factors allow local residents to spend their free time in nature, and 91% of respondents do so. It should be noted that 45% of them stay in nature in the warm season, only 8% more often in the cold season, and for almost half of

the respondents, the time of year is not a deterrent, and they go to rest in nature all year round. In the warm season, local residents prefer biking, swimming in lakes, nature walks, hiking, picking mushrooms and berries in the woods, there are also lovers of picnics, fishing, etc. In the cold season, spending time in nature is less diverse, mostly locals spend it on the ski slopes, skiing or skating.

The majority of local residents surveyed (81%) are positive about the development of tourism in their region, while 4% are against it. 65% want improvements in services and recreation, and almost a quarter do not consider it necessary.

Among the desired improvements are: the development of ski resorts and infrastructure in the city, including transportation, accommodations and an increase in the number of leisure facilities. They also noted the need to lower prices for the services of ski resorts and the development of other types of recreation, in addition to skiing, during the cold season. Half of the surveyed locals would not mind to work in the tourism industry. The prospects for tourism development in the region are seen by 90% of the respondents. The majority consider skiing to be the most promising direction (Figure 3).

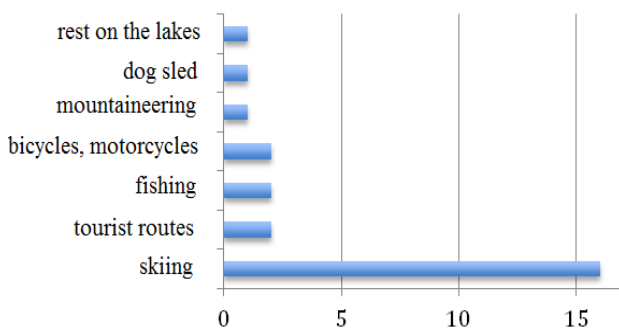


Fig. 3. The most promising type of recreation for the development of tourism in Kirovsk from the point of view of local residents

As for the prospects for the local economy, the majority of local residents (69%) see them in the further development of the mining industry, which provides a large number of jobs. 16% believe it is not necessary, and 15% do not know. About a fifth of all respondents believe tourism will never become a profitable industry in the region. 74% of respondents have a positive attitude to the development of new deposits of apatite ores in the Khibiny (Partomchorr and Oleniy Ruchey), 20% think it is bad, and 6% are neutral. At the same time, almost half of locals are not aware of the creation of a national park in the Khibiny, but the overwhelming majority (96%) express their positive attitude to this.

On the whole, we can say that the opinion of local residents about the prospects for the development of ski tourism is fully justified. Today, more and more tourists from the entire European part of Russia, as well as from the Urals and the Caucasus, come to the Khibiny for recreation at ski resorts. Historically, the region's economy developed thanks to the mining industry, which the locals continue to consider the most important

activity. But they also believe that tourism can be a profitable industry in the region, and people are willing to work in this area. relatively good price-quality ratio, close proximity to the center of the European part of Russia, equipped ski slopes, the possibility to ski on them from November to May, all this attracts tourists [10]. The disadvantages are mainly manifested in the underdeveloped recreational infrastructure, lack of inexpensive hostels and hotels, lack of recreational facilities, insufficiently good transport provision, etc. Only one fifth of the tourists rated the level of tourism development as "excellent". This indicates the need to improve conditions for visitors to the region.

4 Conclusion

As a result of the study, the following conclusions were made. The development of recreation in the Khibiny is very promising: this is due to the variety of recreation types, attractive mountain landscapes, and affordability [11]. An overwhelming number of tourists expressed their desire to come to this holiday destination again, and a significant part of the locals would like to work in the tourism sector, despite the fact that it is not considered an alternative to industrial development.

However, there are a number of problems that limit the development of tourism in the vicinity of Kirovsk. An adverse environmental situation is developing in the study area due to the presence of mining facilities [12]. deterioration of quality of the natural environment includes alienation and disruption of natural landscapes, destruction of soil cover and vegetation, air and water pollution, noise pollution, development of dangerous natural processes (anthropogenic earthquakes, avalanches). Special points include the loss of the aesthetic appeal of landscapes and the loss of some valuable tourist sites.

socio-economic factors that reduce the tourist and recreational attractiveness of the region include the low level of development of tourism infrastructure: insufficient number of hotels, boarding houses, tourist centers; discrepancy in the quality of service to the growing needs of vacationers; lack of training in the tourism business (of different categories); insufficient development of health insurance services; unsatisfactory interregional communication of regular transport and specialized transport for tourists; weak advertising activity of tourist services and offers.

The answers of the respondents will serve as a basis for further research and possibly justify the need to take appropriate measures to improve the tourist infrastructure and environmental situation in the Khibiny and adjacent territories, which will contribute to the development of recreational use of natural resources here.

This research was performed according to the development program of the Interdisciplinary Scientific and Educational School of Lomonosov Moscow State University "Future Planet and Global Environmental Change" and within the framework of the state task "Sustainable development of territorial systems of nature management" (project No. 121051100162-6).

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