

Toratau Geopark As a Catalyst for Sustainable Development and Ecological Tourism in The Republic of Bashkortostan

Shafeeva Elina Ilgizovna¹, Miftakhov Ilnur Rinatovich²

Abstract

The article is dedicated to the analysis of the problems and prospects for the development of the Toratau Geopark as a key element of sustainable tourism and natural heritage conservation in the Republic of Bashkortostan. The study identified major management limitations of the geopark, such as insufficient marketing activity, seasonal fluctuations in tourist flows (with the summer season accounting for about 80% of total visits), limited financial resources (with approximately 16 million rubles invested in infrastructure), the need to enhance visitors' ecological awareness, and challenges in coordination with local organizations. Educational events are planned to manage the impact on natural sites and improve ecological awareness, as over 64.7% of visitors are interested in eco-tourism. The proposed solutions aim to improve coordination with local organizations, attract investors, and develop infrastructure. The results highlight the importance of a comprehensive approach to management, which will increase the geopark's attractiveness and ensure its sustainable development, including the preservation of natural heritage for future generations.

Keywords: *geopark, natural geoscientific laboratory, sustainable tourism, environmental education, Earth history, geological heritage, innovative learning methods, ecological awareness, rational use of natural resources.*

Introduction

A geopark is a relatively new concept that encompasses education, nature conservation, sustainable tourism, and recreational spaces [1]. These "natural geoscientific laboratories" offer an innovative approach to education by providing opportunities for learning in locations where natural features reveal the Earth's developmental history [2]. As a product of geotourism, a geopark systematically generates value for society. The importance of geotourism, from which the geopark concept emerged, is emphasized by many researchers who describe its functions [3]. One of the key roles of a geopark is public engagement, education, and raising awareness about the natural values of the landscape, its geo-diversity, and the need for nature conservation to preserve these values for future generations.

Geoparks are valuable to society, contributing to education and enhancing environmental awareness [4]. The Toratau Geopark encompasses areas with unique geological heritage, linking nature conservation, education, and sustainable development [5]. UNESCO defines a geopark as an area containing scientifically significant sites with geological, cultural, and economic value.

The primary objective of geoparks is to implement a sustainable development strategy, protecting natural resources while promoting tourism. Korff notes that the establishment of a geopark status strengthens nature protection and draws public attention [7]. The Toratau Geopark can act as a catalyst for regional economic growth, supporting non-industrial activities and tourism [8]. Redkin and Otto emphasize that the creation of geoparks contributes to the development of both domestic and inbound tourism, making Toratau an important part of the tourism infrastructure of Bashkortostan [9].

The goal of this study is to analyze the management and development of the Toratau Geopark as a tool for sustainable tourism and economic growth in the Republic of Bashkortostan, as well as to identify the key

¹ Associate Professor of the Department of Real Estate Cadastre and Geodesy, Bashkir State Agrarian University; shafeeva20081@rambler.ru.

² Junior Researcher of the REC, Bashkir State Agrarian University; ugt-ufa@bk.ru.

challenges and prospects related to the preservation of the natural and cultural heritage within the geopark's territory.

Research Objectives:

- To examine the concept of geoparks and its application for sustainable development, using the Toratau Geopark as a case study;
- To analyze the role of the Toratau Geopark in the development of ecological and cultural tourism, as well as in raising environmental awareness among the population;
- To assess the economic and social impact of the geopark on the local community, including job creation and the development of tourism infrastructure;
- To review the current marketing strategies used to promote the geopark and propose methods for increasing its visitation during the off-season;
- To identify the challenges and limitations associated with geopark management and suggest potential solutions to overcome them.

Materials and Methods

The study covers the area of the Toratau Geopark, located in the Republic of Bashkortostan, Russia (Figure 1).

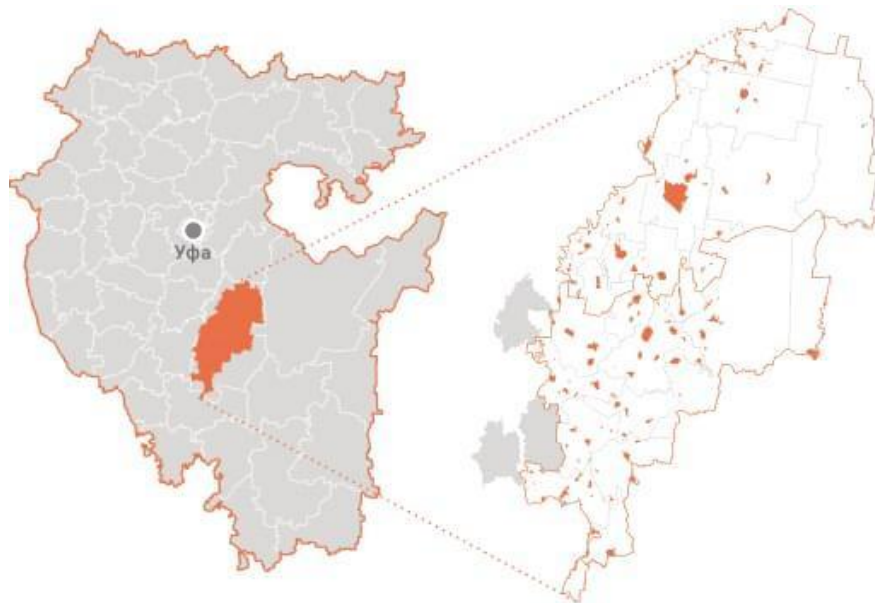


Figure 1 - The Territory of the Toratau Geopark within the Republic of Bashkortostan

The Toratau Geopark includes unique natural features such as Toratau Shikhan—a prehistoric reef massif of geological and cultural value [10]. The area combines natural and cultural landscapes that are significant for biodiversity conservation and ecological balance.

The geopark is situated in a moderately continental climate, which supports biodiversity and ecotourism. Its geological and cultural importance requires sustainable management.

This article explores the management of the Toratau Geopark in Bashkortostan. A review of concepts and international best practices in geopark management enabled the development of a systematic analysis for local conditions. An analysis of regulatory documents and sustainable tourism programs formed the basis for developing a methodology for assessing geopark management, grounded in international standards and the experience of the Global Geoparks Network.

Results and Discussion

The idea of creating the Toratau Geopark emerged as part of the development of sustainable tourism and natural heritage conservation in Bashkortostan in the early 2000s. This period became a starting point for managing the area around the geopark, aimed at preserving the unique landscape and geological heritage. However, the implementation of these ideas faced challenges, as the geopark concept had not yet been established in the legislation of the Republic of Bashkortostan at that time [11]. This meant the lack of governmental support for the creation and development of geoparks.

At the time of the creation of the geopark, other forms of protected areas already existed in the region, such as national parks, nature reserves, and specially protected territories defined by legislation (Figure 2). Figure 2 presents a map showing the boundaries of all specially protected natural areas in the Republic of Bashkortostan, including regional nature reserves, nature parks, and natural monuments, as well as three federal reserves and the "Bashkiria" national park.

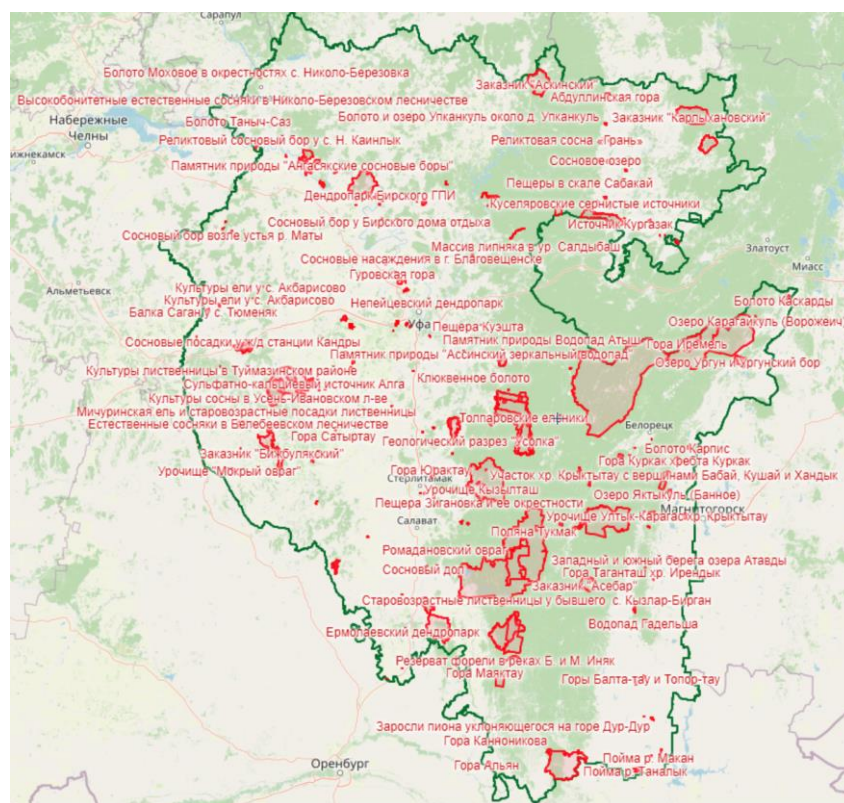


Figure 2 - Map of the Boundaries of All Specially Protected Natural Areas in the Republic of Bashkortostan

Although geoparks fall under the general categories of protected areas, it is important to note that they are not directly defined in the regional legislative acts. The Republic of Bashkortostan has 229 specially protected natural areas (SPNAs) (Figure 3), with a total area of 984,888.2 hectares [12].

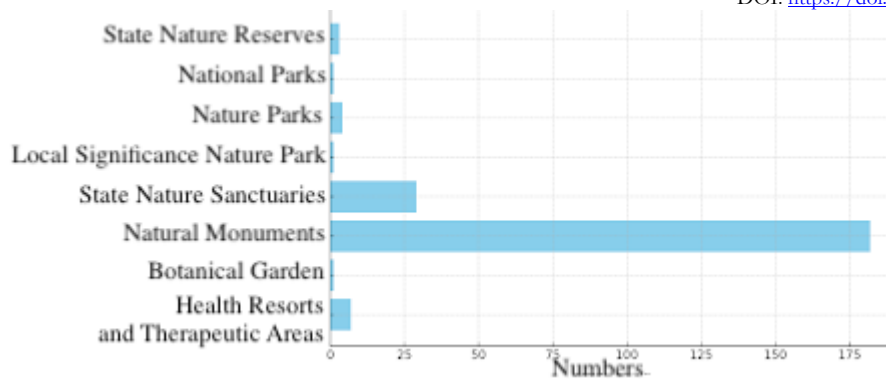


Figure 3 - Distribution of Specially Protected Natural Area Categories in the Republic of Bashkortostan

After 2019, the concept of geoparks began to gain popularity, which was reflected in the strategic documents of the Republic of Bashkortostan [13]. Since then, the management of the Toratau Geopark has started to follow specific recommendations and principles aimed at supporting and promoting sustainable tourism, education, and natural heritage conservation.

In 2020, the concept of geoparks was incorporated into the Sustainable Development Program of the Republic of Bashkortostan, with the goal of raising environmental awareness, fostering ecological culture, and creating educational routes and infrastructure. The inclusion of these directions in government documents marked a positive step towards the recognition and support of geoparks as a tourism product. In the following years, specific conditions for their creation and development were outlined, which were reflected in new strategic documents for the region.

In 2023, the Ministry of Natural Resources and Ecology of Bashkortostan officially recognized the status of the Toratau Geopark as a significant site for sustainable tourism and education [13]. This recognition was the first step in the management of geoparks in the region, followed by the development of strategic documents for the popularization and structuring of governance.

The creation of the geopark network in Bashkortostan has become an important initiative aimed at coordinating efforts, developing educational routes, and improving infrastructure. The modern approach to protecting natural heritage through geotourism aligns with the principles of the sustainable development strategy outlined in the 2030 Agenda, supporting the preservation and popularization of geological heritage. The Toratau Geopark is overseen by the Ministry of Ecology, which supports its development and is exploring opportunities to expand the geopark network [13].

Marketing management of the geopark is closely tied to its effective governance, which is essential for attracting and retaining the interest of the audience, particularly the youth. Active online presence is crucial for the Toratau Geopark, but the current level of promotion needs improvement.

Marketing management should include the creation of informational and promotional materials, as well as the use of digital technologies such as AR, VR, webinars, and geotagging. Special attention should be given to online advertising, which significantly influences the success of the geopark. A solution could be to involve professionals, whether through an in-house marketing specialist or an agency.

Professionalizing marketing is a potential solution, whether through the creation of a dedicated marketing position for the geopark or by outsourcing marketing functions to professional agencies.

To illustrate the popularity of various types of tourism within the Toratau Geopark, an analysis of the current tourism flow in the region was conducted. The analysis revealed that ecotourism occupies a leading

position among all tourism sectors. Based on the collected data, a pie chart was created (Figure 4), reflecting the distribution of tourist flows by travel purpose.

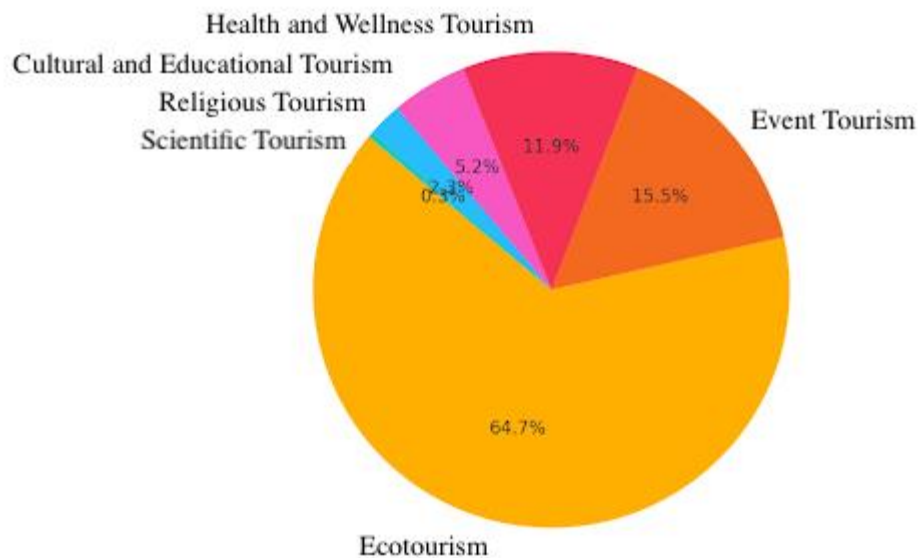


Figure 4 - Total Tourist Flow by Travel Purpose at the Toratau Geopark

The chart (Figure 4) shows that ecotourism accounts for 64.7% of the total trips, indicating strong interest in natural resources and sustainable forms of tourism [14]. Event tourism ranks second, with a share of 15.5%, attracting tourists to cultural and entertainment events. Health and wellness tourism holds third place, comprising 11.9% of the total volume, reflecting the popularity of health-focused recreation.

Less popular categories include cultural and educational tourism (5.2%), religious tourism (2.3%), and scientific tourism (0.3%). Although these sectors contribute less, they also play an important role in diversifying the region's tourism offerings, attracting niche groups with specialized interests [14].

Thus, the data emphasizes the significance of ecotourism as the leading sector, promoting sustainable development in the area and attracting tourists interested in preserving natural and cultural heritage.

In addition to analyzing the popularity of various types of tourism, it is important to examine the seasonal distribution of tourist flows. Understanding which seasons see the highest activity helps to plan resources more effectively and develop strategies to attract tourists during less busy periods.

Figure 5 presents the distribution of tourist flow by season, offering a more detailed assessment of tourist activity depending on the time of year.

The diagram in Figure 5 illustrates the seasonal distribution of tourist flow. As seen from the data, the summer season attracts the largest number of tourists—around 80% of the total trips. This confirms the high popularity of summer travel, likely due to favorable weather conditions that encourage outdoor activities, ecotourism, and other forms of leisure in nature.

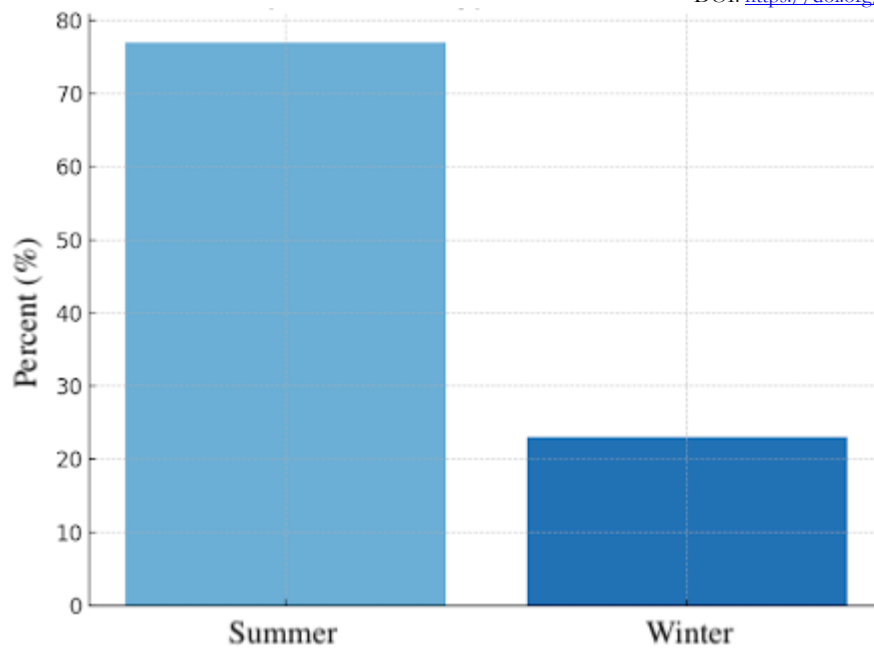


Figure 5 - Distribution of Tourist Flow by Season

Figure 5 illustrates the distribution of tourist flow by season, providing a more detailed evaluation of tourist activity depending on the time of year.

The diagram in Figure 5 shows the seasonal distribution of tourist flow. The summer season attracts about 80% of tourists, likely due to favorable weather conditions that encourage outdoor activities. In winter, tourist flow decreases to 20% due to weather constraints and tourist preferences, with most opting for summer trips.

To achieve a more even distribution of tourists and ensure year-round utilization of the area, it is necessary to enhance marketing efforts and infrastructure for the winter season. Figure 6 presents the distribution of activities on the Toratau Shikhan, including the ascent to the shikhan, visiting the "I Love Toratau" sign, and the ecotel [14].

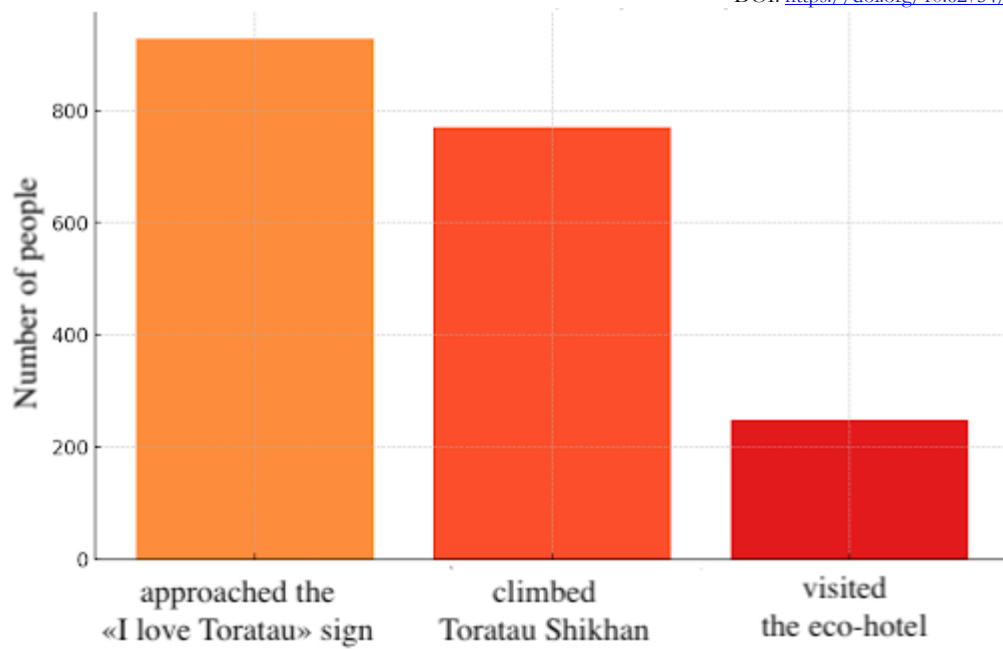


Figure 6 - Visitor Activity at Toratau Shikhan on August 2, 2020**

Figure 6 illustrates the visitor activity at Toratau Shikhan on August 2, 2020, presenting data on the number of people engaging in various activities within the area of the shikhan.

According to the diagram, the largest number of visitors approached the "I Love Toratau" sign, totaling around 800 people. A slightly smaller group, approximately 600 individuals, ascended the shikhan itself, indicating the significant popularity of this activity. Visiting the ecotel was the least popular activity, with about 200 participants.

These data reflect tourists' preferences, highlighting their greater interest in engaging with nature and local landmarks, such as climbing the shikhan and taking photographs at the commemorative sign, over utilizing infrastructure like the ecotel.

To gain a deeper understanding of the natural and cultural significance of the Toratau geopark area, it is important to note the key attractions that draw visitors and contribute to the development of the geopark. The Toratau geopark is home to unique natural landmarks, representing valuable geological and cultural sites.



Geological Cross-section of Dalniy Tyulkas



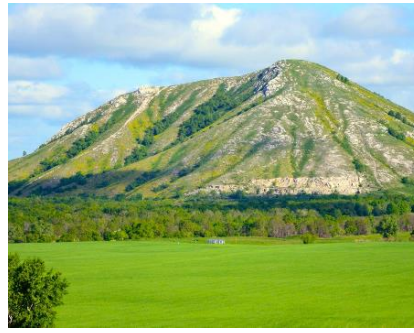
Geological Cross-section of Usolka



Shikhan Kushtau



Shikhan Toratau



Shikhan Yuraktau

Figure 7 presents the most significant natural landmarks within the Toratau Geopark, including the geological sections of Dalniy Tyulkas, Usolka, as well as the shikhans of Kushtau, Toratau, and Yuraktau. These sites play a central role in promoting geotourism and form the foundation for the development of sustainable tourism in the geopark area. Each of these landmarks has its own unique history and geological value, attracting both tourists and researchers, while fostering ecological awareness and respect for natural heritage.

The development of the Toratau Geopark has acted as a catalyst for growth in tourism and related services. In 2020, tourist flow increased by 25%, reaching 209,000 visitors, which led to an expansion of employment in the region. Additionally, investments amounting to approximately 16 million rubles were attracted, aimed at improving tourism infrastructure, including the creation of visitor centers, development of tourist routes, and landscaping of the area.

The geopark actively engages the local population by creating a platform for cooperation and social activity. The establishment of the non-profit organization "Center for Science, Education, Ecology, Culture, and Tourism "Toratau Geopark"" brings together entrepreneurs, activists, and experts, allowing for more effective collaboration and the introduction of new projects for the development of the area. This approach not only promotes economic development but also strengthens social cohesion and improves the quality of life in the region.

Furthermore, Toratau Geopark implements educational and research programs aimed at popularizing science and raising ecological awareness. These initiatives contribute to the formation of an ecological culture and foster a careful attitude toward natural heritage, making a significant contribution to the development of cultural values and enhancing the ecological responsibility of the local community.

To analyze and improve the current management of Toratau Geopark, a comprehensive analysis of its existing issues and limitations was conducted. The analysis identified key areas that require attention to enhance effectiveness and sustainability. Table 1 below outlines the identified problems, methods for their identification, detailed descriptions, and proposed solutions aimed at improving the management of the geopark and its further development.

Table 1 - Key Management Issues of Toratau Geopark and Proposed Solutions

| Problem / Limitation | Methods of Identification | Description | Solution |
|--|---|---|--|
| Lack of marketing resources and promotion strategy | Analysis of marketing level, monitoring of social media and tourism platforms | Insufficient promotion limits the recognition of the geopark and tourist attraction | Development of a digital marketing strategy, active promotion on platforms and social media, and the use of AR and VR technologies |

| | | | |
|--|--|---|--|
| Seasonal fluctuations in tourist flows | Analysis of seasonal visitation to the geopark | High tourist flow in the summer, a decline in winter, requiring efforts to attract tourists during the off-season | Creation of winter routes and events, and the development of winter infrastructure |
| Limited financial and managerial resources | Evaluation of the budget and funding sources | Lack of resources for maintaining and developing the geopark | Attracting investors, grants, and creating a self-financing model through paid services and souvenirs |
| Need to raise environmental awareness | Surveys of visitors and staff, analysis of anthropogenic impact | Tourist flow negatively impacts nature, necessitating environmental education for visitors | Environmental education programs, informational boards, and routes with minimal impact on nature |
| Difficulties in management and coordination with local organizations | Analysis of administrative processes, interviews with local authorities and businesses | Coordination difficulties hinder development. | Establishment of a coordination council for the prompt resolution of issues and improved interaction with local administrations and partners |

The data presented in Table 1 indicates that effective management of the Toratau Geopark requires a comprehensive approach, including active marketing promotion, seasonal distribution of tourist flows, sustainable funding, increased ecological awareness, and improved coordination with local organizations. The implementation of the proposed solutions will not only enhance the geopark's tourism appeal but also ensure its long-term development with minimal impact on the region's natural heritage.

Conclusions

The conducted study has shown that the Toratau Geopark plays a significant role in the development of sustainable tourism and the preservation of natural heritage in the Republic of Bashkortostan. Key challenges such as limited marketing efforts, seasonal fluctuations in tourist flows, insufficient financial resources, low levels of ecological awareness among tourists, and difficulties in coordination with local organizations may significantly hinder the effectiveness of management and the future development of the geopark.

As part of the analysis, practical solutions were proposed for each identified issue, including the development of a comprehensive marketing strategy, creation of winter tourism routes, attraction of external investors and grants, implementation of ecological programs, and the establishment of a coordinating council. These measures are aimed at enhancing the geopark's sustainability, its tourism appeal, and its socio-economic impact on the local community.

Thus, the implementation of the proposed recommendations will help not only strengthen the status of Toratau Geopark as an important tourist and cultural center of the region but also ensure its long-term development with minimal impact on natural heritage, in line with the principles of sustainable development and the needs of contemporary society.

References

- Luneva, E. V. Organization of Geoparks in Russia and Features of Their Legal Regime // Lex Russica. – 2021. – Vol. 74, No. 9. – pp. 32-43. – DOI: 10.17803/1729-5920.2021.178.9.032-043.

- Karaev, Y. I., Kusova, Zh. G. Geoecology and UNESCO Global Geoparks // *Izvestiya of Dagestan State Pedagogical University. Natural and Exact Sciences.* – 2021. – Vol. 15, No. 4. – pp. 60-66. – DOI: 10.31161/1995-0675-2021-15-4-60-66.
- Kolesnikova, N. V., Huuskonen, N. M. Geoparks as a Basis for the Development of Mountain Geological Tourism // *Modern Scientific Research and Innovation.* – 2015. – No. 7, Part 3 [Electronic resource]. URL: <https://web.snauka.ru/issues/2015/07/56109> (accessed: 05.11.2024).
- Luneva, E. V. Legal Protection of Geological Heritage. – 2022.
- Shafeeva, E. I., Miftakhov, I. R. International Review of GIS Applications in Global Geoparks: Trends and Prospects // *Innovative Technologies as a Factor of Development: Proceedings of the International Scientific and Practical Conference within the Framework of the XXXIV International Specialized Exhibition "Agrocomplex-2024," Ufa, March 26–28, 2024.* – Ufa: Bashkir State Agrarian University, 2024. – pp. 371-377. – EDN DTCLMJ.
- Shafeeva, E. I., Miftakhov, I. R., Baikov, A. G. Geopark as a Bridge between Nature and Society for Conservation and Sustainable Development of the Territory // *Science of the Young – for Innovative Development of the Agro-Industrial Complex: Proceedings of the XVI National Scientific and Practical Conference of Young Scientists, Ufa, November 14, 2023.* – Ufa: Bashkir State Agrarian University, 2023. – pp. 194-198. – EDN OHTXYB.
- Korf, E. D. Geoparks and Geotourism as a Tool for Sustainable Rural Development // *Proceedings of the XI International Conference "Innovations Based on Information and Communication Technologies": Conference Proceedings.* – Sochi, 2014. – pp. 579-581.
- Kovalev, S. G. Geoparks as a Basis for Non-Industrial Development of Territories // *Geological Bulletin.* – 2019. – No. 3. – pp. 3-11.
- Redkin, A. G., Otto, O. V. Geopark as a New Direction for Tourism Development in the Mountainous Regions of the Altai Territory // *Science and Tourism: Interaction Strategies.* – 2015. – No. 4 (2). – pp. 9-15.
- Ardislamov, F. R., Lukashina, N. A., Tretyakova, E. A. Toratau Geopark: Geological Heritage as an Ecotourism Object // *Proceedings of the Kola Science Center RAS.* – 2019. – Vol. 10, No. 6 (1). – pp. 25-32.
- Ardislamov, F. R., Lukashina, N. A., Tretyakova, E. A. TORATAU GEOPARK AS AN OBJECT OF EFFECTIVE INTERACTION WITH SOCIETY AND RATIONAL USE OF NATURAL MONUMENTS // *Geology, Geoecology, and Resource Potential of the Urals and Adjacent Territories.* – 2019. – No. 7. – pp. 206-208.
- Chibilev, A. A., Padalko, Yu. A. Spatial Distribution of Federal-Level Protected Areas of the Russian Federation by Administrative Units and Watersheds // *Regional Environmental Problems.* – 2014. – No. 1. – pp. 223-229.
- Shagapova, R. A. The Formation and Development of Legal Foundations for Geoparks // *Property Relations in the Russian Federation.* – 2023. – No. 10 (265). – pp. 65-74.
- Nafikov, S. The Pandemic Prompted New Ideas // *Vatandash.* – 2021. – No. 1 (292). – pp. 37-42. – EDN CBENFJ.