

ANCIENT ARCHITECTURE OF IRRIGATION FACILITIES OF THE ZARAFSHAN OASIS

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ABSTRACT	KEYWORDS
This article is about the relationship to water in history and the culture of water efficiency. Information on the history of hydrology in Central Asia is also covered. Irrigation history of the Lower Zarafshan Valley and similar information is included.	History of irrigation in Eastern countries, Herodotus (490-425 BC). Strabo (63-20 AD). Ptolemy (2nd. century AD), ancient irrigation networks, the Kushon period, the meaning of the word Zarafshon.

Introduction

The increase of people on the earth, the development of the productive economy caused the formation of agricultural oases in the riverbanks and mountainous areas. Attention to the efficient use of water has led to the construction of strong water structures. As a result of the archeological investigations carried out in Khorezm oasis, Zarafshan, Ferghana and Surkhandarya, it was found that irrigation networks and agriculture based on it were created in the "Jez" (Bronze) period, that is, approximately 3500-3750 years ago. In such oases, the need for water has naturally increased. The digging of ditches and canals for the purpose of supplying water to agricultural fields, and the construction of strong structures for raising water began in those times. Later, large villages and cities began to form in these areas. It is also possible to observe the emergence of rituals and traditions related to water from the same period.¹

MAIN PART

In Central Asia, the use of water from rivers, streams, and springs for irrigation purposes dates back to ancient times. According to Academician B.G'.G'ulomov, irrigated agriculture existed in our country even 6000 years before the new era. In the second half of 4000 BC and the beginning of 3000 BC, rivers were dammed and small canals were dug².

According to the archaeologist G. N. Lisitsina, such canals were dug in the ancient delta of the Tajan River in Turkmenistan, their length was more than 2.5 km, width was 3.5-5.0 m, and depth was up to 1.2 m. Later, in 2000 years before the new era, this method, i.e. irrigation with the help of canals, began to be used in the Surkhandarya valley, in the eastern part of the Fergana valley, in the Chust, in

¹ N.N. Narziev "Relation to water in history and the culture of efficient use of water" Tashkent-2016.

² H. Hikmatov, D. P. Aytbaev "Information on the history of water science in Central Asia" Tashkent

the Amudarya delta, and in the Zarafshan valleys. This process is developing more and more, and at the beginning of the new era, the canals were relatively extended, and small water distribution networks and ditches were also dug out of them. During these periods, the possibility of getting water from the river directly depended on its water regime, that is, when there was a flood or erosion in the river bed, the water path in the canals was blocked, covered with mud, as a result, they had to dig a new canal.³

The ancient Egyptians were forced to carry out the above-mentioned works on the Nile River, because the fate of the harvest depended on the amount of water in the river. So, hydrology was a vital science that served to satisfy human needs even at that time.⁴

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Between the 6th century BC and the 4th century AD, the Greco-Bactrian and Kushan states, which gained great importance in the social-political, economic-cultural life of the peoples of our country, were created. This, in turn, made it possible to carry out large-scale works related to irrigation and beautification. In particular, large canals were built in Khorazm's Bozorkala, Odamkala, Yonboshkala areas, and they were protected from flood waters by special dams.⁶

The written sources of this period related to the water bodies of our country have been preserved only in the works of ancient Greek scientists. For example, Herodotus (490-425 BC) wrote about the Caspian Sea as a closed basin, while Strabo (63 AD-20 AD) wrote that the Oxus (Amudarya) divides into two branches in the lower reaches of the Oxus (Amudarya) in his famous work "Geography". he recorded that one flows into the North Sea (Arol), and the other flows into the Caspian. He even notes that there were waterfalls in the network that flows into the Caspian. If we are really talking about Uzboy, then taking into account the current relief conditions of this area, it is clear that there will be waterfalls. Ptolemy, who lived relatively later (2nd century of the new era), also summarized the knowledge before him, but he also wrote down the flow of Amudarya and Syrdarya into the Caspian Sea.⁷

In 1930-1934, B. A. Latinin, in 1934 and 1939 A. Yu. Yakubovsky chief jeweler, in 1936-1938 M. E. Termiz under the leadership of Masson, V. in 1937-1939 and 1947-1954. A. Shishkin head Varakhsha, S. who has been working regularly since 1937. P. Khorezm under the leadership of Tolstov, in 1950-1970 Ya. G'. Ghulomov chief Mokhondaryo and other archaeological expeditions made a great contribution. At the same time, irrigation constructions were carried out in order to improve the water supply of the existing cultivated areas in our republic and develop new lands: Big Fergana, North Tashkent canals, Kattakurgan, Chimkurgan, South Surkhan, Tuyabo'giz reservoirs, in the areas of Chorvok hydroelectric power station and Amu-Bukhara, Amu-Karshi. and as a result of the archaeological observation and excavations carried out on the tracks of the Central Fergana canals,

³ H. Hikmatov, D. P. Aytbaev "Information on the history of water science in Central Asia" Tashkent

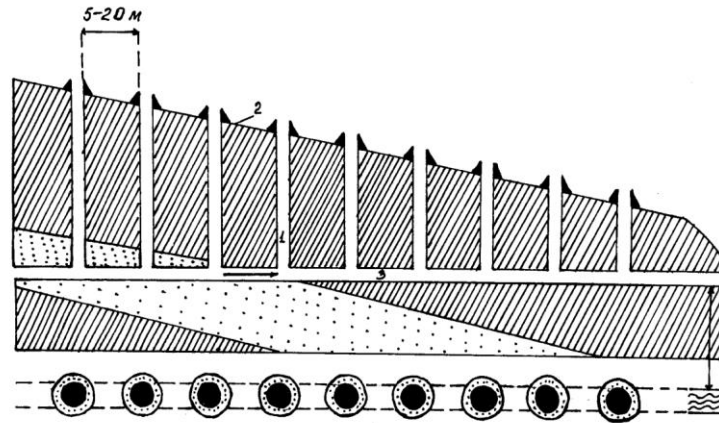
⁴ H. Hikmatov, D. P. Aytbaev "Information on the history of water science in Central Asia" Tashkent

⁵ H. Hikmatov, D. P. Aytbaev "Information on the history of water science in Central Asia" Tashkent

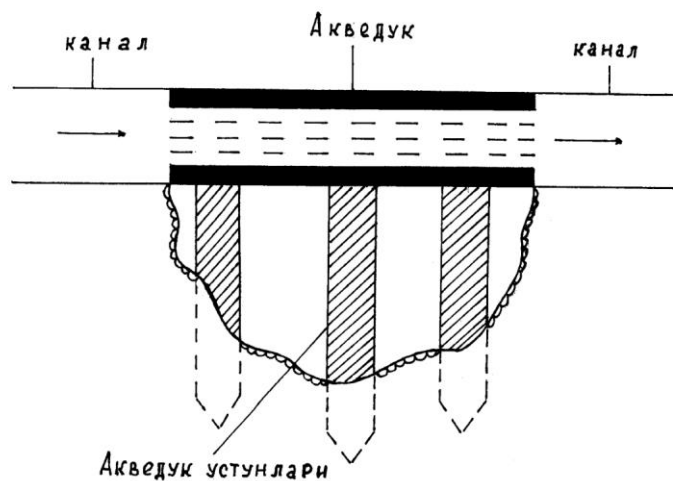
⁶ Yes. G. Ghulamov. "The history of irrigation of Khorezm".

⁷ H. Hikmatov, D. P. Aytbaev "Information on the history of water science in Central Asia" Tashkent

very rich archaeological materials related to the ancient farming culture of Central Asia were introduced. Thanks to the researches of archaeologists and historians, who are looking for fragments of the culture of the peoples of Central Asia, the historical-archeological field is becoming more and more clear.⁸



6-расм, а. Кориз-суғорида ер ости сувларидан фойдаланишга имкон беради (А.Муҳаммаджанов).
1-қудуқ, 2-ер сирти, 3-ер ости сув йўли,
— ер ости сувларининг ҳаракат йўналиши.



6-расм, б. Акв е д у к.
Канал ёки ариқлар жарликлар, ботиқликларга тўғри келиб қолганда сув кўприк сифатида қурилган махсус новлардан ўтказиб юборилади. У а к в е д у к (сувкўприк) дейилади.

The collection of religious texts of the Zoroastrians, Avesta, is a very important source of the earliest history of Central Asia. His first chapter, "Videvdad", contains a list compiled by Ahura Mazda of countries in Central Asia, as well as nearby Afghanistan and North-Eastern Iran, including Aryanam Aija, "Gova, the land of the Sugdians", "the mighty and faithful Mouri (Marv province)"., "beautiful Bakhdi (Bactria) whose flags are raised high", "Nisaya between Mouri and Bakhdi", Horaiva (Herot province) and other regions to the south-east to the Indus and Harvati (Aroksia) regions, Haitumanta

⁸ A. R. Muhammadjonov "History of irrigation of the Lower Zarafshan Valley" Tashkent-1972

in the Helmand valley in the south, Gurganjs in Warb , Rag (in the northeast of Media), etc. are mentioned. The development and nature of the defense structures surrounding the ancient settlements and cities between the two rivers is an important indicator of the level of social development and is one of the pressing problems of the ancient urban civilizations.⁹

The ancient world saw the most extensive period of irrigation economy in Ya. G'. Ghulamov dates it to the flourishing period of Kushon rule (1st-11th centuries AD). The reduction of irrigation networks in the Khorezm oasis occurred in the III-IV centuries, and its restoration in the beginning of the V-VI centuries. On the historical significance of the political, economic and cultural relations of grass-rock farmers and nomadic pastoralists in the issues of irrigation development and depression. G'. Ghulamov's thoughts are particularly noteworthy. "This farming population was able to develop only when the oasis and the desert were closely connected and formed a powerful state, developed irrigation, and built cities capable of protecting the oasis,"¹⁰ he writes in the book "Irrigation History of Khorezm". In the book "The History of Khorezm Irrigation", a great place is given to irrigation techniques and water management issues of the oasis. It describes in detail the historical development of Khorezm irrigation techniques, from the wide and shallow flood main canals of antiquity to the multi-head irrigation systems of the Middle Ages, and from reed dams to sluices.¹¹

Zarafshan (Tajik: Зарафшон; Persian: زرافشان - zar - gold, afshon - scatterer; Mastchoh) is a river in Tajikistan and Uzbekistan. In the Avesta monuments, it is mentioned as "Daitya" - "Good water"; during the rule of the Greeks, the word "Daitya" was exactly translated into Greek and was called Polythymes - "Many good water"; the names of the river in the form of Sugd, Jirt, John, Somjan are also known; in Pahlavi (Old Persian) language "Nomiq" ("Famous", "Ezgu"), in Persian sources it is called Rudi Mosaf, Rudi Sharg'; in Arabic sources, names such as Haramkom - "Holy River", Wadi usSug'd, Nahr ulBukhara are mentioned; In "Boburnoma" it is mentioned as Obi Ko'hak; later Kohak River, Zarafshon from the 18th century. began to be called.¹²

The Zarafshan river, which is the main water source of Samarkand and Bukhara, originates from the Zarafshan glacier, located at an altitude of -3154 m, at the junction of Turkestan from the north and Hisar and Zarafshan ranges from the south. The glacier is 24.7 km long, 1.7 km² wide, and 200 m³ thick. Its volume is equal to 40.8 sq/km², and at the same time, according to the book "Primitive History of the Zarafshan Basin" by D. Djuraqulova, "The basin of the Zarafshan River covers an area of 41,860 km, if we include the area of the Ancient Zarafshan Delta, which has now become a desert." , roughly doubling that number. The basin of the Zarafshan river (hypsometrically) includes different areas, its height from sea level is from 200 meters to 5301 meters, and the mountainous Zarafshan (absolute height - 5301-1000 m) and lower Zarafshan (absolute height - 280-200 m) , divided into parts such as Zarafshan or Samarkand (absolute height 1000-250 m)".¹³

Summary

In conclusion, I spoke about some problems of socio-economic history related to irrigation, the reasons for the formation of ancient irrigated lands and their development prospects. A lot of

⁹ G. Khodzhaniazov "Ancient Khorezm Defense Structures" Tashkent 2007.

¹⁰ Yes. G. Ghulamov." Khorezm irrigation history

¹¹ A. R. Muhammadjonov "History of irrigation of the Lower Zarafshan Valley" Tashkent-1972

¹² [https://uz.wikipedia.org/wiki/Zarafshon_\(daryo\)](https://uz.wikipedia.org/wiki/Zarafshon_(daryo))

¹³ D.Djurakulova "Primitive history of the Zarafshan Basin" Samarkand 2015.

illustrative materials of great practical importance in the development of ancient irrigation lands were found on the island: maps, plans, photographs and summary tables. This valuable work of B.V. Andrianov is undoubtedly of great scientific and methodological importance in the study of the ancient irrigation works of the Amudarya and the lower reaches of the Syrdarya.

The study of the irrigation history of the Zarafshan valley, in particular, the Bukhara oasis located in the lower reaches of the Zarafshan river, began thanks to the archaeological research of V.A. Shishkin and Ya. Gulomov. In this regard, V. A. Shishkin's monograph "Varakhsha" 30, dedicated to the results of archaeological research of the wonderful monument of early medieval Bukhara, the remains of the residence of the Bukhorkhudats, its unique wall paintings and alabaster sculpture, is of great scientific interest. . V. Although issues of the history of irrigation are not directly covered in the work of A. Shishkin, the extensive review of the archaeological monuments of ancient irrigation lands located around Varakhsha presented in the book gives a general idea of the dynamics of irrigation. The history of the development of this ancient agricultural oasis of Western Bukhara Ya. G'. Gulomov; A.R.Muhammadjanov studied the irrigation history of Zarafshan for many years.

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