
FROM THE HISTORY OF ANCIENT IRRIGATION SYSTEMS OF JIZZAKH OASIS

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ABSTRACT

The article is about the history of ancient irrigation systems of Jizzakh oasis, in which this cultural region was studied by researchers in Upper Sangzor (with Nushkent capital), Middle Sangzor (with Harakana capital), Lower Sangzor (with Dizak capital of Feknon), rustok of Zaamin (Zaamin) with the main city, Ravotsoy (with the capital of Turtkultepa), Majrumsoy (with the capital of Majrumtepa), Khojamushkentsoy (with the central city rustok of Savat with Kultepa). Located in the central part of the Turan lands, in the north-western part of the state, which went down in history in the Middle Ages as Ustrushana, the Sangzor Valley is closely connected with the emergence of ancient agricultural culture, irrigation networks, waterworks and the development of irrigation. The state of Ustrushana has played an important role in the ancient and medieval history of the Turanian land, and its north-western region is the Jizzakh oasis. This article provides sufficient information about the ancient irrigation networks, cisterns, sewer structures and their significant aspects that have survived to the present day in the Jizzakh oasis.

KEYWORDS: *Ustrushana, Istakhriy, Sangzor river, Nushkent city, rustok of Harakana, rustok of Feknon, Dizak, rustok of Zaamin, Ravotsoy irrigation district, Majrumsoy, Khojamushkentsay, Savat, Kultepa, Tuyatortar channel, Amir Temur and Temurids, Abdullakhan II.*

INTRODUCTION

The socio-economic development of the countries of the ancient East was greatly influenced by agriculture based on artificial irrigation. The main water sources of the region are the Amudarya, Syrdarya, Zerafshan, Murgab and Sangzor rivers, which played a key role in the formation of historical and cultural lands in Central Asia, such as Bactria, Sogdiana, Khorezm, Parthia, Fergana, Choch and Ustrushana.

It should be noted that a thorough study of the history of irrigation of historical and cultural oases is one of the most important problems facing the science of history today. Located in the central part of the Turan lands, in the northwestern part of the state, which went down in history in the Middle Ages as Ustrushana, the Sangzor Valley is closely connected with the emergence of ancient agricultural culture, irrigation networks, waterworks and the development of irrigation.

The state of Ustrushana has played an important role in the ancient and medieval history of the Turanian land, and its north-western region is the Jizzakh oasis. The oasis is located between the Syrdarya and Zerafshan rivers and is surrounded by the Morguzar ridge in the south and the Kuytash ridge in the west. The surface of the region gradually rises to the south and southwest and spreads to the plains formed by the Sangzor River at the foot of the mountains, the foothills and then the ridges [4.Dunin-Barkovsky. 1976].

MAIN PART

The Sangzor River Basin has long been one of the most densely populated, agriculturally settled settlements of Ustrushana. Examples of such densely populated cultural oases are the rustok of Sabat, which was part of the medieval Ustrushana, the Zaamin-Sarsanda region around Zaamin, the Burnamad, Harakana, and Feknon provinces in the Sangzor River basin. At these addresses, the ancient irrigation networks, cisterns, sewers, which have survived to the present day, are recorded as cultural heritage. The first information about the history of irrigation of the Jizzakh oasis, which was part of Ustrushana in the Middle Ages, was first written by Istakhri: The cities of Ustrushana are Arsbanikat, Kurkat, Gazak-Vahgkat, Sabat, Zaamin, Dizak, Nujkat, Harakana, and the main city inhabited by the rulers is Bundjikat"[6. Istakhri. 1973].

Ibn Hawqal, in his memoirs, states: "Ustrushana, like other provinces of Maverounnahr, was famous for its abundance and variety of orchards and melons. These blessings were sold abroad to neighboring cities "[3.Betger E.K. 1957]. Thus, these written sources provide invaluable information about the history of the Ustrushana state, material culture, irrigation in the Middle Ages. Archaeological excavations carried out in the following years made it possible to supplement these historical written sources with new information.

Between 1962 and 1970, several studies appeared on the history of irrigation in northwestern Ustrushana. Archaeological excavations along the Old Tuyatortar canal in the Jizzakh oasis show that the Tuyatortar canal was developed around the Farmontepa fortress at the beginning of the Common Era, starting from artificial irrigation networks on the right bank of the Zerafshan River. Then, at the end of the 16th century, it is noted that the water of the Zerafshan River reached the Jizzakh oasis through the Tuyatortar canal [7. Muhammadjanov A.R. 1972].

Also, S. Archaeologists led by Anorboev first excavated the Farmontepa fortress at the top of the Tuyatortar canal, and then the Dosmat oasis. S. Anorboev, based on the first medieval evidence found around the "Farmontepa", informs that the oasis flourished in the VI - VIII centuries, on the basis of artificial irrigation farming. [2. Anorboev S. 1974].

In the 1980s, the Jizzakh Institute of Archeology under the leadership of M. Pardaev conducted research and excavations in the valleys of the Sangzor oasis with relatively large streams. The detachment participants identified the territory of the irrigation zones, consisting of cultural oases, according to a group of dense and dense archeological monuments in the river basin. These are Upper Sangzor (with the capital of Nushkent), Middle Sangzor (with the capital of Harakana), Lower Sangzor (with the capital of Feknon with Dizak), Zominsuv (with the capital of Zaamin), Ravotsoy (with the capital of Turtkultepa), Majrumsoy (with the capital of Majrumtepa). with the city), Khojamushkentsoy (with the central city rustok of Savat with Kultepa) irrigation areas.

The Sangzor River, the main source of water in the Jizzakh oasis, is 2,300 m above sea level in the Turkestan Mountains. The mountain streams on the north side of the Shungkar ridge rise from the confluence of the Guralash, Boykonyr, Jontaka, and Kuruksay rivers and flow along the Morguzar ridge to the Gallaorol and Jizzakh valleys. The catchment area of the Sangzor River, which means Tashzor, is 2,580 km [8. Nishonov S. 1980].

In the past, the Sangzor River served as the main source of water for the three cultural lands of Burnamad (Bakhmal), Harakana (Gallaorol), and Feknon (Jizzakh). The Sangzor River is fed by

small springs, such as Allausmon, Uybodom, Kokjar, Terakli, Palahmon, Akmulla, Shoybeksoy, starting from Turkestan and Morguzar mountain ranges to Burnamad (Bakhmal) rustok. From the ruins of the ancient city of Harakana (Gallaorol) in Ustrushana to Kurghonteppa, the Sangzor River is joined by several other small water sources: Dangarasay, Akkurgansay, Tagopsoy, Tangatopdisay, Jumjumsay, Vadigansay, Ettikushonsay, Turgunsay. Along with these rivers, the water of the Tuyatortar canal, which originates from the Zerafshan River, flows between the villages of Orda and Gul in Gallaorol district and joins the Sangzor River. Through this large accumulated water source, the Sangzor River diverts its course towards Feknon (Jizzakh) by supplying water to the rustok of Harakana (Gallaorol). Then the water source of the river goes to this oasis and is divided into several irrigation networks [12.Suyunov S. 1999].

Studies have shown that the rustok of Harakana of Ustrushana, the "middle stream of the Sangzor" basin, or the present-day Gallaorol oasis in the middle reaches of the Sangzor River, is mainly suitable for artificial irrigation, rich in arable lands actively mastered in the Middle Ages.

Archaeological monuments in this area, which belongs to the rustok of Harakana (Gallaorol) in the Middle Sangzor irrigation district, are the monuments of Oydinsoytepa (II-I centuries BC), Kurgantepa and rural areas, which reflect the life of the ancient city. Kurgantepa - 2 km from the center of Gallaorol district. located in the southwest and the monument was excavated in 1996. On the basis of archeological evidence obtained from it, three stages of construction are observed (I-IV, V-VIII, IX-XII, XIV-XVI centuries). The ruins of Kurgantepa were operated by irrigation networks flowing from the Sangzor River. The now-preserved ditches were filled with water through ditches dug out of Sangzor. During the research, the location of an ancient dry riverbed was brought to the city, and it was concluded that fresh water was brought to the city through this riverbed.

Another monument is Lapakhtepa, located in the northern part of the village of Kashkabulak, on which the excavation was carried out in 1996. As a result of archeological excavations, pottery fragments of the XV-XVI centuries were found in the upper part of the monument, and it is known that there are three I-IV, V-VIII, XIV-XVI centuries cultural layers in Lapakhtepa. In the western part of Lapakhtepa, the site of an old dry riverbed, which originates from the Uzunbuloksoy irrigation network, was observed, and it was suggested that the monument was operated at the expense of this dry riverbed. Studies have shown that the total area of irrigated land in the Middle Ages in connection with the activities of the Middle Sangzor irrigation district and the ruins of the town of Oydinsoytepa and the surrounding monuments is about 8 thousand hectares.

The Sangzor River, the water source of the oasis, also played an important role in the emergence, formation and development of urban and rural settlements in the Lower Sangzor Irrigation District. This irrigation region is also periodically divided into two, Kaliyatepa and Orda irrigation stations. In the late Middle Ages, these irrigation outlets merged to form a common irrigation area of the oasis [9.Pardaev, Suyunov, 1993]. The Kaliyatepa irrigation station consists of more than 20 monuments located in the eastern part of the Jizzakh oasis, at a distance of 600-800 m from each other. These monuments form a unique "defensive chain" around Kaliyatepa, which in the early Middle Ages was interpreted as Dizak, the capital of the rug of Fagnan (Jizzakh).

The ruins of Kaliyatepa are located in the eastern part of the city of Jizzakh, and the total preserved area is 50 hectares. close to The Kaliyatepa arch and Shahrستان consist of 5 separate hills (rabods) surrounding the north, south and west. Shahrستان is located in the center as the main core of the city's ruins. Shahrستان is surrounded by ditches on three sides. The location of irrigation networks and waterworks around Kaliyatepa, which have survived to the present day, has been identified. All the ancient towns and villages within the station are supplied with water through the Kaliya Mulkanlik and Kangli canals, which run from Sangzor, and their networks.

The Kaliya-Mulkanlik royal stream is about 500 m from the Sangzor watershed Beshkuvur, built

in the late Middle Ages. 12 km from the headwaters of the upstream dam and to the east, crossing the town of Kaliyatepa and its irrigation zone from the south. the distance flowed to the Gishttepa caravanserai, which operated in the distant X-XII centuries. The water capacity of the Shah canal is 2.0-2.2 m. was equal to one cubic second. This means that the left bank of the Kaliya-Mulkanlik royal stream, which flows in a westerly-easterly direction, ie the northern part of the terrain is a regular descent into the riverbed, every 600-700 m. at a distance the pike ditches were removed. In certain parts of the Shah's canal, 4 ravines were built, and the shallows were covered with grass. In the basin of the Paykal canals, which flow from the left bank of the Kaliya-Molkanlik stream to the north, there are rural settlements such as Pardakultepe, Jumabobotepa, Rasulboykultepe, Komilbobotepa, Astontepa, Gortepa [12.Suyunov S. 1999].

Archaeological sites are relatively rare in the area, as the lands on the left bank of the Kaliya-Mulkanlik royal stream are located on a hill relative to the riverbed. The existing ones are also located on the same bank of the royal canal (Yakubbobotepa, Aksakoltepa) or at a distance of 150-200 m. at a distance (Mozortepa, Kizlartepa). The Kaliyatepa Irrigation Zone is crossed by another stream, the Kangli Royal Canal, in the west-east direction along the northern boundaries. This royal canal also starts from the dam where the royal ditch "Kaliya-Molkanlik" of Sangzor starts. True, the left, western network flowing to the north was called the Ravotlik aryg, the right network remained in its name (Kangli) and approached the Kaliyatepa city monument through a crescent-shaped river and continued east of its northern rabods. The next part of the Kangli king stream, which was divided into two, had a water capacity of 1.2 cubic meters per second. The place of ancient settlements, caravanserais, such as Kumtepa, Kummozortepa, Atagantepa, Kokrvat, Saroymozortepa, has been preserved in the irrigated areas under the control of this royal canal, their historical date is I-IV; V-VIII; Periodized to IX-XII centuries.

The Orda irrigation zone is located 6 km northwest of Kaliyatepa, in the "Old City" district of Jizzakh. At the disposal of the city monument in Orda, unfortunately, as a result of the tsarist Russian occupation and the location of modern buildings during the Soviet era, its former appearance was destroyed. According to N.B. Nemseva's scientific report, the micro-relief before the destruction of the Horde is typical of the city monument, the location of squares, neighborhoods, pools in it is clearly distinguished, and the artifacts found here IX-XII; XIV-XVI; XVII-XVIII; It is mentioned that it belongs to the XIX-XX centuries.

Observations of the monuments in and around Orda suggest that the Orda Irrigation Station, as an integral continuation of Kaliyatepa and its agricultural culture, was formed as a result of a sharp shift from the north to the north-west of the Sangzor River. Although the settlements in and around Orda are 2.0-3.0 km away from Sangzor, due to their large slope relative to the river, they were able to irrigate through several ditches from the Beshkuvur watershed built on the river. These canals, including Mulkanlik, Jizzakhlik, Saroylik, Uratpalik, Tashkentlik, Khavaslik irrigated by irrigation networks and medieval irrigation canals, cover about 10,000 hectares [10. Pardayev A. 2004].

Thus, due to the artificial irrigation networks of Kaliya and Orda, the area of irrigated crops in the Middle Ages in the Lower Sangzor irrigation region reached about 32-35 thousand hectares. The Ravotsay Irrigation District is formed by the confluence of the Teshiksay, Kaynarariksay, Korpasay Teshikdarasay and Uvobsoy rivers, which start from the eastern slopes of the Etimtog and Kattatag, which are part of the Morguzar mountain range. Ravotsoy water source Uchkizlar is divided from the village center into several irrigation stations. In order to study when the artificial irrigation networks in the oasis were built and the process of their development, the Jizzakh team of the Institute of Archeology of the Academy of Sciences of Uzbekistan conducted research. As a result of this research, the location of artificial irrigation networks in the ruins of the city of Ravot and the monuments of Turtkultepe, which also functioned in the XIV-XVI centuries, as well as material and cultural objects of the same period were found [12.Suyunov S. 1999].

The ruins of the city of Ravot extend in a north-south direction and are 8 m high. materials of V-VIII, IX-XII, XIV-XVI centuries were collected on the monument. The main source of water for the ruins of the city of Ravot and the surrounding facilities are irrigation stations, which originate from the Ravotsoy irrigation network. It became clear from the observations that Ravotsoy artificial irrigation outlets were divided into 4 large artificial irrigation networks from the upper part of Uchkiz village. To date, 2 of these irrigation networks have been retained and are still operating .

Another monument that functioned during this period is the Turtkultepa fortress, which is located on the north-eastern border of the village of Uchkiz, 150 m from the Ravot-Uchkiz road. The total area of the Turtkultepa fortress exceeds 3 hectares, and according to the material evidence found here, the monument can be dated to the V-VIII centuries, the newly added constructions to the X-XII centuries. Materials of the XV-XVI centuries were also found around the monument. The Tuyatortar canal, which originates from the Zerafshan River, is one of the most important and difficult excavations in the history of irrigation in the Jizzakh oasis. About Tuyatortar canal Ya. Gulyamov noted that "we, experts working on the history of irrigation, have never seen a canal in Central Asia that is as labor-intensive, water-scarce, flowing down the cliffs as the Tuyatortar canal" [13.14.Gulyamov, 1962,1963].

In his book "History of irrigation of the Lower Zerafshan valley" A. Muhammadjanov analyzes that the water of the Zerafshan river even reached the Jizzakh oasis through the Tuyatortar canal, and as a result the volume of irrigated agricultural lands in the oasis increased sharply in the late Middle Ages [7.Muhammadjanov. 1972]. The Tuyatortar canal is still the main source of water in the Jizzakh oasis, with a length of 97 km. The Tuyatortar canal supplies water to the Bulungur and Gallaorol steppes and the Jizzakh oasis through the Zerafshan River.

In 1994, the Jizzakh archeological team conducted archeological research around the Zerafshan oasis and the Tuyatortar canal. During the excavations, pottery from the early Kushan period was collected from the Togaysufi mausoleum in the small oasis called Dosmat around the canal and from other hills. In the lower part of this small oasis there are no materials of the Kushan period. This, of course, confirms that the Dosmat oasis operated in ancient times, precisely at the expense of the Tuyatortar canal.

The Tuyatortar canal, the main source of water in the Jizzakh oasis, was completely destroyed during the Mongol invasion. Finally, it was rebuilt and restored during the reign of Amir Temur and the Temurids. At the end of the 13th and the beginning of the 14th centuries, agriculture in the Jizzakh oasis, including its artificial irrigation network, was gradually restored. The results of the research show that the Tuyatortar canal was rebuilt during the Timurid period. For example, archeological finds from the ruins of Kurgontepa in Gallaaral and surrounding monuments, the ruins of Kaliyatepa and Orda in Jizzakh, material evidence from the Timurid period show that irrigation canals were restored in the oasis during this period, and irrigated areas expanded. But after the death of Ulugbek (1449), the struggle for the throne began, and the economy in the country became a bit depressed. Along with many irrigation networks and artificial irrigation facilities, the Tuyatortar canal will also fail.

In the second half of the 16th century, with the strengthening of the political position of the central government in the Bukhara khanate, on the one hand, and the intensification of the migration of Uzbeks to sedentary farming, the demand for irrigated land increased, which led to the expansion of irrigation. The Jizzakh oasis was not left out of such creative work. According to historical sources, in the second half of the 16th century in the Bukhara khanate, especially in the central part of the Zerafshan valley, a number of large irrigation facilities were built and restored [5.Hafiz Tanish Bukhari. 1969].

In order to keep the strategically important city of Jizzakh, which was of great strategic

importance, Bukhara Khan Abdullah II (1556-1598) re-excavated the main part, the middle and lower parts of the Tuyatortar canal with the involvement of the people. The water of the Zerafshan River passes through the villages of Farmontepa, Dusmat, Toypaksay, Shurbulak, Muzbel, Tozarruk through the Tuyatortar canal and flows into Sangzor near the village of Gul, where it supplies water to the Jizzakh oasis. In the second half of the 16th century, the area of land in the oasis through the Tuyatortar canal was 10,000 hectares. which is close to

It should be noted that based on the material evidence found in the monument Farmontepa, it can be concluded that the main part of the Tuyatortar canal was built in the beginning of AD. In addition, materials from the area around the Tuyatortar canal indicate that the structure was destroyed during the Arab period and rebuilt in the X-XI centuries. In the second half of the 15th century, frequent interruptions occurred in the waters of the Tuyatortar. The Tuyatortar canal, rebuilt by the Bukhara khan Abdullah II from the Bulungur steppes to Sangzor, was a unique water structure of the Jizzakh oasis and is still in operation.

After the formation of the Central Asian khanates, the Jizzakh oasis passed to Bukhara. Therefore, during the reign of Bukhara khan Abdullahkhan II (1557-1598) the agricultural water supply of the Jizzakh oasis was significantly improved with the construction of the Tuyatortar canal with a total length of about 100 km from the Ravotkhoja dam in Zerafshan [2.Anarbaev S. 1974.]. The water of the Tuyatortar canal was discharged into Sangzor and distributed to the neighborhoods through 12 ditches called 12 place through 2 water separators in the territory of Jizzakh city. The royal canals of Kotarma, Ravalik, Takchilik, Kaliya, Kangli, Khayrabad, and Iran originate from the Khayrabad watershed of Sangzor, and the southern, eastern, and partially western parts of Jizzakh are used for water supply. The royal canals of Jizzakh, Mulkanlik, Naiman, Saraylik, and Tashkent originate from the Beshkuvur watershed, 1.5 km below the above-mentioned watershed, and the fields in the central, northern, and western parts of Jizzakh are used for water supply. Since water scarcity is a major problem in the Jizzakh oasis, its distribution has long been considered. For this purpose, such positions as mirab, amin, aksakal, water guard have been established and a specific management system of water management has been established. Farmers have allocated a certain amount of manpower and funds each year to repair dams, dig ditches, and clear mud, according to the instructions of the water administrators. This work was carried out mainly on warm days of winter and early spring.

RESULTS AND DISCUSSIONS

According to ethnographic data, the waterman profession has in some cases been passed down from generation to generation. Kaliya Mulkanlik neighborhood elder Hazratkul mirab's (1900-1990) father Ortikvoy aksakal, his father Obodi Makhsum also engaged in mirab profession, Hazratkul aksakal's grandson, honored irrigator in Uzbekistan Hasanboy Paradaev (1932-2000) water was distributed for 18 days during the khanate period (XVIII-XIX centuries). In other words, according to the established procedure, all water of the river for the first three days was given to the population of Upper Sangzor (now Bakhmal district), all water for the second three days to the population of Yangikurgan principality (now Gallaorol district), then 12 days to the population of Jizzakh principality.

This division seems a bit disproportionate at first glance. However, given that the inhabitants of Upper Sangzor and Yangikurgan are mainly engaged in lalmi farming, and livestock is an important sector in the life of the farms, it can be concluded that the water distribution is well established. This means that the 12-day water supply to the Jizzakh oasis was divided into 12 canals. In turn, the water from the canals was distributed to farmers in a strict order. Neighboring farmers such as Kaliya-Mulkanlik, Kangli, Khayrabad, Solohli used the "jug" as a water clock. At the current time scale, each jar was about 15 minutes long. This means that the water supplied to one canal is 96 jugs per day, and in the 12-day water distribution it is 1152 jugs. If 50 farms were

irrigated from the water of a particular canal, the farm received water once in 18 days and its irrigation time was 3 hours and 45 minutes. If 100 farms could get water from the canal, the time would be halved to about 2 hours [11.Pardayev A. 2020].

Residents of Jizzakh's Cholmolkanlik, Tashkentlik, Saraylik, Jizzakh, and Uratpalik neighborhoods used the "poy" method in water distribution. That is, the husband's size of the water-receiving farmer was measured in double count. A crop of wheat or barley is given about 1 foot of water. A foot "double clock" is defined by the shadow of a mosque or a tree [1.Anarbaev S. 1987].

CONCLUSION

Based on the above data, it can be concluded that the Jizzakh oasis includes Upper Sangzor (with the capital of Nushkent), Middle Sangzor (with the capital of Harakana), Lower Sangzor (with the capital of rustok Feknon with Dizak), Zominsuv (with the capital of rustok Zaamin), Ravotsoy (Turtkultepa). with the capital city), Majrumsoy (with the capital city of Majrumtepa), Khojamushkentsoy (with the central city of rustok Savat with Kultepa) studied as irrigation districts.

The Sangzor River Basin has long been one of the most densely populated, agriculturally settled settlements of Ustrushana.

As in the history of any state in the Middle Ages, during the reigns of Amir Temur and the Temurids, despite the frequent civil wars in the country, in the XV century in the villages of Maverounnahr and Khorasan some improvement work was carried out. The efforts of private entrepreneurs in developing new lands in the steppes, digging canals, planting gardens and irrigating and rehabilitating abandoned lands are supported.

During the Temurids, the Jizzakh oasis played an important role in trade, embassy relations, and military purposes. During this period, special attention was paid to the development of the oasis's agriculture based on artificial irrigation, ie the development of the irrigation system. During the conquest of Central Asia by the Shaybanis in the early 16 th century, the agriculture of Maverounnahr was somewhat disrupted. Continuous civil wars and periodic looting raids by nomadic Kazakhs, especially in the border zone similar to the Jizzakh oasis, put the activities of farms in a much more difficult position. However, the Shaybani rulers, driven by state and private interests, began to work to revive agriculture. Examples include the construction of the Zerafshan River watershed under Shaybanikhan's personal leadership, support for the development of agriculture by the Juybor sheikhs, the construction of the Tuyatortar canal, the Abdullakhan dam in Nurata, and the Mirzachul sardoba.

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