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HISTORICAL PROCESSES OF LAND AND WATER USE IN THE KHOREZM OASIS

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ABSTRACT

This article analyzes the processes of using land and water resources and the impact of the natural environment on the economic system of the population of the Khiva Khanate. The article highlights that the natural conditions of the Amu Darya delta are the basis for the formation of agricultural, livestock and fish farming, favorable climatic conditions, water and cultivated soils contributed to the development of agriculture.

KEYWORDS: *Khiva, Khanate, Nature, Historical Works, Flood, Canal, Agriculture, Gardening.*

INTRODUCTION

Geographically, the lands of the Khiva Khanate are located in the Lower Amudarya plains and form a natural continuation of the Aral-Caspian plain. The territory of the khanate consisted of settlements on both sides of the lower reaches of the Amudarya. The southern part of the khanate is connected with the mountains that stretch along both banks of the river, and is bounded on the west by deserts and sands and the Ustyurt Plateau, on the north by the Aral Sea, and on the east by sands and deserts on the right bank of the Amu Darya. These lands of the khanate were more than 300 miles from north to south, and 100 miles from west to east. **[1]**

From the socio-economic point of view, the territory of the khanate was divided into two parts: the southern region - covering the Khiva area, which included Khanka, Khazarasp, Urgench, Kat, Kush-Kupir and others. The area was densely populated, with the bulk of the canals and 93 percent of the irrigated land. The northern region stretches from the Old-Urgench-Khujayli line to the Aral Sea. The bulk of its land area was in the underdeveloped, sparsely populated steppe zone. **[2]**

All the irrigated lands in the area received water from the Amudarya, which carried a large amount of sludge, and therefore every year a layer of mud settled in theirrigated fields. In addition, fertilizers applied to arable lands also contributed to the strengthening of the cultural-irrigation layer of the soil. To increase the productivity of the fields, farmers took special measures that had been formed over the centuries, i.e., sand mixed withmanure andsoil from the lands of old buildings was thrown into the fields. In this case, manure used as a fertilizer, and sand asan element that improved the physical properties of clay soils. Twenty-two percent of the labor time that farmers spend during the entire farming period is spent on fertilizing the land.

Thus, irrigation water, on the one hand, and the farmer himself, on the other, were involved in creating the cultural-irrigation layer of the soil. **[3]**

The interest of archaeologists, historians and orientalists in the Aral Sea basin dates back to the 19th century. In the early twentieth century, S.P.Tolstov was the first to begin a comprehensive scientific study of the Lower Amudarya region, one of the most important historical and geographical regions in Central Asia. Since the 1930s, the Khorezm archeological and ethnographic expedition, founded and led by S.P.Tolstov, has conducted not only scientific research on the ancient history of the region, but also geology, geomorphology and other issues. **[4,5]**

S.P.Tolstov, on the south-western shore of the Aral Sea, wrote: "... The delta plain, covered with endless green reeds, stretches to the east. In the west, a huge fifty-meter-high wall of Ustyurt china — layers of white, gray, and blue stones hanging from the top of a shallow cliff. ... I remember these places from 1929 onwards. At that time, I watched the endless reeds, which were home to wild boars and occasionally tigers, not from above, but from below - from a lifeboat that sailed for hours down the aisles **[6].** *"*

In the memoirs of the Iranian military commander Ismail Mirpanji, the following information is given: "This country is called Khorezm. The length of this land, which stretches along the Jaihun, is about forty fars. There are fields and Uzbek fortresses on both sides of the Ceylon coast. The land area is small, narrow in width, small area. There is not much land to be cultivated on either side of the river ... Fifteen farsakhs of the forty farsakhsare cultivated" **[7].**

A. Vamberi's famous book "Journey to Central Asia" contains the following information: we can confidently note its great productivity, which is explained not only by its cultivation, but also by the fact that the Amudarya is well irrigated with its blessed water.

In such memoirs we find not only information about the natural conditions of the khanate, land and water resources, but also information about the climatic conditions. For example, the Russian Empire's military description of the khanate's climate states that the climate is temperate: "... The summer heat is unbearable if the air is not renewed in summer with constant southeast and south winds. Rainfall is very rare, even in autumn, but in both autumn and winter there are constant winds that bring clouds of sand from the steppes, so sometimes they hide the sun's rays.

One of the chapters of the book "History of irrigation in Khorezm" by Ya.G. Gulyamov is devoted to the study of the dynamics of the irrigation network of Khorezm in the XVI-XIX centuries. This, of course, is of great importance for the study of land relations, for the determination of the location and area of the irrigated and cultivated lands of the khanate. Another chapter provides interesting ethnographic information on irrigation functions **[2].**

The crisis of the Aral Sea, which began in the late 1960s and its consequences, the problems of water use in the region (water depletion, environmental pollution, public health) are well known and raise questions about the relationship between the ecology and climate of the Aral Sea basin. Due to the continental climate, desert and semi-desert lands, the western part of Central Asia is characterized by limited water resources (especially fresh water) in the past. It is also known that the Amudarya River has changed frequently in the past. In particular, A.S. Kes said, "Such a change in flow would have flowed downstream of the river delta, and as a result, the Khiva oasis, along with the population that has been engaged in irrigated agriculture for many

centuries, would be deprived of water, building and life. That is why, man has tried to maintain this changing balance of nature by artificial means, and probably did not allow the re-emergence of the Uzbay River. These "artificial measures" included, first of all, artificial irrigation systems, which played a specific control role in ensuring that the flowing river flowed smoothly.

Indeed, if we look at the past, we see that the strategy of nature use and the formation of the economic system in the Lower Amudarya region is primarily related to the natural conditions of the oasis. The common plain of the region provided free access to cold Arctic and polar air masses. It was the natural conditions of the Amudarya delta that formed the basis for the formation of an economic complex of the local population, consisting of agriculture, livestock and fisheries. In this case, favorable climatic conditions, water resources, soils cultivated by the labor of farmers have contributed to the development of agriculture.

Under conditions of water scarcity, the oasis has developed its own methods of land preparation, fertilization and irrigation. In particular, the preparation of the area for planting began with the leveling of the surface, that is, the tops of the soil were removed and the depressions were filled and divided into separate small areas separated by soil ridges from each other for easier irrigation. The field was then washed with brine by repeated irrigation several times in a row. The soil, especially during the first irrigation, quickly absorbs water and dissolved salts are formed. Thus the layer in which the plant roots are mainly developed is cleaned. Water is saturated with salt and has not yet penetrated into the soil was also used for drainage.

Since the lands of Khorezm were exactly saline, it was difficult to plant crops until they were irrigated three or four times during the winter. While digging canals and constructing waterworks is one problem, clearing sediments from the muddy water of the river at the bottom of the canals is the second problem, and flood prevention is the third problem. In particular, in the Khiva khanate, the land area required sufficient water to produce more crops, depending on climatic conditions and other characteristics. Therefore, the timely cleaning and digging of canals from the Amudarya River is one of the main tasks of the agricultural population. A lot of work has been put into this work.

The Amudarya River annually produces 200 million tons (1.2 cubic km) of turbidity. Sometimes the river accumulates sediments up to 20 cm thick in the surrounding plains within a year. Therefore, all irrigation points had to be cleaned every year. Digging large canals and building dams was especially difficult. Such work is usually carried out in winter or early spring. For example, in the Khivakhanate about 700,000 workers were used to clean the canals. It took more than 12 days to clear the largest main canal in Khorezm, Polvonyop.

It should be noted that the rich experience accumulated over many years in irrigation has allowed the local population to develop certain skills in the creation and implementation of complex water management techniques. As a result, in the course of long development, from the simplest methods of drainage mechanisms to more complex types, a unique irrigation technique has emerged. In Khorezm, the simplest methods of pumping water from the canals to the fields were "sepma", "depma" and "nova", while the ancient method of pumping water, called "chigir", became the most "improved" method.

Another feature of the natural conditions of the khanate is the problem of floods in the river. These events necessitated, on the one hand, measures to protect the fields in agriculture, and, on

the other hand, encouraged their more efficient use in irrigating the lands in the conditions of water scarcity.

The water of the Amudarya overflows several times a year. Because these floods coincided with a time when crops needed water, local farmers created a flood calendar based on centuries of experience. Therefore, in the Khorezm oasis there were special people who knew when the river flood would start and how the river flow would change. According to their calendar, irrigated agriculture in the oasis (during the growing season) was based on the 4 floods of the Amudarya: 1) Blue cane; 2) White fish; 3) Star; 4) Forty children. In particular, the "Blue Reed Flood" (late March) begins, when the reeds in the lakes are just beginning to grow. Depending on the growth rate of the cane, the timing or delay of the flood was determined. In mid-April, whitefish began to migrate from the Aral Sea to the upper reaches of the Amudarya. It's called the "White Fish Flood." The "Starburst" (mid-May) is marked by the time of the appearance of the Hulkarconstellation. The “Kirk chilla” (summer chilla) began in the second half of June and lasted for 40 days. If the floods were delayed or not at all, it alarmed the whole country and signaled the collapse of the farm.

By the nineteenth century, the state had become more active as a major player in marital relations. In particular, the coming to power of the Kungrad dynasty in the early 19th century and the implementation of their centralization policy led to efforts by the government to establish strict control over the distribution of water and land resources.

In the first quarter of the 19th century, there were no large settlements on the right bank of the Amudarya. The description of the events of 1806 speaks of the strong rabbi that Eltuzarkhan built in the north of Sheikh Abbas. In 1828, the new head of Polvonyop, Toshsako, was built, and in 1831, a canal was built to the Old Urgench district. “In the spring, the region's crops were short of water. He said ...

He rode to the saxaul of the Pahlavonotariver, called Toshsako, the sakonik of the Pahlavonota river, which he dug last year. The construction of Toshsako, the head of a solid canal on the ground consisting of gravel, made the wet canal of South Khorezm much more useful.

By 1855, irrigation work had been carried out on the left bank of the upper delta, including a large area of Khanabad. One of the Khanabad canals, the Karakalpak Canal, was dug by the Karakalpaks in the 1930s, and although the Khiva khan Allakulikhan allowed them to live here, the Karakalpaks withdrew when no action was taken against the oppression of the Karakalpaks by the Turkmen. The Karakalpaks were firmly established in the Aral Sea and above in the first quarter of the 19th century.

In the khanate, Uzbeks lived in villages stretching from Khojaly to Toshovuz and Gurlan. They were mainly engaged in farming, gardening, silkworm breeding, fishing. Most of the population lived along the canals, in wetlands. The periphery of human habitation, as in towns and villages, is surrounded by a soil wall with a height of a ridge to prevent flooding.

For the people living along the Aral Sea, the availability of rich pastures provided an opportunity to develop animal husbandry, the availability of reeds and thickets was useful for breeding cattle, and desert pastures were useful for nomadic pastoralism.

The proximity of the sea, many lakes and rivers contributed to the development of fisheries. All the Kungrad tribes living near the Aral Sea, especially the Koldauly, Muyten, Ashamayli, Kiyat, Kazakhs of Alima descent, have been fishing since ancient times. In the early twentieth century, large fishing communities emerged in the south of the Aral Sea. In 1910, the Khiva Joint Stock Company was established, uniting Astrakhan and Caucasian fish producers. Of the 57 fisheries covering the entire coast of the Aral Sea, 17 were on the Muynak Peninsula. Fishing on the southern shores of the Aral Sea, in the delta and inland lakes of the Amudarya, amounted to 472.7 thousand pounds in 1912, 699.1 thousand pounds in 1913 and 760 thousand pounds in 1916.

The Turkmens, who lived in the lands stretching from the cities of Tamagur and Ilalli to Old Urgench, were engaged in grain-growing and cattle-breeding. Due to the shortage of water, Turkmen tribes in the ancient Urgench region mainly planted less water-intensive crops such as wheat, barley, millet, sesame, and flax, and engaged in more livestock. They had farms that owned 500 or even 1,000 camels. Between Ilalli and Toshovuz, Bukhara prisoners of war and silkworms lived.

In the Uzbek-populated areas of the Aral Sea region, horticulture is developed, and in their gardens are grown jiida, apricots, apples, peaches, pears, and viticulture is widespread. The Uzbeks knew how to keep their crops well. They dried many varieties of apricots, melons, figs, grapes.

The natural conditions of the Amudarya delta were the basis for the formation of an economic complex of the local population, consisting of agriculture, livestock and fisheries. In this case, favorable climatic conditions, water resources, soils cultivated by the labor of farmers have contributed to the development of agriculture. Exact historical and ethnographic data show that there is a link between the use of natural resources and the natural conditions of human settlements, since the main economic system of subsistence was agriculture.

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