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## **LAKE ECOTOURISM: TRENDS IN LANDSCAPE CONSERVATION AND EFFICIENT USE**

**Abstract:** The article presents trends in the effective use of landscapes. Ecotourism is included as a trend of efficient use. Ecotourism is one of the tourist destinations, which is the rational use of natural resources through tourism, protection, conservation and reproduction of natural components. The Aydar-Arnasay lakes system is the largest ecotourism facility in Uzbekistan. It contains information about the Aydar-Arnasay lakes system and its unique, rare animals and plants found in adjacent landscapes. The ecotouristic potential of the lake system was analyzed. Suggestions and recommendations for the development of ecotourism in the future are given.

**Keywords:** Ramsar, CITES, Ecological tourism, ecotour, tourism.

When optimizing the landscape around the lake, first of all, it is necessary to develop measures for the protection of landscapes. Landscape protection involves a complex system of measures in a broad sense. In such a complex system, human-centered landscaping involves measures such as purposeful modification, rational use of natural resources. A large part of the research object is an area where protected areas and nature reserves are located. It is also necessary to take into account each of their components in the protection of landscapes.

Therefore, the use of ecotourism is one of the most effective ways to use landscapes wisely today (Walker, Weiler, 2017). Ecotourism is one of the tourist destinations, which is the rational use of natural resources through tourism, protection, conservation and reproduction of natural components. Its content was first

described by the Mexican ecologist-economist G.S. Laskuren (1991) as ecotourism as a tourist activity aimed at a vigilant attitude to nature, acquaintance with nature, enjoyment of it, study, protection, conservation and reproduction of fauna and flora (Lascurian, 1991). In addition, eco-tourism is one of the youngest tourist destinations that is gaining attention and developing within the tourism industry. Today, one of the most important issues is the development of ecological tourism, its study and analysis by geographical features. In our research work, we singled out a geographical object as a separate ecotourism object, called it lake ecotourism, and described it. This is because the geographical assessment of each ecotourism object gives a clear result and helps to determine whether there is an opportunity to develop ecotourism in that area. Otherwise, ecotourism or ecological tourism will remain just an abstract concept.

The largest irrigation and anthropogenic lake in Uzbekistan, the Aydar-Arnasay lakes system, was selected as the object of study. Administratively, the Aydar-Arnasay lakes system and adjacent areas are located in the Nurata district of Navoi region and most of the Forish districts of Jizzakh region (Sabirova, Berdikulov, 2020). In Jizzakh region alone, there are a total of 267 ecotourism destinations, the largest of which is the Aydar-Arnasay lakes system. The lake forms the unique natural conditions of the lake+desert+mountain triad, bordering the eastern Kyzylkum, the southeastern side Mirzachul, the southern part of the Nurata mountain range. Such natural conditions create huge ecotourism, recreational opportunities and resources for the Aydar-Arnasay lakes system (Abbasov, Sabirova, 2018; 2018). We can analyze the following natural components and tourism potentials that affect the development of eco-tourism in the lake.

In particular, the Aydar-Arnasay lakes system is rich in biological resources. Fish farming and fishing in the lake are well organized. There are 22 species of fish here, of which only 13 species are native. In the 1960s, Uzbekistan was acclimatized for the use of fish in the national economy. At this time, in the small lakes of the Aydar basin and in the lake Tuzkon, valuable species of white-tailed deer and white amur fish are adapted to the lake climate. 14 species of fish are of valuable hunting

importance. One of them (*Barbus capito ssp. conocephalus Kessler*) is included in the Red Book of Uzbekistan. Hunting and ecotourism are also practiced on the lake. There are 39 species and 6 genera of animals around the Aydar-Arnasay lake system and in the south-west of the Eastern Kyzylkum. 2 of them (muskrat and nutria) are adapted to the conditions around the lake. Also, 7 species of animals living around the lake are included in the International Red Book and 4 species in the Red Data Book of Uzbekistan. The lake has all the possibilities in the direction of ornithological ecotourism, but their judicious use requires caution. Endangered species *Pelecanus Crispus*, *Oxyura leucocephala*, *Aythya nyroca*, *Aquila heliaca*, *Haliaeetus leucoryphus*, *Aegypius monachus*, *Chlamydotis undulata* are found here. In the deserts around the lake, 9 species of birds can be found. 13 species of birds in the lake are included in the International Red Book and 24 species in the Red Data Book of Uzbekistan.

In addition, in 2000, crowned falcons brought from Saudi Arabia were released under special markings on the shores of the lake adjacent to the Kyzylkum Desert. According to experts from the Arnasay Ornithology Center, the number of crowned falcons has now exceeded 50. Such events will help to increase the number of bird species on the shores of the lake in the future, as well as to further develop ornithological ecotourism and attract international tourists.



**Fig.1. The Aydar-Arnasay lakes system is a coastal tugai forest**  
*(The photos were taken by the authors, 2018)*

The lake shore is also very rich in flora, there are 47 species of plants, 6 species of which are included in the “Red Book” of Uzbekistan, and 16 species are endemic to

Central Asia. Also, the shores of the lake are surrounded by tugai forests, which delights tourists (**Fig.1**).

The Aydar-Arnasay lakes system is also of international importance and was included in the 2008 Ramsar Convention. This convention was adopted on February 2, 1971 in Ramsar, Iran under the name of the Convention on Wetlands of International Importance, which is the main habitat of waterfowl. The task of the Convention is to protect wetlands and use them wisely (Skov, et al., 2018). The international importance of the lake will further enhance the lake's ecotourism status. Specially protected areas, reserves, orders, national parks are also part of ecotourism resources. The lake basin has similar natural, swampy landscapes that have now been turned into a protected area. In 1977, the 63,000-hectare Arnasay Nature Reserve was built in the Tuzkon part of the lake. The reserve is home to *Ondatra zibethica*, *Canis lupus*, *Vulpes*, *Feles chaus* *Cyphinus carpio*, *Silurus glanis*, *Ctenopharyngodon idella* *valen*, *Barbus capito* and other valuable fish species, as well as birds *Pelecaniformes*, *Ciconiformes*, *Anseriformes*, *Falconiformes*, *Gruiformes*.

In addition, the Nurata Mountain Walnut Nature Reserve is located on the central and southern slopes of the Nurata Mountain Range, which is adjacent to the Aydar-Arnasay lake system. This reserve was established in 1975 and has a total area of 40,000 hectares. There are 650 species of plants in the reserve, including Victor Korolkov, Elena porcelain flower, stem onion, Suvorov onion, rare species of trees: saur, Zarafshan spruce, *Ungernia sewertzowii*, Regel pear. In particular, the habitat activity of birds in the reserve area is interrelated with the lake system. In the future, in order to protect the lake landscape complexes and expand their area, it is planned to establish the Nurata-Kyzylkum biosphere reserve. This reserve includes all the landscapes that are adjacent to the lake. This reserve includes all the landscapes that are adjacent to the lake. These include desert, mountain, and lake aquatic landscapes.

There are some such animals in the unique landscapes of the Aydar-Arnasay lake system that are even included in the CITES (*Convention of International Trade in Endangered Species of Wild Fauna and Flora*) International Convention on Trade in Endangered Species of Wild Fauna and Flora. This list includes the lake and its

surrounding tugai forests *Felis chaus*, *Felis libyeca*, *Canis lupus*, *Pelecanus crispus*, *Ciconia nigra*, *Platalea leucorodia*, *Phoenicopteride*, *Branta ruficollis*, *Oxyura leace*, *Anas Formosa*, *Haliaeetus leucoryphus*, *Haliaeetus leucocephalus*, *Neophron percnopterus*, *Falconiformes*, *Gruiformes*, *Aslo flammeus*, *Testudo horsfieldi*, *Varanus grisulus* and other rare animals included. Today, tourist services are being developed in ecotourism areas around the lake. Until today, the system of Aydar-Arnasay lakes in the surrounding regions the following areas of ecotourism are most developed. To these we can tell the directions of fishing, trips to ponds, Ornithology, safari ecotourism. In addition, tourists will be able to enjoy meaningful recreation in modern campsites on the shores of the lake, camel and horse rides, recreation on the beach and restore their health. While the landscapes around the Aydar-Arnasay lake system are rich in ecotourism resources, among them are rare species, natural landscape components that are at risk of ecology. This means that in order to use these components effectively for ecotourism purposes, tourists must first be accompanied by experts. We have shown that the most important direction in the protection of unique landscapes, conservation, reproduction of flora and fauna is ecological tourism, but it should be noted that non-compliance with the rules set out in ecotourism can lead to tourism ecology. Therefore, in order to overcome such problems, it is necessary, firstly, to study the experience of countries with developed eco-tourism, secondly, to train potential personnel in the field, and thirdly, to train and upgrade their skills in foreign universities.

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