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THE ISSUES OF WIDENING IRRIGATION AND MELIORATION NETWORKS AND USAGE WATER FACILITIES IN KHOREZM (1950-1980S)

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Abstract: *The article deals with the expansion of irrigation and land reclamation networks in Khorezm in 1950-1980, the use and development of irrigation facilities and scientific research.*

Keywords: *Cotton company, irrigation, melioration, main canal, drainage, drainage collector, pump, earth- pumping.*

INTRODUCTION

In the Soviet era, the development of irrigation and land reclamation in Uzbekistan, particularly in the Khorezm oasis, developed on the basis of cotton-growing interests. Therefore, great attention was paid to the expansion of irrigation and land reclamation networks in Khorezm and the use of irrigation facilities. Therefore, the only source of fresh water from the Khorezm oasis - the problem of getting enough water from the Amu Darya River has long been preserved. A lot of work has been done by the government in dealing with this problem.

STATEMENT OF THE PROBLEM

It is well-known that the Khorezm oasis is based on irrigated farming, and most of the land is saline. Therefore, the water from rivers and canals flowing from their territory are used for washing up salinization and irrigation of many lands. It is noteworthy that in Khorezm province, about 7,000 cubic meters of water was needed for irrigation of cotton every year and 5,000 for the sowing of 1 hectare of cotton fields. As 1 hectare of cotton field was transformed into the ground from 8000 cubic meters to 12,000 cubic meters.[1]

In 1950, the Institute of 'Centralasianwater' project Studies prepared a project to construct dams in 15 major canals such as Kulychniyazbai,Oktabrarna, Urgencharna, Kulovat, Zeyyop, Qiyot-Kungrad. Along with the construction of new constructions, there was a need to clear the drainage channels and repair their structures prior to the war. This has led to the fact

[1]AhmedovKh.A. Irrigation in Khorezm. p70

that in order to increase the amount of water withdrawn from the river, it is necessary to use old stubs not equipped with the main building to provide additional water for trunk canals such as Toshsaka and Kilichniyozboy.

In order to fulfill the Resolution of the Cabinet of Ministers of Uzbekistan dated March 6, 1950, № 313 the head of "Upradik" V.A.Turks asked the chairman of the Khorezm regional executive committee D.Yakubov to make a decision about the allocation of 100 m wide width near the Tosh- saaka channel, the largest in the area. [2]In addition to specially designed roads for controlling water flow in new areas, it would be possible to sink channels and reduce water vaporization by sowing different types of trees.

On August 12, 1950, the USSR Council of Ministers adopted a resolution "On the transition to a new irrigation system for the improvement of agriculture mechanization and the full use of irrigated lands".[3] Instead of irrigating the fields, the intensive use of local and mineral fertilizers has started to be used fertility for soi by digging furrows and pitches, indoor drainage, drainage-collectors the reduce of underwater leaking waterways was achieved.

In 1952, a group lead by A. F. Sosedko, the engineer of the "Central Asian water economy project" Institute, started working on the Tuyamuyun Canal project, which aims to provide additional water to the Toshsaka Canal. In 1954, according to the project proposed by experts, the length of the new channel to be built from the nearby Pitnakarna was 28 km and spring water consumption was 41 cubic meters per second. Another suggestion was to link the Urgencharna and Oktabraarna channels to the Tosh-saqa system. The project was approved by the National Water Management Technical Council under examination of the Ministry of Agriculture of the USSR. It has been shown that it is desirable to pump 71 cubic meters of water from the Tuyamuyun canal.[4]

On June 20, 1952 at the meeting of the Intergovernmental Council, organized by Upradik, in order to use the channels effectively in the Khorezm region, the water management plans were revised. As a result of the activities carried out by the Associate Professor of Hydro-melioration Institute of the Union, Doctor of Technical Sciences V.A.Shaumyan noted that

[2]KhorezmRSA, 41-volume, 1-list, 54did, page 229
[3]State and government StatementsonEconomy(1917-1967y.)T.3-M Polit.Issue, 1970,p166Machanics of water cleaning.p 162-164
[4]Water Regulation research-project works in Khorezm and their efficiency. Prospect. Authors A.F. Sosedko, S.I. Baturin.-Tashkent. Fan.1966.-p18-19

the supply of 2959 cubic meters in 1950 increased by 4400 cubic meters in 1952.[5] At the same time, the efficiency of water use is 73-80%, and the level of groundwater has risen by 40 cm.[6] Representative of the Institute of Intercontinental Project J.Otashev said that 20-50% of the productivity of hydro-technical and ameliorative condition of fertile land is directly related to the project.[7]

The activities carried out at the irrigation facilities in the region have promptly yielded results. In particular, in 1952, water was supplied from the Tosh-saka channel to 5400 ha of cotton and 5800 ha from Kilichboy, 5900 and 7100, from Kipchoq-Bozsuv channel to 6800 and 7900 ha.[8]

In recent years, employees of the Institute of 'Central Asian cotton water project' Polytechnic Institute representatives A. F. Sosedko and T.M.Berdnikova have suggested the idea of reorganization of some irrigation systems. As a result, in 1955, the work was commenced on the construction of the Kumyop, Sayot, Kanagas canals, Oktyabraarna in August 1956, 'R-8' in 1958 and Gurlan irrigation system in 1960. Experts say that these measures have not been fully met, but they have been instrumental in placing and repairing hydraulic structures, installing water metering devices and managing them.

In 1960, due to the shift of the Amudaryariver to the right bank, the problem of washing saline soils in Khorezm region became complicated. That's why like the jagged old canals Karamozi, Mashinergo, Bayramsakawere built with engineering facilities and tried to get additional water from the river. As a result of these measures, sufficient water was obtained from the river for 2 years.

In 1957, 1961 and 1962, the propeller pumps with tractor engines were used to add additional water to the Tosh-saka canal in the conditions of the water shortage and the Amu Darya level. Since 1965, water extraction from the river to the canals using pumps and earth pumps has been included in the irrigation system management plan.

In 1956-1961, 18520,000 soums was investedon the large-scale construction works in Khorezm region's water sector.[9] Information on the accomplished works is given in the table below[10]:

[5]KhorezmRSA, 41-volume, 1-list, 55did, page6
[6]KhorezmRSA, 41-volume, 1-list, 19-21`did, page 33
[7]KhorezmRSA, 41-volume, 1-list, 55did, page 26
[8]KhorezmRSA, 41-volume, 1-list, 54did, page 21
[9]AhmedovKh.A. Irrigation in Khorezm. p35

Channels	1.11.1951 y.	1.11.1961 y
Total number	9	9
Length	232	232
Hydraulic structures		
The total number	208	745
including:		
The number of drains	90	286
Concrete works in cubes	1775	7383

As you can see, the number and length of the canals have not changed, but the number of hydraulic structures has increased and allowed for the proper use of water.

In 1963, along the Amu-Darya river valley, old waterways flowing into the canals were sand-buried. As a result, more than 200 pumping units of the PG-35 pump have been widely used to receive water from the river.

On December 25, 1963, the head of Upradik wrote a letter addressed to V.N. Kulikov byW.B. Bilbasthe representative of the Minister of Water Resources of the Republic and the Director General of the Cotton Farming Department of the USSR, to the Central Asian National Farming Council: The irrigated lands have risen from 114089 hectares to 134,188 hectares, including the area of Polvon-Gozovot in the channel from 50039 hectares to 61638 hectares, Shovot network - 64000 hectares to 72500 hectares.[11] At the same time, it was necessary to carry out reconstruction of the Tosh-saka canal to solve additional water problems, as it was planned to reconstruct 40,198 hectares in the next 3 years.[12] To accomplish this task, Upradik planned to spend 1093.0 thousand in 1964 and 1142.2 thousand soums in 1965.[13]

In 1963, many farms in Khorezm were forced to use drainage water. The director of the Uzsuvkhojailikloyiha(Uzwater economy project) Institute, S.Mamarasulov, asked the director of the Khorezm regional executive committee N.Murodov to move the pumps into the collectors and dump the Tugai- lake by removing 2-3 cubic meters per second for 10 days.[14]

[10]The same source .p 32
[11]KhorezmRSA, 41-volume, 1-list, 81did, page3-26
[12]KhorezmRSA, 41-volume, 1-list, 55did, page 27
[13]KhorezmRSA, 41-volume, 1-list, 55did, page5
[14]KhorezmRSA, 41-volume, 1-list, 55did, page11

The lake was in the south of the Hazarasp District and was the starting point for the "Kultenglashtiruvchi" collector. In order to develop 260 hectares of land dried, it was asked to prepare a propject equal to 237.6 thousand soums from the 'Uzsuvkhozhalikloyiha' Institute. [15]Shortly afterwards, a pig farm "Progress", a settlement and auxiliary farm was set up on newly-acquired land.

In an acute shortage of water deficit, it was proposed to build an additional Borehole in Tosh-saka. The project, which was developed by the team headed by the engineer G.Juykov at 'Uzsuvkhozhalikloyiha' Institute, was established in 1964 and the construction works have been started. At the same time, in 1965 engineers headed by T.M. Berdnikova 18 km. TuyamuyunMagistral Canal Project and Kuybishev Branch of the S.Y.JukGidroproekt Institute prepared the Tuyamuyun Water Reservoir and Hydroel Project.

In the mid-1960s, the powerful sailing and water-bearing earth pumpsfrom Czechoslovakia were promoted into the river. They had 3 pumps and each had a capacity of raiusing2.5 thousand cubic meters of water. The earth pumps-based diesel engine is powered by 800 horsepower and operates in diesel fuel. The first of those pumps was collected up and put into operation in 1965 by specialists of Tosh-saka KMK.

In 1966-1970 628.0 thousand soums were spent on water supply in Khorezm region, of which 29.1 million sums were to be used for construction works.[16] Implemented work allowed expanding irrigated land area by 220.8 thousand hectares, providing 180 thousand hectares of land, and improving the reclamation status of 210 thousand hectares.[17] At the same time, the allocation of funds to the Water Resources Department of Khorezm province, with a total of 217.7 million soums corresponds to the main canals, 62.6 million inter-farm and 15.6 million inter-district irrigation systems.[18]

In the Khorezm region, 195 million soums were allocated from the state budget to the amount of 56 million soums for irrigation and land improvement in the period from 1958 to 1968, which is 12.9 times more than in the previous ten years. [19]Using the opportunity, the channels of Polvon, Shovot, Gozovot have been intensified. Due to the khashar(public community service) highways, the Tash-saka main canal was expanded.

[15]Republic of Uzbekistan.ITTC CSA, 160-volume, 1st list, 416did, p.40
[16]KhorezmRSA, 276-volume, 1-list,3715did, page 92
[17]KhorezmRSA, 276-volume, 1-list,3715did, page59
[18]KhorezmRSA, 276-volume, 1-list, 371did, page59
[19]Khudoybergenov M. Successful pacing of Khorezm cotton-companies. P.18

The length and capacity of irrigation and land-reclamation facilities in the Khorezm oasis with the help of the Uzbek, Turkmen, Karakalpak and other peoples of the Khorezm oasis were different. For example, the length of the inter-republican Tash-saka channel is 34 km, Bayramsaka - 15 km, Koramozi - 12 km, Polvon-Gozovot - 67 km. River water consumption was 1400 cubic meters per second. The Tosh-saka canal was able to receive water from 210 kilometers, Kilichboyarna and Turanghiaka - 150, Karamozi-saka - 55, Daryolikarna - 50, Bayramsaka - 41, Urgancharna - 30 cubic meters.[20]

The construction of the 34 km long Tosh-saka canal distributed water to the Polvon-Gazovat and Shovot canals and Honkaarnaya. In 1977, the team of Urgench CSM totaled 212 thousand completed the construction of the canal, which will allow additional 50 cubic meters of water to the Polvon-Gazovat canal, which will begin at 34 km of the Tosh-sakacanal. At the same time asphalt was laid on the remote track from 67 km from the Polvon-Gazovat canal to Kenagas canal.[21]

The Shovot canal with a total length of 154 km is 14.6 km long and has four hydraulic structures. The canal was sometimes dropped by Bayramsaka, Mashinayarghon and Karamozisaka. The 42-km section of the canal is constructed by Kommunizmyop, Pakhtakor-Odaychi, Hosayop and Davdoniop (Shavat district) and Yarmish district (Dashoguz district), 78 km km of Village Ray, Abdalyop, Kamishkhan, 99 km Koka-Garrov, TozaGarrov, allows you to stream to the feed channels and to your device. The rest of the watercourse is about 126 kilometers from the Shovat and Kazakyap furrows[22].

In 1958, Upradik specialists reconstructed the main building in Kilichboyarna, and equipped with a rampage boom for water-carrying valves. During the same year, the Ali-eliyop (2.5 cubic meters) and Shur-yop (2.6 cubic meters) water were discharged as a result of the construction of a blockade of 42 cubic meters in the 29th kilometer of the canal.

In 1966, under the proposal of the 'Uzsuvloyiha'(Uzwaterproject) Institute, a new construction of the Polvon-Ghozovot canal for 67 km 123 cubic meters of water was built. This expanded the possibility of watering Polvon (water volume at 50 cubic mph), Gozovot (water volume 47 cubic mph) and Large Kenagas (water volume to 16 cubic mph) channels.

[20]Utamov J. Mukhammadiyev U. Quiz at early century. p.66
[21]KhorezmRSA, 633-volume, 1-list, 233rd did, page21
[22]Irrigation in Uzbekistan. T.3.p255

The Gozawat canal has a length of 88 km and there werewood and fence barrier in its 18 km destination, which would raise the water level to 1.5 meters and provide Uzbekyop, Tuyachi and Akhunbabaevpitches. The 46km-long channel, which crossed into the wooded district, allowed water to be drawn on such channels as Karaulak and Tozayop.[23]

In 1965, the construction of a new building for 120 cubic meters of water was built instead of the damaged main dam. A dam has been constructed in 1967-1968 for 36 cubic meters of water discharge in Oktyabrarna, 90 cubic meters of water emission to the Amu-daryariver and 10 cubic meters of water to the Tokayabod canal.[24] "8PZU" to "123RS" to clean the mud from the Amu-daryariver in Urganch- arna and Oktyabrarna in 1973 22 large earth pumps were used.

In the period from 1965 to 1967, under the guidance of the Khorezm Irrigation Network Administration, works on expansion and reconstruction of main canals such as Toshsaka, Polvon, Gozovot, Shovot, Kilichniyozboy, Urgancharna were carried out. Later such events were also held in Oktyabr-arna, Honka-arna and R-8, Kulovot, Polvon and Zeyyop canals.[25]

In 1968 the Urgench QMB team began the construction of the Varangzon water canal's 18-km intake facility of Polvonyop canal. The hydroelectric power plant is located in the Khiva district of Khiva district, including the Ogahiy, RuzmatMadaminov, Khiva and Al-Khorezmi water supply units (10 cubic mph), Pirnaxos (3 cubic mph), Sverdlov (1 cubic meter), Piskanikanik (1 cube / sec), Khuroson (2 cubic mph), and Ghavakyop (4 cubic mph).[26] The head of the KhivaDistrict Department of Irrigation A.G.Aranesov made great contribution to the construction of this building.

The total length of Tashsaka (Tuyamuyun, Bayramsak, Mashinergoan, Karamozisak), Kichichnyozboy (Turanizza) and Kipchoq-Bozsuv canals are up to 361 km with "Upradik" and 86 hydroelectric complexes have been built there. [27]In 1968 the Main Dams were built on the Khonqa-arna and Turongi-saka canals. In 1969, along with the Guaranteed additional water discharge, the Gissar line was built on the proposal of 'Uzsuvkhojalikloyiha', along with the Main Structural Facility, which will provide 120 cubic meters of water at the 7th kilometer of the Turanghi-saka canal to reach the earth pumps to the river.

[23]Irrigation in Uzbekistan. T.3. p256
[24]Irrigation in Uzbekistan. T.3. p256
[25]Irrigation in Uzbekistan.T.3. p250.XolliyevKh. Water-the song of life.p.42
[26]Irrigation in Uzbekistan. T.3. p256
[27]Irrigation in Uzbekistan. T.3. p257

In 1969, the South Khorezm Canal was constructed with a length of 18 kilometers in length for 4 years of selfless labor. This channel, which starts at a distance from the Tuyamuyun Dam and is able to pump about 210 cubic meters per second, will provide an additional 195,000 ha of irrigation water. As a result of connecting the new channel to the Tosh-soka main canal, some 6 districts of Khorezm region and a number of Dashoguz areas were provided with additional water. The increase in water discharges has greatly reduced the salinity of soil, as well as reducing the duration of field life in the field and water pumping in cotton fields at the required level during the vegetation period.

In 1968-1970, under the leadership of Yangibozor KMK's ingineer Y. Normatov, the main condominium was built in the area and it discharged 150 cubic meters of water instead of 60 cubic meters per second. In order to reduce water vaporization and to strengthen the coast, many trees have been sown along the arc. About 2.5 hectares of land were laid near the main dam and 11,000 saplings were planted.[28] These noble works were initiated by X. Kholliev, O.Turaev, B.Khodjaev, S.Boltaboev, S.Zaripov, Z.Otamurodov, M.Sultonov.

The services of water managers in the development of the agricultural sector were great. In the 1970s, Tosh-saka CMCK members carried out the project of 13 million cubic meters of excavation at the Polvon Canal with 25 earth pumps and 24 excavators, which is 3 times more than in 1950. [29]The team continued to reconstruct the irrigation canals. A new'shlyuz' construction gateway has been built to serve additional water from the Amudarya River and into the Tosh-saka canal for the development and commissioning of earth-pumping.[30] The powerful "DER-250" pumps produced at the'CheshkaMedenica'Praga plant, along with the removal of canals from the mud, allowed to regulate river basins.

In 1971, the Khorezm regional administration of irrigation facilities completed construction and installation works for 10.2 million soums and fixed capital of 11.5 million soums. As a result, 1020 hectares of land were erected and 4010 hectares of land were capitalized and the land reclamation improved. In 1972 11.2 million soums were allocated for the

[28]KholliyevKh.Irrigator is the dearest.p.33
[29]Eshjonov I. Fight for water.// 'KhorezmHaqiqati'Urgench, August 21, 1974
[30]Irrigation in Uzbekistan. T.1 p.213

construction and reconstruction of irrigation canals. The work on the Amudarya coast was carried out for 1.1 million soums.[31]

In 1971,' Khorezmsuvqurilish'venture started reconstructing the Main building of the R-8 channel in Yangiariq district. The new facility was able to supply 30 cubic meters of water per second to 14,000 hectares of land through Aladdin, Kungrad, Tagan, Kazokyop, Kuruqtom, Ostona, Okmachit and Soburzak valleys. The Construction was completed in 1972.[32]

In 1967-1968, the specialists of the "Central-asianwaterProject" worked out a scheme to regulate and protect the flow of water from the Amu-daryariver in Kilichboy-arna current.[33] As a result, in 1972 a large hydroelectric power plant was put into operation in Kichichnyyozboy district. In 1973, a 105-cubic meter block of water was constructed at the PK 105 + 70 mark in the Kilikchboyarna pond for water supply to the Yangiobod and GulistonRiceplanting State enterprises in Gurlan district. After 49 km of the canal, the river passes through the Dashoguz region.

In summary, while the development of irrigation and land reclamation in the Khorezm region in the 1950s and 1980s was based on the interests of cotton, in this regard, great attention was paid to expansion of irrigation networks, effective use of channels, and scientific research.

[31]Sapayev Q. Success of Irrigation.// Khorezmhaqiqati.Urgench, January 1st, 1973
[32]KhorezmRSA, 276-volume, 1-list,30th did, page 108
[33]UzR.ITTH.CSA. volume 87, 1st list, 500th did, p.5