

RECREATIONAL AND TOURISM POTENTIAL OF INLAND WATER RESOURCES IN BAKHMAL DISTRICT

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Abstract: *This study is devoted to the investigation of the inland water resources of Bakhmal District, their spatial distribution, and their recreational and tourism potential. The study analyzes the natural-geographical characteristics of the Sangzor River, streams, small watercourses, springs, and groundwater within the district, as well as their significance for the population and economic activities. In addition, the potential of inland water bodies for the development of recreation and tourism, as well as the natural, aesthetic, and cultural value of springs, was examined. Scientific literature, cartographic materials, and available data were used during the study. The results indicate that inland water resources are unevenly distributed throughout Bakhmal District, while the network of springs is particularly well developed in the foothills of the Turkestan Mountain Range. These water bodies constitute important natural resources for the development of ecological, recreational, and tourism activities. The findings of the study provide a scientific and practical basis for the sustainable use of water resources in Bakhmal District and for the effective development of their recreational and tourism potential.*

Keywords: *climate, inland waters, sustainable use of water resources, springs, geographical location, microclimate, tourism potential.*

Introduction. Climate change and the rational use of water resources are among the important areas of contemporary geographical research. Water resources are considered an important natural resource not only for meeting the needs of the population and supporting agriculture, but also for developing tourism and recreation in a given area. Due to its geographical location in mountainous and foothill areas and its abundance of rivers, streams, and springs, Bakhmal District is considered an area with significant tourism and recreational potential. At first glance, Bakhmal District may appear to be a well-supplied area in terms of water resources; however, inland waters are actually unevenly distributed throughout the district. Some areas are rich in rivers and springs, while others experience water scarcity. Therefore, studying the water resources of the district is of great importance.

Information about the district can be found in the scholarly works of several researchers. General geographical information about the district can be found in the textbook General Physical Geography written by H. Hasanov and other authors. The book Bakhmalnoma, written by the Bakhmal historian Saidazim, also provides valuable information about the geographical location, history, and several villages of the district. The prominent Jizzakh scholar S. Qorayev studied the origins of geographical names within the district. K. Khakimov conducted research

on the landscapes of Bakhmal District and their utilization and published the results of these studies as a monograph. In addition, this scientific research examined the district's climate and landscapes, issues related to their current use, and recommendations for their future utilization.

The above information demonstrates that the geographical location, history, climate, landscapes, and toponyms of the district have been studied by researchers. Scientific works have been published on these topics. However, the inland waters of the area, their distribution throughout the district, and their role in the development of tourism in the district have not been examined in depth as a separate research topic. Therefore, this study is devoted to the recreational and tourism potential of the district's inland waters.

The main objective of the study is to determine the spatial distribution of inland waters in the district and to assess the tourism and recreational potential of the major hydrographic features.

Materials and Methods. The inland waters of Bakhmal District were selected as the object of the study. Bakhmal District is located in the southern part of Jizzakh Region, on the northern slope of the Turkestan Mountain Range. Bakhmal District was first established on May 8, 1943. On October 12, 1957, it was merged with Gallaorol District. On August 31, 1971, it was separated from Gallaorol District and re-established as an independent district.

The study utilized scientific literature, monographs, dissertations, statistical data, cartographic materials, and available open geospatial data concerning the natural-geographical conditions, hydrographic network, and water bodies of Bakhmal District. In addition, local information concerning springs, streams, and other water bodies within the area was analyzed as research material. The names, locations, and characteristics of the use of water bodies were summarized on the basis of available scientific sources and regional data.

The study employed the methods of geographical comparison, cartographic analysis, and a systematic approach. Using the geographical comparison method, the natural conditions, spatial distribution, and utilization characteristics of various water bodies within the district were compared. Based on the systematic approach, the interrelationships between inland waters and the natural environment, population, economic activities, recreation, and tourism were examined.

The recreational and tourism potential of water bodies was assessed using natural attractiveness, the condition of water resources, transportation accessibility, proximity to settlements, the availability of tourism infrastructure, opportunities for organizing recreational activities, and environmental conditions as the main

criteria. Based on these criteria, the level of prospects of the water bodies for tourism and recreation was comparatively assessed.

At the stage of summarizing the research results, the spatial distribution, natural characteristics, and recreational opportunities of water bodies were analyzed in an interconnected manner. Based on this analysis, conclusions were formulated regarding the sustainable use of inland water resources in Bakhmal District and their integration into tourism and recreational activities.

Results and Discussion. During the study, it was determined that the foothill areas of Bakhmal District are relatively rich in springs. In particular, numerous springs were recorded in villages and small valleys located at the foothills of the Turkestan Mountain Range. They add beauty to the surrounding environment, moderate the microclimate, and provide opportunities for fishing and water sports along riverbanks and lake shores. Bakhmal District has diverse hydrographic conditions. The inland waters of the district can be divided into the following groups according to the main hydrographic features and water sources: rivers, streams and small watercourses, springs, groundwater, and artificial water networks.

The district has one main and only major river, the Sangzor River. This river mainly originates from the northern slopes of the Chumqor Mountains and the southern slopes of the Morguzar Mountains and flows out toward Gallaorol District. The river is of great importance to the district because the Sangzor River plays a major role in irrigating agricultural lands, supplying the population with water, shaping the landscapes of the Sangzor Valley, and, most importantly, promoting recreation and tourism development in the river valley.

The total length of this river is 123 km, while the area of its basin is 2,526 km². Since the river is mainly fed by snowmelt and rainwater, its high-water period occurs in the spring months, whereas the lowest-water period occurs during the winter months (January–February). The Jizzakh Reservoir was constructed near the city of Jizzakh for the purpose of regulating and conserving the river's water flow.

Another important component of the inland waters of Bakhmal District is its streams. There are several streams in the district, including Guralash, Boyqo'ng'ir, Ko'kjar, Tangatopdi, Jo'm-jo'm, and others. Their water is clear and fresh, while during the snowmelt and irrigation seasons, it becomes very turbid due to the washing away of loess-like sediments.

At present, the population is mainly supplied with clean drinking water through groundwater resources. The valley contains springs rich in mineral salts and possessing healing properties.

Bakhmal is considered a district rich in springs. The existing springs further enhance the recreational and tourism potential of the district. They are located at the foothills of the Turkestan Mountain Range. In the eastern part of the district, there are springs such as Boshqo‘ton, Moylibuloq, Yomonqo‘y, Halovatsoy, Chashma Buloq, Yakkatol, Burg‘utlisoy, Kamarqo‘ton, Kattaqo‘riq, Kichikqo‘riq, Dang‘aratepa, Boboroysoy, Qorasuv, Yomonbuloq, Raybuloq, Mullabuloq, and Mingbuloq. The name Mingbuloq was derived from the former name of the present-day Oqqo‘rg‘on village. There were numerous springs in this village, almost in the yard of every household, which is why it was called Mingbuloq. These springs are located in the villages of Dang‘ara and Oqqo‘rg‘on. Their water is mainly used for household consumption, while the small streams flowing from the springs eventually discharge into the Sangzor River.

In addition to the above-mentioned springs, the district contains Jarbuloq, Ko‘rbuloq, Qorabuloq, Qizilsuv, Novqa Ota, O‘smat Ota, Muzbuloq, Sutlibuloq, Sovuqbuloq, Buqa Buloq, Sho‘rbuloq, Navro‘z Buloq, Sarpichiq, Mayda Buloq, and Jilli Buloq. Ko‘rbuloq is so named because the spring is located at the bottom of a steep ravine, making its springhead invisible. Sutlibuloq received its name because its water foams as it flows and creates a white appearance. Navro‘z Buloq was formerly known as Qo‘tir Buloq.

Springs are present in almost all villages located at the foothills of the Turkestan Mountain Range. For example, a number of unexplored springs are found in the villages of Qoraqishloq, Saroy, O‘damali, Buviaysha, Kattaqishloq, Chayish, Jadik, Aldashmon, Qirqishloq, Dang‘ara, Sartyuzi, Tanga Topdi, Vadigan, Jom-jom, Tagop, Palaxmon, Mo‘g‘ol, Oqtosh, Kaltatoy, Lattaband, Buloqboshi, Uzunbuloq, Qurbonzo‘r, Qatartol, and Tengali, as well as in the valleys of Quchchisoy, Do‘lanasoy, Munchoqlisoy, Teraklisoy, Jiyda Soy, Bog‘dagul, and Kattasoy.

The tributary that flows from the stream of Oqqo‘rg‘on village and joins the Sangzor River is called Mingbuloq. Therefore, some people also refer to Oqqo‘rg‘on village as Mingbuloq village. Numerous springs flow into this tributary. Every spring in Bakhmal has its own history. The springs of Novqa Ota, Malik Ajdar, O‘smat Ota, Buvaysha, and Qizil Suv have not only their own histories but also individual legends associated with them. It should be emphasized that every spring in the district provides clean drinking water to the residents of one or more villages.

The results of the study showed that the inland water bodies of Bakhmal District can serve as a natural basis for developing various forms of recreation. The natural landscapes of river and stream valleys, springs in foothill areas, and the

microclimatic conditions surrounding them create opportunities for organizing activities such as short-term recreation, ecotourism, hiking, and nature observation.

Springs are particularly promising resources for establishing small-scale recreational sites and ecotourism routes. Their location in foothill areas makes it possible to incorporate them into tourist routes together with natural landscapes, rural settlements, and local cultural sites.

At the same time, the tourism potential of all water bodies cannot be assessed equally. Their prospects for tourism depend on transportation accessibility, water quality, environmental conditions, natural attractiveness, proximity to settlements, and the availability of tourism infrastructure.

Overall, the inland water resources of Bakhmal District have significant potential for tourism development due to the combination of natural, social, and cultural characteristics. The fundamental principle in utilizing these opportunities should be the protection of water resources, ensuring the local population's water needs, and organizing recreational activities in an environmentally sustainable manner.

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