ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 03,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

UO'K 94(575.171):325.1''04/14''

SOME INSIGHTS INTO THE HISTORY OF IRRIGATION NETWORKS IN THE NATURAL AND ECONOMIC REGION OF THE KHOREZM OASIS

Babajanova Nilufar Alisherovna
Teacher, Department of History,
Urganch State University
nilufarbabajanova01@gmail.com

Annotatsiya: Maqolada Quyi Amudaryo xududida mil.avv. VI-Vasrlarda sug'orilish inshootlari rivojlanish bosqichlari bosqichlari yoritilgan.

Kalit so'zlar:Vinogradov A.V, Yagodin V.N, Andrianov B.V, Tolstov S.P, Itina M.A, Dandamaev M.A, Lukonin V.G, Sobirov Q, Vorob'eva M.G. Qoraqum, Qizilqum, Bozorqal'a, Ding'ilja, Kaltaminor, Tozabog'yob, Amirobod.

Аннотация:В стате анализирован этапы развитие сооружения VI-V вв до н. е. на территории Низовя Амудари.

Ключевые слова:Сабиров К, Каракум, Кызылкум, Базаркала, Дингилдже, Тазабагйап, Амирабад .

Annotation: The article covers the stages of development of irrigation structures in the Lower Amu Darya region in the 6^{th}-4^{th} centuries BC.

Key words: Vinogradov A.V, Yagodin V.N, Andrianov B.V, Tolstov S.P, Itina M.A, Dandamaev M.A, Lukonin V.G, Sabirov Q, Vorob'eva M.G. Qaraqum, Qizilqum, Bozorqal'a, Ding'ilja, Kaltaminor, Tozabog'yob, Amirabad.

Introduction. Around 10,000 years ago, as a result of the retreat of the Great Tethys glaciation northward due to rising natural temperatures, humid and semi-humid plains were formed. Around 8,000–7,000 years ago, the Amu Darya River, "wandering" through the Karakum Desert, flowed northward due to the sloping terrain, dividing into right and left bank regions. This article aims to highlight the results of our ancestors' efforts to harness the "wandering" nature of the Amu Darya, directing its flow to utilize the mineral-rich plains over centuries for their benefit.

Literature Review

According to data recorded in the works of the members of the Khorezm Archaeology-Ethnography Expedition, which conducted scientific activities in the Khorezm Oasis from the mid-1930s to the 1990s, water bodies dominated the conditions of the Kyzylkum and Karakum regions until the last quarter of the 6th century BCE. For example, A.V. Vinogradov's research notes that the right bank of the Amu Darya, the lower Zarafshon, the inner Zarafshon region, and the lower Syr Darya basin plains had a high water supply from the Amu Darya and Zarafshon

ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

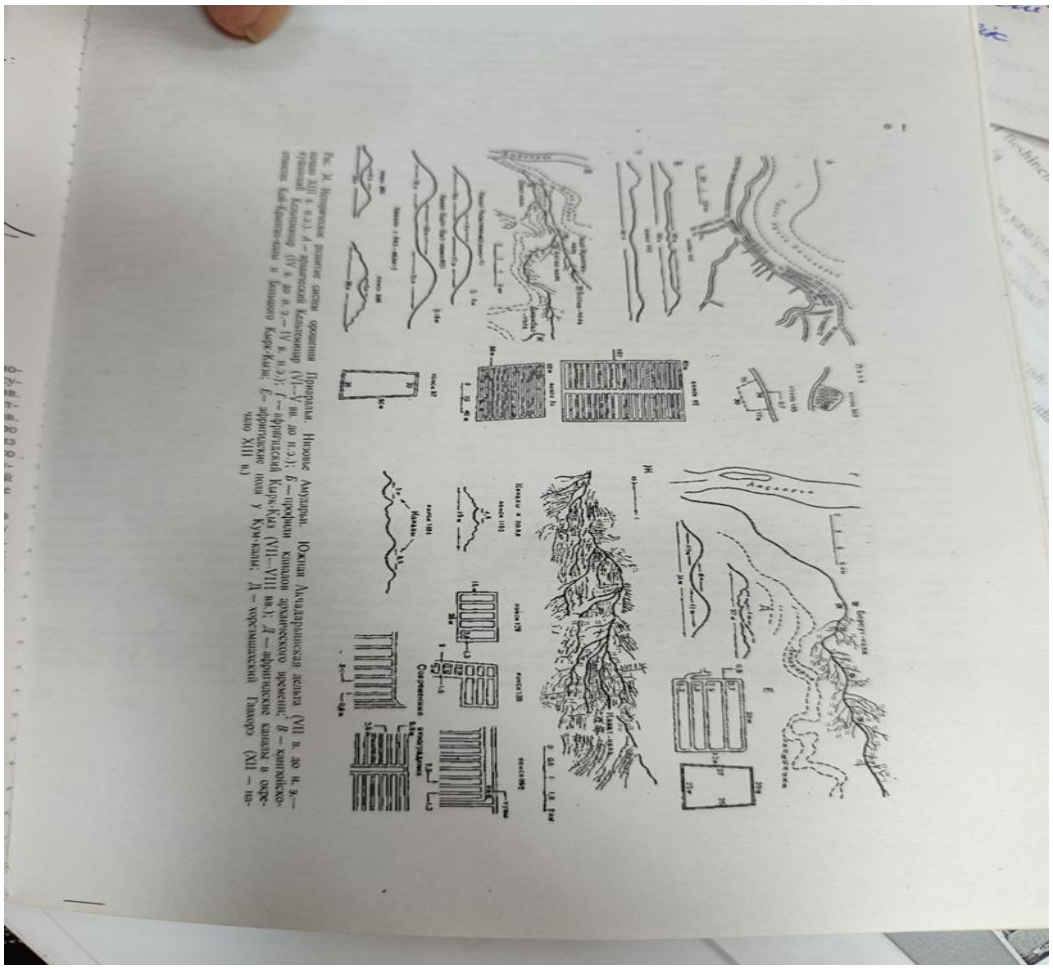
ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 03,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

rivers, causing the depressions in the Kyzylkum alluvial sand dunes to turn into water basins[1]. V.N. Yagodin focused on the history of irrigation in the Khorezm Oasis, emphasizing the development of water supply systems on the right and left banks of the Amu Darya, evolving from simple networks to more advanced systems by the 6th century BCE[2] .

B.V. Andrianov, in studying the hydrological characteristics of the humid and semi-humid plains of the right bank of the Amu Darya—the southern Aqchadarya basin, covering 160,000 hectares (between Shurakhon and the Sultan Uvays Mountains)—during the 6th–5th centuries BCE, noted the remains of an irrigation network in the northern area of the Bozorqala monument. This network, sourced from the Aqchadarya tributary, had a length of 1.5–2 meters and a width of 60–70 meters[3].

Figure 1.



[1] Vinogradov A.V. Neolithic Monuments of Khorezm – M.: Nauka, 1968. Issue 8, pp. 5-20.
Same author. Ancient Hunters and Fishermen of the Central Asian Interfluve // TrKHAEE – M.: Nauka, 1981. Issue XIII, pp. 78-89.

[2] Yagodin V.N. The Lower Reaches of the Amu Darya During the Collapse of the Primitive Communal System and the Emergence of Early State Formations // Khorezm in the History of Statehood of Uzbekistan. National Society of Philosophers of Uzbekistan – Tashkent, 2013, pp. 15-22.
[3]Andrianov B.V. "Ancient Irrigation Systems of the Aral Sea Region" – Moscow: Nauka, 1969. – p. 104.

ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 03,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

Researchers note that the remnants of canals in the southern Aqchadarya[4]—Kokcha-Janbos regions, dating to the Bronze Age, served the daily practical activities of our ancestors[5] .[6] .

In 545 and 539 BCE, Khorezm was incorporated into the Achaemenid Empire under the rule of Cyrus II[7] . [8].

S.P. Tolstov's research recorded historical data on the activities of the Kaltaminor, Tozabog'yab, and Amirobod irrigation structures on the right bank of the Amu Darya, dating to the mid-8th to 6th centuries BCE[9].[10]. However, it is difficult to agree with the researcher's view, as during this chronological period, the population of the Amirobod culture did not possess the knowledge to construct large-scale main canals. The construction of such irrigation structures can be associated with the internal policies of a centralized state.

In our view, the development of the right and left bank regions of the Amu Darya, particularly the construction of irrigation systems on the right bank toward the Kyzylkum, was carried out during the Achaemenid period. For instance, in the last quarter of the 6th century BCE, the Kaltaminor irrigation system was constructed from the Amu Darya, beginning to serve the population. Within the network of branches derived from this irrigation system, the Bozorqala and Ding'ilja monuments were established .

[4] Tolstov S.P., Andrianov B.V. New Materials on the History of Irrigation in Khorezm // KSIE – M.: Nauka, 1957. Issue XXVI, pp. 5-7.

[5] Itina M.A. Ancient Khorezmian Farmers // History, Archaeology, and Ethnography of Central Asia – M.: Nauka, 1968, pp. 75-86.

[6] Itina M.A. The History of the Steppe Tribes of the Southern Aral Sea Region // (2nd – Early 1st Millennium BCE) // TrKHAEE – M.: Nauka, 1977, Vol. X, pp. 44-45.

[7] Dandamaev M.A., Lukonin V.G. Culture and Economy of Ancient Iran – M.: Nauka, 1980, p. 104.

[8] Dandamaev M.A. Iran Under the First Achaemenids – M.: Nauka, 1963, p. 106.

[9] Tolstov S.P. Ancient Khorezm – Moscow State University, 1948, p. 46.

[10] Tolstov S.P. In the Footsteps of Ancient Khorezmian Civilization – M.-L., 1948, p. 101.

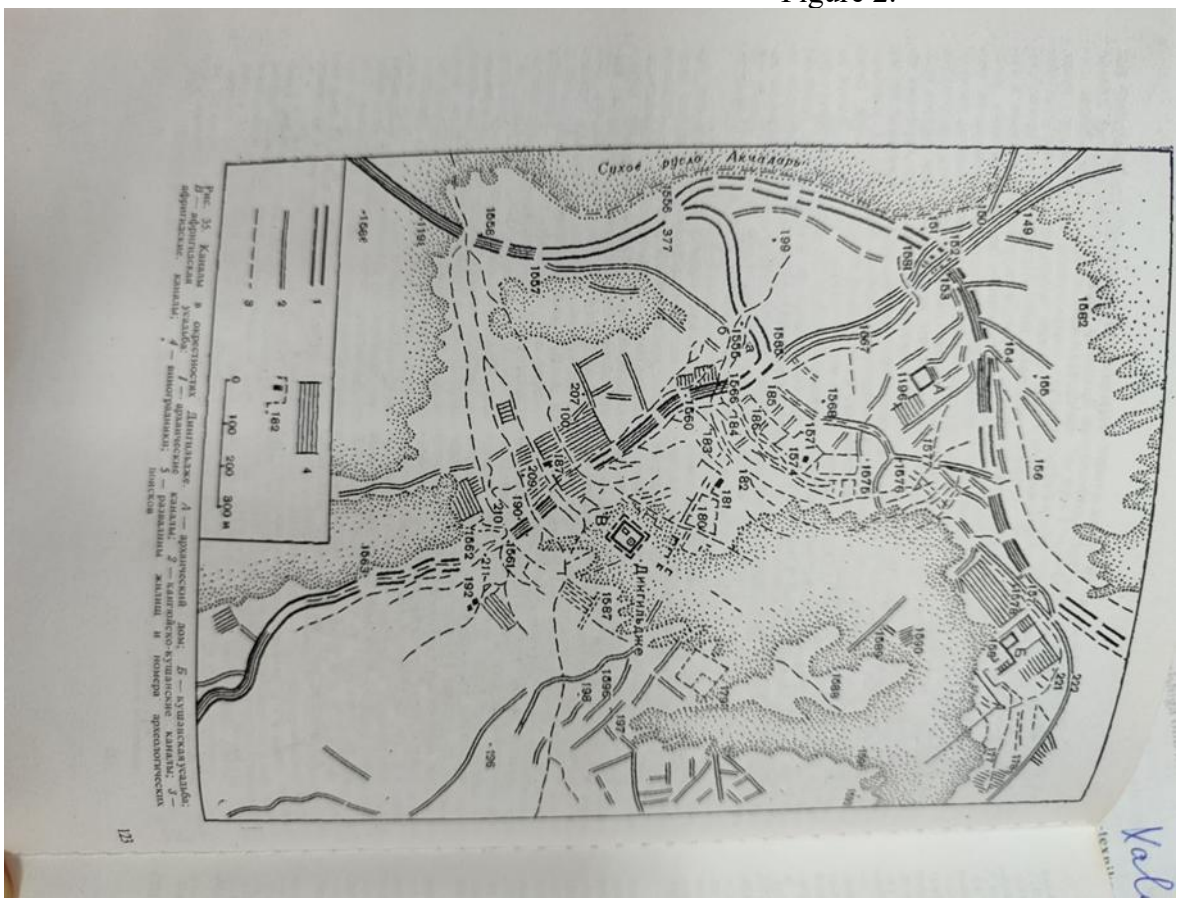
ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 03,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

Figure 2.



Research Methodology.

- Objectivity, historical-chronological interpretation, theoretical-comparative analysis, discussion, generalization, logical conclusions, and the achievements of archaeology, ethnography, and geography were utilized.

Analysis and Results.

The irrigation structures that caused hydrological changes on the surface of the right and left bank regions of the Amu Darya did not operate in a single chronological period. The process of constructing irrigation systems from the Amu Darya by the population living in residential areas on the right bank began much later than in the Sariqamish region.

The history of the development of irrigation structures, which did not emerge simultaneously from the Amu Darya, was analyzed. For example, the Sariqamish basin was divided into northern and southern regions.

ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 03,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

Information regarding the history of the Charmanyob main irrigation structure, sourced from the northern part of the Dovdon tributary, was highlighted. Additionally, data recorded in the publications of the Khorezm Expedition members regarding the activities of the Kaltaminor and main irrigation structures in the Norinjon, Bozorqala, and Ding'ilja monuments, located in the Shurakhon village area in the 6th century BCE, were subjected to theoretical-comparative analysis.

The following observations were noted as results.

- The initial activity of the Charmanyob irrigation structure, sourced from the middle section of the Dovdon tributary of the Amu Darya in the southern border of the Khorezm region, toward the north;
- After the water supply in the lower basin of the Dovdon tributary increased, the depressions in the southern region of the Qang'qa hill elevation continuously turned into water basins, enabling the local population to utilize the edges of the Tunidaryo coastal area with a stable water supply;
- The activity of the Kaltaminor irrigation structure in the Shurakhon village area in the last quarter of the 6th century BCE;
- From the 5th century BCE, conclusions were drawn regarding the activities of the main irrigation structure sourced from the rocky bed of the Amu Darya.

The following recommendations were noted.

- Studying the history of irrigation structures sourced from the Amu Darya and its Dovdon tributary in the last quarter of the 6th century BCE to the 5th century BCE from a practical perspective;
- Explaining the direction of main irrigation structures from the Khorezm region and the results of their use by our ancestors in the context of the present day;
- Proposing considerations on the significance of the development of the Amu Darya in the fate of the oasis population.

References:

1. Vinogradov A.V. Neolithic Monuments of Khorezm – M.: Nauka, 1968. Issue 8, pp. 5-20.
2. Same author. Ancient Hunters and Fishermen of the Central Asian Interfluve // TrKHAEE – M.: Nauka, 1981. Issue XIII, pp. 78-89.
3. Yagodin V.N. The Lower Reaches of the Amu Darya During the Collapse of the Primitive Communal System and the Emergence of Early State Formations // Khorezm in the History of Statehood of Uzbekistan. National Society of Philosophers of Uzbekistan – Tashkent, 2013, pp. 15-22.
4. Andrianov B.V. "Ancient Irrigation Systems of the Aral Sea Region" – Moscow: Nauka, 1969. – p. 104.
5. 4 Tolstov S.P., Andrianov B.V. New Materials on the History of Irrigation in Khorezm // KSIE – M.: Nauka, 1957. Issue XXVI, pp. 5-7.
6. 5 Itina M.A. Ancient Khorezmian Farmers // History, Archaeology, and Ethnography of Central Asia – M.: Nauka, 1968, pp. 75-86.

ISSN: 2692-5206, Impact Factor: 12,23

American Academic publishers, volume 05, issue 03,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

7. 6 Itina M.A. The History of the Steppe Tribes of the Southern Aral Sea Region // (2nd – Early 1st Millennium BCE) // TrKHAEE – M.: Nauka, 1977, Vol. X, pp. 44-45.
8. 7 Dandamaev M.A., Lukonin V.G. Culture and Economy of Ancient Iran – M.: Nauka, 1980, p. 104.
9. 8. Dandamaev M.A. Iran Under the First Achaemenids – M.: Nauka, 1963, p. 106.
10. 9. Tolstov S.P. Ancient Khorezm – Moscow State University, 1948, p. 46.
11. 10. Tolstov S.P. In the Footsteps of Ancient Khorezmian Civilization – M.-L., 1948, p. 101.