

# Socio-Ecological Aspects of the Daily Life of the Population of the Khorezm Oasis

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**Abstract:** The article is dedicated to the socio-ecological aspects of the daily life of the population of the Khorezm oasis, a unique region of Central Asia. The oasis, located in the delta of the Amu Darya River, was an important center of agriculture and culture, thanks to a complex irrigation system that provided water supply in a semi-arid climate. The population of ancient and medieval Khorezm developed effective methods of environmental and natural resource management, allowing them to thrive even in extreme natural conditions. The article explores the ecological traditions of land use, housing construction from local materials, and cultural practices related to the reverence for nature. Particular attention is given to issues of water use and agriculture. The irrigation systems of Khorezm, combined with cultural and ecological traditions, ensured the sustainable development of the region over centuries. The article emphasizes the importance of further research to understand the ecological models of human interaction with nature and their relevance to modern conditions.

## 1 INTRODUCTION

The territory of Uzbekistan is one of the oldest regions of Central Asia, famous for its rich history, scientific and cultural heritage. Paying tribute to the works of his ancestors, in his speech at the 78th session of the UN General Assembly, President of Uzbekistan Sh.Mirziyoyev stressed: "We are rightfully proud that our country is the birthplace of such great scientists and thinkers as Al-Khorezmi, Beruni, Ibn Sino, Imam Bukhari, Mirzo Ulugbek, Alisher Navoi, who They have made an invaluable contribution to the development of world science and culture, and have shown that Islam is a religion of peace, knowledge and enlightenment (Al-Quran, 2001).

The Khorezm Oasis is located in the Southern Aral Sea region, on the territory of the Amu Darya River delta, and is part of the modern arid zone in Central Asia, where the desert played a key role in the preservation of archaeological sites, many of which have preserved their original appearance to the present day. These monuments create an unforgettable impression, which is best conveyed in the words of S.P. Tolstov: " a grandiose, unforgettable panorama of the ancient Khorezm conquered by the desert opened before us. Ahead of us, the dead sands lay spreading out in an endless sea

to the west, east and north. Only far away on the northern horizon, through the haze of distance, the bluish silhouette of the Sultan-Uwe Mountains was drawn. And everywhere, among the frozen waves of dunes, now in dense clusters, now in lonely islands, countless ruins of castles, fortresses, fortified estates, entire large cities lay (Andrianov, 1969).

The formation of the geographical position of the Khorezm oasis, located between the Kyzylkum and Karakum deserts, was due to underground tectonic processes, and its colorful geomorphological description is associated with the wealth of minerals contained in the waters of the Amu Darya. Thanks to these deposits, the oasis has turned into a fertile and humid lowland, which is part of northwestern Turan. The development of the oasis in terms of climatic conditions, ecology and anthropogenic influence had its own unique features (Davletov & Tajiyeva, 2020).

The ecology of Khorezm is a complex combination of steppes, deserts and river valleys. The main waterway of the region, the Amu Darya River, has served as the main source of life for the local population for centuries. In the dry and hot climate of the region, the availability of water was a key factor for the existence of cities, agricultural activities and the maintenance of ecosystems. Human interaction with nature in Khorezm largely depended on the level of development of irrigation technologies, which

made it possible to control water resources and ensure the sustainability of the agricultural sector (Djumaniyazova & Zariptaeva, 2021).

Despite numerous studies in the field of history and archaeology, the ecological aspects of the daily life of the population of the Khorezm oasis still remain insufficiently studied. Meanwhile, the study of this topic allows us to better understand how people of the past interacted with the environment, what methods they used to adapt to natural conditions and how their activities influenced the ecosystems of the region.

The article emphasizes the importance of further research to understand the ecological models of human interaction with nature and their significance for modern conditions.

## 2 SOURCES, METHODS AND METHODOLOGY

The study of history shows that nature has always been the focus of humanity's attention. The holy book of our ancestors "Avesta" is a vivid example of this. In this ancient collection of laws, special attention was paid to relations with nature, environmental issues and the education of young people in the spirit of caring for the world around them and their native land.

As Beruni noted, "... if people commit violence against nature, grossly violating its laws, then the time will come when it will bring down unthinkable disasters on their heads that no forces can stop." Currently, the environmental field is rapidly developing in order to prevent such a course of events. It plays a special role in the life of both society and every person (Davletov & Tajiyeva, 2020).

The interest in the study of the Khorezm oasis has long been in the focus of attention of researchers, whose legacy contains a number of valuable information about the socio-economic and political life of the oasis. These issues were partially studied in the twentieth century. The expedition led by S.P.Tolstov (Khorezm Archaeological and Ethnographic expedition) managed to study these processes at the level of its time, i.e. the middle of the twentieth century. In particular, G.P.Snesarev and a group of ethnographers under his leadership tried to highlight the local ethnographic situation at the level of primary descriptive and analytical research.

If K.L.Zadykhina, who studied the ethnography of the region in the twentieth century, highlighted the traditional economy of the Uzbeks living in the basin of the lower Amu Darya, then M.V.Sazonova studied the dishes and food culture of

the population of the southern part of the oasis, as well as food used in their daily lives (Gulomov, 1959).

Issues of nature management in Khorezm Gulamov analyzed the history of irrigation technology in Khorezm and studied the factors of irrigation development in the lower reaches of the Amu Darya (Jabbarov, 1997).

In the 60s and 70s of the XVIII century, the irrigation system of Khiva was expanded and updated. The digging of new irrigation ditches and the expansion of cultivated areas became one of the factors that created the ground for the development of cultural life. I.Jabbarov, a scientist who conducted many studies on the history of Khorezm, did not miss out on this topic (Kamolova, 2019).

In her research, M. Dzhumaniyazova analyzed the features of the material culture of the population of the Khorezm oasis in the late XIX – early XX centuries, and also, based on ethnographic data, identified some aspects of economic activity and housing construction of the khanate's population (Karomov, 2022). In the research of Yu.Rakhmonova highlights the traditions associated with agriculture and irrigation works in the Khanate of Khiva (Kultura i iskusstvo drevnego Xorezma, 1981). Especially in the study of U.Tajiyeva, based on archival and written sources, reports and memoirs of ambassadors and travelers, highlighted environmental issues of the Khanate of Khiva (Muradov, 2023).

Cultural life, formed over the centuries, has developed in close connection with the natural and socio-economic conditions of each nation, embodying national traditions. At the same time, it is in the culture of living, nutrition, and environmental management that the national identity of peoples is clearly manifested. Since ethnography developed institutionally during the Soviet period, the topic of traditional nutrition was widely covered. Although the cultural life of various regions was studied by researchers at that time, the food culture of the population of Khorezm and its peculiar ecological and local properties were not particularly studied in the ethnological aspect.

In this work, the socio-ecological aspects of the daily life of the population of the Khorezm oasis are studied on the basis of a theoretical, methodological, interdisciplinary approach. Such methods as generalization of scientific data, comparative, statistical and system-chronological analysis are used as research methods.

### 3 DISCUSSION AND RESULTS

One of the most important aspects of the ecological life of the population of the Khorezm oasis was the issue of water resources management. The local population developed a complex system of irrigation channels, which made it possible to effectively use the water of the Amu Darya for irrigation of fields, which was of great importance for maintaining agricultural production. However, this system also had its risks: improper management of water resources could lead to soil salinization, reduced fertility and environmental degradation. Environmental issues in ancient and medieval Khorezm concerned not only water use, but also methods of land use, use of forest and livestock resources.

The environmental aspects of the daily life of the Khorezmians also included issues of environmental protection and adaptation to natural and climatic changes. This often happened through the transformation of the landscape and the rational use of natural resources. The study of archaeological finds, such as the remains of dwellings, irrigation systems and household items, allows us to reconstruct the ways of life and interaction with nature that were used in the region.

Since ancient times, the population of Khorezm has achieved prosperity, largely due to the use of environmentally sound and traditional construction methods. People took into account the natural conditions of the region, using local materials such as clay and wood, which made it possible to build houses resistant to extreme climatic conditions. These environmentally sound approaches not only contributed to the creation of comfortable living conditions, but also ensured the long-term safety of homes. Thus, the study of the environmental aspects of the daily life of the population of the Khorezm oasis is an important scientific task that allows not only to deepen understanding of the history of the region, but also to contribute (Culture and Art of ancient Khorezm, Moscow: GRVL. 1981d to the study of the interaction of man and nature in a complex natural and climatic situation.

In the VI-V millennia BC, the lowlands of the Prisarykamys, Uzboy, Shurakhan and the Sultan Uwais intermountain, geologically connected with the southern region of the Khorezm oasis, as a result of the transgression of the Amudarya waters turned into reservoirs rich in flora and fauna, the lower reaches of which were mastered by the population and determined their occupation in daily activities, creating promising opportunities for a harmonious life and creativity.

The development of the relief on the delta plains of the Amu Darya has gone through several stages, during which natural relief formation was replaced by the predominance of the anthropogenic factor and then a new stage of desertification (Culture and Art, 1981: 76).

It is known from historical data that since the end of the 7th century BC, groups of the agricultural population of Bactria have caused the historical need to develop new territories due to population density and food problems. So, according to historical requirements, at first the artisans, who mastered planning knowledge at the beginning of the agricultural population, moved to the height of the middle part of the left bank of the Amu Darya and built an Odoitepa. Thus, the first cultural and economic center was formed. The Kushkala micro oasis was created in connection with the management of the surroundings of the cultural and economic center. The peasants developed new territories around the middle part of the tributaries of the Amu Darya Tashsaka and Dovdon (Kurbanov, 2018: 54).

#### 3.1 Water supply

In the Khorezm oasis, as a result of the urbanization processes that began in the IV-II centuries BC, the lands irrigated by canals with a length of 40-50 km were covered with fields, orchards and vineyards, and a wide agro-industrial landscape was formed [11].

In a semi-arid climate and a lack of natural water resources, the successful existence of the Khorezm oasis depended on effective water supply management and complex irrigation systems. Water was a key factor of survival, and its distribution was the basis of the social, economic and political structure of Khorezm.

The Amu Darya River, also known in ancient times as the Oxus, played a key role in the formation of the ecosystem of the Khorezm oasis. It was the main source of water for agriculture, as well as providing drinking water supply and supporting the lives of the local population. However, the river was characterized by instability and periodic changes in its course. This created serious challenges for local residents, who had to adapt.

Archaeological evidence suggests that the locals developed sophisticated hydraulic systems to maximize the use of Amu Darya water, despite its variability. Canals and dams were built taking into account possible changes in the riverbed, as well as seasonal fluctuations in water levels. For example, the channels were laid so that, with any change in the

riverbed, water could continue to flow to the desired areas.

As you know, the Khorezm archaeological and ethnographic expedition, which operated in 1937 - 1990, was organized by Sergei Pavlovich Tolstov, who led its work until 1965. The main task of the expedition was to explore ancient irrigation systems. The engineer-surveyor N.I. Igonin conducted planned aerial photography of various irrigation systems, ruins and their surroundings in several districts, which made it possible to create detailed plans, maps and graphic diagrams depicting typical irrigation structures of each historical period (Poleviye zapisi, 2019). It has been established that the irrigation system has changed over time.

In the "Koilygankala" period, the length of the main canals increased two to three times, reaching 250-300 km on the right bank of Khorezm. The head structures of many large irrigation systems have been moved significantly upstream of the Amu Darya or even directly to the main riverbed. The water intake system and distributors have been improved, with channels being brought out at an acute angle. Although the area covered by irrigation systems has decreased slightly, the acreage has increased.

In the first centuries of our era, old irrigation systems were rebuilt, and the range of agricultural crops increased dramatically (Poleviye zapisi, 2018). Along with the above-mentioned works, the Khorezm expedition has been dealing with another big problem for a long time, the interaction of farmers and cattle breeders in the Aral Sea region. The farmers of Khorezm and the herders of the desert areas formed a single ecological system (Kurbanov, 2018).

### 3.2 Agriculture

The lands used for the cultivation of kultura were mostly virgin, soil, and in some places saline. That is why the lands in Central Asia were often fertilized. For a long time, the local population used river waters for irrigation, since the muddy water contained various substances useful for plants. These substances contributed to an increase in the fertility of the earth, and the soil layer increased due to silt (Rakhmanova, 2007).

In the Khorezm oasis, which was located on the right and left banks of the Amu Darya delta, which was one of the main sources of water supply, agriculture was distinguished by its unique traditions. Artificial irrigation has occupied a special place in the agricultural history of the region, contributing to the development of agricultural technologies. Khorezm farmers, being well versed in the specifics of their

lands, paid special attention to the selection of crops that were best suited for each district.

In the rural economy of the Khiva Khanate, all plants adapted to the climate conditions of Central Asia were cultivated, trying to collect a good result. Society, based on internal and external needs, consciously approached the choice of those cultures that were needed in the first place. In this regard, they tried to grow products that were popular on the market, which caused a decrease in some vegetables and fruits and an increase in others, which, in turn, caused a number of environmental and economic issues.

Farmers used alternating crops, traditional methods of cultivation and tillage, thereby solving urgent problems. In the 70s of the XVIII century, a canal was built near Lake Davkor, and at the beginning of the XIX century — the Lavzan, Kilich-Niezbiy, Bolshoy Khanabad canals. It is well known from historical sources that, despite the difficult conditions, during this period farmers had extensive experience in the effective use of land and water resources in agriculture (Rozimboev & Sobirova, 2001).

The lands in the Khorezm oasis were divided mainly into 2 types: "true red soil" (highly fertile unsalted or slightly saline lands) and "saline soil". Even on saline lands, farmers regularly grew crops adapted to such conditions. These crops produced a good harvest, and in addition, they contributed to improving the condition of the soil. Such crops include white corn, alfalfa, quinoa and others (Sazonova, 1967).

In general, in the semi-arid climate of Khorezm, agriculture was adapted to difficult natural conditions, combining agriculture and animal husbandry. Pastoral cattle breeding played a key role in animal husbandry, where sheep, goats and camels were bred, which were adapted to limited water resources and a hot climate.

### 3.3 Housing construction

Since ancient times, residents of Khorezm have attached great importance to the construction of housing, paying attention to the purpose and maintenance of individual parts of buildings. During the construction of houses, special attention was paid to the choice of a place for construction, the surrounding conditions and general natural and climatic factors. When designing residential buildings, the specific climatic features of the region were also taken into account. One of the key characteristics of adobe houses or mud brick



buildings was to keep the rooms cool in summer and keep warm in winter (Snesarev, 1969).

In the Khorezm oasis, where winters are cold and summers are sultry, the construction of houses from pakhsa is one of the most effective solutions for housing. In addition, buildings constructed from environmentally friendly materials such as natural clay created favorable climatic conditions for life. Such houses did not have a negative impact on health, contributing to the longevity of residents.

The city of Khiva was built on a slope, which allowed it to be supplied with water from the canal. The slope provided water supply and wastewater discharge to all parts of the city. This allowed the Khorezmians to create their own sewage system already in the XVII century (Tajiyeva, 2021).

In the city of Khiva, the population lived mainly inside the fortress, and there were problems with providing them with clean drinking water. Due to the fact that the moats around the fort are filled with water, they have become a breeding ground for many insects. In addition, a large number of rice fields in all districts of Khorezm has caused an increase in accumulated and polluted reservoirs. But in Khorezm there were favorable conditions for fighting malaria: firstly, the absence of reservoirs inside the city fortresses; secondly, the cessation of water supply in the ditches around the castle in winter; thirdly, the absence of swamps due to the population density around the castle; Fourth, such as the death of malaria-carrying mosquitoes in winter (Tolstov, 1948).

#### 4 SOCIO-CULTURAL PRACTICES

In Khorezm, social and cultural practices were closely intertwined with environmental aspects. The inhabitants of the oasis revered water as a sacred resource, which was reflected in their respect for water systems and irrigation facilities. There was also a community-based water management system where access to it was regulated to avoid conflict and inefficient use.

The most important component of the phenomenon of long life is the nutrition system, along with other causes, may be the result of some special ecological relations between man and nature. In the Khorezm oasis, such types of apples grown in the Hazaraspian mist as having white, green, red, pink, yellow coloring, as well as varieties “Azorasp” (apple Karvak), “Besh Yulduz”, “Kizil Olma” were often used in the early XX century, then from the middle of the XX century varieties became widespread reinet, semirenko, bellefleur, kitayka, krasny zheleznyak,

rosemary (Tolstov, 1948). The apple is considered a fruit with magical properties, there is information about it in legends, legends and folk dastans (Urolov et al., 1994).

Pomegranate as an attribute of Anahita is mentioned in the Avesta, in the holy Quran it is listed among valuable fruits (Mirziyoyev, 2023), in folk songs pomegranate is always mentioned together with an apple (Yunusova & Usarov, 2018). It is determined that this fruit is well preserved, used as dried fruit, juice. Sweet pomegranate cleanses the body, and sour pomegranate helps with stomach diseases, at high temperatures. In addition, pomegranate peel (decoction) helps with diarrhea and pain of the gastrointestinal tract (Zadykhina, 1952).

Since Khorezm is located in a sharply continental belt, winters are very cold here, and summers are very hot. Therefore, special attention has long been paid to the storage and processing of agricultural products. It should be noted that ancient methods were used for the storage and processing of products: salting, pickling, pickling, preservation, storage underground or in suspension, drying. In the oasis, a special cool room was allocated for storing food – a talak. For example, in Khiva, wormwood (shuvok) was previously used for drying fruits.

#### 5 CONCLUSIONS

The territory of Uzbekistan, one of the oldest regions of Central Asia, is famous for its rich cultural and scientific heritage. The Khorezm oasis, located in the Southern Aral Sea region, is unique due to its ecology, archaeological sites and complex irrigation systems. The population of the oasis has developed effective ways to manage the water resources of the Amu Darya River, which made it possible to maintain agricultural production in a semi-arid climate. Despite centuries of research, the environmental aspects of the life of the local population require further study. The unique traditions of agriculture and the use of natural resources, as well as the construction of housing from local materials, ensured the sustainable development of Khorezm. For successful farming and maintaining life in the oasis, the residents of Khorezm have developed a complex network of irrigation canals, dams and dams, which made it possible to efficiently distribute water for irrigation of fields. Irrigation was an integral part of economic activity in a desert and semi-desert zone.

Agricultural rituals and festivals, such as sowing and reaping, often included rituals of thanksgiving to natural forces for water and fertility. Traditions of careful use of resources were also

reflected in construction, where local natural materials were used, which contributed to energy efficiency and harmony with the environment.

Local residents carefully studied the climate of the oasis before building houses to ensure a comfortable microclimate for living. Special attention was paid to such aspects as the location of the house, wind direction and illumination. These factors were considered important for the health of the family. To do this, they used a centuries-old method.

On the site where the house was planned to be built, fresh meat was hung in different places, wrapped in gauze. Two or three days later, an inspection was carried out. The house was built in the place where the meat remained unspoiled. It is known that Khiva khans used this method in the construction of their residences. Studying these aspects makes it possible to better understand the interaction of man with the environment in ancient times and apply this knowledge in modern times.

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