

Irrigation issues in Uzbekistan (1950-1990)

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Abstract: The article analyzes the policy of the centre of the further strengthening mono cultural clap in Uzbekistan that in undertaken measures on building of large irrigation canals and pumping stations in the Republic on the basis of archival sources and historical materials in 1950-1990. Therefore, the process of reclamation and irrigation of lands in Karshi and Mirzachul as well as, organization of districts and state farms in these areas specialized to cotton - growing on the principles of cotton monopoly policy of the Soviet government and increase of provision of cotton to the Centre and its negative results are elucidated with the help of main historical sources. Besides, in the research the author studied the reclamation of virgin lands in Uzbekistan and the history of state farms organized in the new reclaimed lands.

Index terms: Agriculture, cotton monopoly, irrigation system, Karshi, Mirzachul, reclamation, reconstruction, siphon, Uzbekistan, virgin lands, water reservoir.

INTRODUCTION

In agriculture system of all countries around the world, as well as in ensuring the success of their economic development, irrigation and reclamation industry has always occupied an important place. In particular, the local agricultural irrigation traditions gradually evolved over the centuries, and the culture of irrigation which is peculiar to each country, has obtained its own unique and individual characteristics. After claiming Independence, in the Republic of Uzbekistan in its irrigation system, as well as in every other sector of the country, huge radical reforms, entailing significant changes were made. Applying and exploring the modern methods and experience in reclamation received much attention, as the aim was to maintain the whole agriculture system through appropriate irrigation. The reason was that our agriculture has always been an irrigational agriculture. Huge channels, irrigation and drainage network in conjunction with irrigated fields form the united complex of the water and the land [1], [310]. This fact alone suggests that the growing interest in history and culture of irrigation, developed by Uzbek people, requires the creation of deep and circumstantial research on their study. In decree “On measures to further improve ameliorative condition of irrigated lands and rational use of water resources during the period of 2013-2017 years” had clearly emphasized the need to “further improve ameliorative condition of irrigated lands, development of a network of reclamation and irrigation facilities, and the rational and economical usage of the water resources”[2], [38].

METHODS

Indeed, it is appropriate to note that the irrigation and drainage sector has always occupied an important place in society. Truthful investigation and study of the past activities in the irrigation processes will have a significant impact on their future development. From this perspective, the study of irrigation history of the twentieth century, namely the Soviet period in the system of irrigation up to the era of Independence (1951-1990) in the spirit of our National Idea is one of the most urgent tasks. Since the 50s of the twentieth century, the Soviet government made a special emphasis on the development of irrigation, land reclamation and mechanization, as well as on the construction of irrigation facilities. All these actions had an aim to develop the cotton production in the country, and all forces were thrown into this production with the only purpose to achieve high productivity in this field. In the 1960s, the widespread use of virgin and fallow lands, construction of reservoirs - system of ditches, as well as the usage of river water in large amounts for irrigation, has deteriorated the quality of water in those rivers' pools. The regularity of such actions led to the fact that arable land began to go out of service; land reclamation condition deteriorated and fell into disrepair; the salinity of the soil increased - and all these in unity contributed to a drop in yield.

This fact once again confirms the relevance of the thesis topic, which to some extent is the practical implementation of the tasks set by the President of the Republic of Uzbekistan in his decree PD - 4533 from

April 19, 2013 "About the measures of radical improvement in the system of land reclamation", such as "construction, reconstruction, repairing and cleaning of the main (interregional), inter-district, inter-farm open collectors and related buildings on them, the closed horizontal drainage networks, drainage vertical wells, reclamation pumping stations and observational networks under the government programs on ameliorative improvement of the irrigated land".

The First President of the Republic of Uzbekistan Islam Karimov said that "In recent years (until 1990) cotton held almost 75 percent of the total harvest. In no country in the world, the cotton monopoly rose to such degree. This led to an erosion of the ground, decrease in soil fertility, deterioration of its water-physical composition, soil degradation, strengthening the processes of its destruction [3], [511]", which gives an analysis of theoretical views and reflections on the history of irrigation and the complications in Uzbekistan's condition, caused by the harsh colonial system. This approach to the problem, based on the theoretical views, allows perceiving and understanding the historical processes objectively. The thesis states the measures taken by the Soviet government for the development of irrigation and land reclamation in Uzbekistan, in particular, its policy in the development of new land and, as a result, a greater intensification of cotton monoculture, the sharp expansion of the irrigated area and its consequences.

RESULTS AND DISCUSSIONS

Naturally as irrigation works in those decrees and orders received the most serious consideration. Among them, the decree of the USSR Council of Ministers and the CPSU Central Committee "On the further development of cotton production in Uzbek SSR on 1954 - 1958 years" from February 9, 1954, which planned the expansion of irrigated areas (600 thousand hectares, including the cotton fields on 300 ha.), significant land improvement and providing the rational use of water in the state and collective farms [4], [96]. The decision, along with the development of cotton production confirmed the increase of its monoculture policy in comparison with the previous years. Under the influence of the colonialist government's agricultural policy in the 50-60s of the XX the amount of irrigated area in the country increased rapidly. Including the fact that, during the seven-year period (1959-1965) commissioning of irrigated land totaled 381.8 thousand hectares, which for years was divided as follows: In 1959 it was 27.0 thousand hectares, in 1960 - 42.0 thousand hectares, in 1961 - 40.0 thousand hectares, in 1962 - 74.0 thousand hectares, in 1963 - 80.0 thousand hectares, in 1964 - 56.0 thousand ha, in 1965 - 62.8 thousand ha [5], [254].

The article presents the facts that following the decree of the Central Committee of CP of Uzbekistan and Council of Ministers of the UzSSR from December 21, 1964: "On measures for the expansion of irrigated land in the Samarkand, Bukhara and Kashkadarya regions, as well as updating the technology of irrigation systems and further increase in the water supply of irrigated areas", in January 6, 1965 the Ministry of Water Resources of UzSSR issued an order. According to it, the Ministry of Production and Procurement of Agricultural Products in cooperation with the Ministry of Water Resources accepted the proposal of the Executive Committees of Samarkand, Bukhara and Kashkadarya regions and made the decision to develop, over the 1965 -1970 years, 94 thousand hectares of reserve and new lands, including 15 ha - for the construction of the Amu-Karakul canal, 24 thousand ha - for the construction of the Amu-Bukhara canal, 27 ha - to increase Kattakurgan reservoir, and on the areas which have made an offer – to develop 28 thousand ha – for Chimkurgan, Pachkamar and Kalkamin reservoirs construction [6], [141].

Construction of irrigation facilities and commissioning of the irrigated land by agriculture successively continued throughout the Soviet period. However, since the second half of the 70s the amount of irrigated land started to decline sharply from year to year. In particular, if in 1976-1980 482.1 thousand ha of land was put into operation, then in 1981-1985 this figure fell to 429.9 thousand ha, and finally in 1986-1990 the figure was only 159.4 thousand ha [7], [257]. However, despite the fact that in this period enough funds were allocated for the land improvement, the quality of the land was not satisfactory. In particular, "according to the data for 1986, 15 per cent of 500 thousand ha of irrigated land did not meet the necessary requirements [8, p.236]. All the conditions mentioned above led to a decrease in yield obtained from the irrigated fields and to dropping them out of operation in agriculture.

The Soviet government from year to year continued to increase investment funds for the development of the water management and the rehabilitation of land. In particular, into this industry in 1951 72.9 million rubs were invested in 1952 - 54.4 million rubs, in 1953 - 82.7 million rubs. From 1953 to 1955, about 450 million

rubles were spent. In 1955 in the water sector there were 800 excavators, about 700 different mechanisms for digging earth and 137 dredging pumps. Mechanization of soil works grew by 70% [8], [233]. In the next five years, funds spent for irrigation system have increased even more. "If in the 1956-1960 years 402 million rubs has been spent for this industry, then in 1961-1965 it was 951 million rubs, in 1966-1970 - 1 billion 793 million rubs, in 1971-1975 - 3 billion 750 million rubs, in 1976 -1980 - 5 billion 750 million rubs, in 1981-1985 - 6.4 billion rubs" [9], [58]. On February 12, 1978 the board of the Ministry of Land Reclamation and Water Resources of UzSSR adopted a resolution "The results of implementation of the plan for the capital construction and contract work of the Ministry of Water Resources UzSSR project organizations for 1977 and the tasks for 1978 [10]. This resolution notes that during 1977 the Ministry of Water Resources has used the capital fund in the amount of 652.1 million rubs (or 100%). From that, 539 million rubs were spent on the construction and installation works. The plan for the commissioning of new irrigated land is exceeded by 103% (total 43.0 thousand hectares while only 41.56 thousand hectares were planned), the plan for land reclamation is exceeded by 118%, and the plan in providing water for the irrigated land is exceeded twice.

Arranging and maintaining of irrigation and reclamation work at a high level directly depends on the skills of personnel working in this area. However, in the Soviet period, only specialists of Russian nationality filled the offices of water conservancy industry. In 1955, in the secondary educational establishments - technical schools, training staff for the field of irrigation systems, from 2483 students only 1056 (42%) were representatives of the local population, among whom there were only 7 girls - Uzbeks. In some technical schools due to lack of classrooms, classes were held in two shifts, and because of the lack of dormitories, 1,700 students were accommodated in the private houses [11], [44].

In training irrigators with higher education, Tashkent Institute of Engineers of Irrigation and Mechanization in Agriculture, during the tenth Five-Year Plan period (1976-1980) the system of training of engineers has become more appropriate. In particular, it is in this five-year period by 18 faculties, functioned in its three branches, 14.5 thousand students were trained (including 9000 full-time students). They were educated at 14 different engineering and technical fields. The annual reception at the institute was 3740 people. Each year, it released 1980 engineers (of which more than 1500 had full-time of study). During its working years, for the needs of the national economy, the Institute has trained totally of more than 28,000 professionals, including 7350 of specialists released only during the tenth Five-Year Plan. In 1981-1982, the Ministry of Water Resources of UzSSR and the Ministry of Agriculture received the order to send to the organization of water management in its state and public sectors 839 engineers, and 1383 technician in land reclamation, as well as a large number of experts on electrification, mechanization and hydro-technical construction. In 1983, the UzSSR water management organizations were provided by engineers in land reclamation almost up to 74% (in 1980 the figure was 68%) [12], [24]. During the Eleventh Five-Year (1981-1985) among the total number of the trained staff, the machine operators were 63.4%, irrigators - 14.2%, breeders - 13.4%. Totally 212 permanent courses organized at vocational - technical schools conducted their training.

Irrigators from Uzbekistan effectively participated in the construction of irrigation facilities, not only within the country but also abroad. As a result of the activities, carried out within the framework of Uzbek-Afghan cooperation 25 million hectares of previously abandoned, thirsty land were irrigated. "In the new lands large mechanized state farms were built. They were specialized in the production of citrus, olive, meat, and dairy products". With the help of Uzbek professionals in the center of the Nanhargar region of Afghan – the city of Jalalabad – such farms as "Hadda", "Jumhuriyat", "Batikot" and "Ghaziabad" were put into operation. In particular, in the works for processing and commissioning of 2200 hectares of the stony soils, located in the farm "Jumhuriyat" an Uzbek hydraulic engineer T. Hodjiboev actively participated [13].

In the reclamation of 50 thousand hectares of West Maskene steppe in Syria a qualified hydraulic Uzbek engineer A. Razakov participated [14]. Totally, 26 state farms contributed in the case of the steppes' development. Hydraulic engineers S. Yakubbekov, D. Karimov and S. Samsakov took part in the various activities of the project. Uzbek irrigators D. Kuldashev, O. Rahimboev, A. Khasanov, A. Vohidov, Y. Qodirov, N. Abdullayev, T. Kenjaev, I. Nazirov, and M. Abdullayev took part in the work on the reclamation and commissioning works in the state farm "Mezerpane" located in Nampula province, Republic of Mozambique. Among them, D. Kuldoshev [15] from Andizhan (Uzbekistan) actively participated in the works on operation and maintenance of the "Namioza" Reservoir - small reservoir with barrage (the volume

- 1 million 200 m³.), and the Reservoir "Impiezi" (the volume - 1 million m³). On his initiative, on the farm 14 hectares of land and savannah, overgrown with bushes, were assimilated in 1981-1983. Thus, the funds allocated by the Soviet government in the construction of water management, aimed primarily at the development of cotton production and at obtaining a greater yield from it. However, the financial resources spent on this sector for the most part did not justify themselves. In the training system for the irrigation field one-sided principle predominated. Nevertheless, in spite of colonial conditions, which Uzbek people were in, experienced and highly skilled irrigators have grown in its midst, who took an active part in the land reclamation and the construction of irrigation facilities in foreign countries.

The development of virgin and fallow lands become widespread, first, in the Fergana Valley. In the central district of Fergana - Buz, from 1950 to 1954, there were 2803 hectares of the land utilized; in 1953 - 1958, there were already 2960 hectares. Totally on the Valley from 1954 to 1960 there were developed 23100 hectares of the land, and from 1960 to 1965, there were more than 17,400 hectares utilized [16], [35]. In the developed areas, there were organized district of Buz, Yazyavan and Zadarya (now Mingbulok) specialized in cotton growing. This has a positive effect on the process of urbanization. On August 6, 1956, in order to accelerate the development of the Mirzachul, the decision-making bodies of the Soviet Union - the Central Committee of the CPSU and the USSR Council of Ministers adopted a resolution: "On irrigation and development in the territory of the Uzbek and Kazakh SSR virgin lands of Mirzachul to increase harvesting of raw cotton" [17], [193]. Following this resolution, on August 15 of the same year, the CC of the Uz SSR CP and the Council of Ministers of UzSSR, carried a special decision. It aimed at the creation a new major area of irrigated land of 300 thousand hectares in Central Asia, and by 1962, it was decided to utilize 300 thousand hectares of virgin lands in the Mirzachul and to set up 34 state-owned farms, specialized in cotton [18], [541]. The fact is that from all planned for development 300 thousand hectares of land, 200 thousand hectares were located in the territory of UzSSR and 100 thousand hectares - on the territory of Kazakhstan. At the same time, the irrigation of 272.8 thousand ha of area was planned with the use of a new irrigation system [19], [132].

On January 23, 1959, the Central Committee of the CP of the Uz SSR and the Council of Ministers of the Uz SSR adopted a decree "On approval of the plan for construction works on reclamation and irrigation of lands in Central Fergana during 1959" [20], [36]. According to it, the growth volume of the irrigated lands in the Central Ferghana array was 13,000 hectares in reality it was executed at a rate of 10,230 hectares. In the decision, it was noted that during this year for the development and irrigation of Central Fergana land [21], from the planned for the construction funds of 186 685 thousand sum, it has been allocated and spent the amount of 105 750 thousand rubs from indivisible savings accounts of the public enterprises of Fergana, Andizhan and Namangan regions, 55385 thousand rubs from the state budget, 23400 thousand rubs from the account of "Selhozcredit", and 2150 thousand rubs from "Uzbekbirlashuv" fund accounts [22], [285].

A close examination shows that the development of the area for cotton harvesting increased from 1427900 hectares in 1960 to 1,709,200 hectares in 1970. In the early 1980s it had grown up to 2,000,000 hectares. The economy, totally subordinated to the central administration and entirely depended on the white gold, grew heavy. As a result, the Environmental Management System deteriorated sharply, which has led to the drying up of the Aral Sea [23], [6]. It is worth to note, that having achieved a good effect on the development and irrigation works in the Mirzachul, a former government concentrated all their efforts on the development of Jizzakh steppes. It is the consistent expansion of the reclamation of the Mirzachul that has created an opportunity for the creation in 1973 of another new - Jizzakh region. Only on the territory of the region since the beginning of the development of the Mirzachul 23 state farms, specialized in cotton were established and 130 thousand hectares of new irrigated lands were put into operation in agriculture.

Following the orders from the Centre, the work on the development of Jizzakh steppe mainly began in 1974. With a purpose to develop the steppe, from different parts of the country many families were moved here. Among them, "Already on the second year since the beginning of the development of the steppe more than 600 families from Andizhan, Ferghana and Samarkand regions, as well as of the old district of Jizzakh region were relocated here to work on the virgin soil". The work on the development of the Karshi steppe reached its peak after December 7, 1963, when the Council of Ministers of the USSR adopted a decree "About the beginning with the first phase of the irrigation and development of the Karshi steppe". In accordance with this decree, management "Karshistroy" - a part of "Glavsredazirsovhozstroy" under the

Ministry of Land Reclamation and Water Resources of the USSR, was formed. During the period 1963-1968, with an aim to the development of the Karshi steppe, a large amount of equipment - bulldozers, excavators, scrapers, road construction machines, trucks, cranes, and other modern construction machines and mechanisms were brought here. With their help, in 1964 the construction of the main part of the Karshi main canal, 77 km long, with six pumping stations in it, started. A total area of irrigated land was 848 thousand hectares. On the cultivated on a large scale lands of the Republic housing complexes, villages and schools were built. Also in the new lands state farms, specialized in cotton were established. The number of such farms in Uzbekistan in 1965 amounted to 99, in 1970 year it grew up to 143, in 1975 to 234, in 1980 to 335, in 1981 to 349, in 1982 to 356.

On June 25, 1970, the Central Committee of CPSU and the Council of Ministers of the USSR adopted a resolution "About the acceleration of works on irrigation and the development of the Karshi steppe in the Uzbek Soviet Socialist Republic". This resolution accepted the proposal of the State Planning Committee of the USSR and the Ministry of Water Resources of the USSR about the allocation for the first phase of development and irrigation of Karshi steppe lands, during 1971-1975, the capital fund in the 630 mln. rubs including 475 mln. rub for construction and installation work. Following the resolution, it was planned to utilize and irrigate new lands in Karshi steppe in the amount for 700,000 hectares until 1980, including 85,000 hectares in 1971-1975, and on these lands to grow 100,000 tons of cotton during 1974-1975, and by 1980, to bring the gross of harvest up to 400,000 tons [24], [26]. In accordance with the decree of the Council of Ministers of the Uz SSR from 18 July 1977: "About the conducting the work on integrated irrigation and development the lands of the Surkhan - Sherabad steppe" the Ministry of Agriculture issued an order [25], [33]. It noted that "Uzglavvodstroy" along with the Ministry of Agriculture Construction of Uz SSR and with Ministry of Agriculture of the Uz SSR and with the Executive Committee of the Surkhandarya region made irrigation activities in the area of Surkhan - Sherabad fallow lands and constructed new state farms. It noted that in the first construction they spent capital investments in the amount for 356 million rubs and put into the general fund 333.3 million rubs. It said that they prepared and commissioned in agriculture 81.2 thousand hectares of new land, built 511.5 thousand m² of housing, as well as schools, kindergartens, shops, clubs, saunas and other cultural - household establishments.

Frequency and long-lasting of irrigation activities in the Republic led to further strengthening the policy of cotton monoculture, and how difficult it was is possible to guess from the slogans made in the spirit of colonization, such as "Development of the Steppe – the Mission for the Braves" to motivate people to do the forced labor. The cultivated area allowed to develop cotton production and to increase the amount of harvest. At the steppes on the developed areas cotton growing districts and state farms were created, residential complexes for the population were built. Housing construction has created favorable conditions for the people previously living in densely populated areas. In connection with the annual increase in the number of state farms, specialized in cotton, cotton production also has grown each year. However, unfortunately, most of the grown cotton was taken away to the Center. During the Soviet period in the Republic, the biggest attention was paid to the construction of irrigation facilities for the water storage and regular irrigation of the cotton fields. With this purpose, a large number of reservoirs and large canals were built. To improve their technical condition the Center published many orders and made many decisions. On February 12, 1955, Ministry of Water Resources Uz SSR in the order "On the construction of the temporary spillway system in Tudakul water reservoir" noted the need to use the accumulated water in the reservoir for pre-plant irrigation and growing, due to an expected shortage of water in line with the Zarafshan River. To this end, water managers have been instructed by February 28, to design a temporary concrete-wooden spillway that can bring 100 million m³ of water from the Tudakul reservoir with the expectation of 15 m³ /s. On May 27, in the same year the Council of Ministers of the Uz SSR accepted a resolution "On the work accomplished on the restructuring of the channels carrying the water to the Kattakurgan reservoir and eliminating its defects". It noted, that in order to address the shortcomings identified in the Council of Ministers decision from January 18, 1955, as happened during the construction and engineering works while building the canals carrying water into Kattakurgan reservoir, as well as to ensure the implementation of this resolution, the capital fund of \$ 6 million rubs was allocated to the Ministry of Water Resources [26], [159]. In 1956, the number of irrigational and constructional events was held in Urtatukay reservoir. In particular, this year Urtatukay reservoir is on the eve of receiving the water, all the mechanisms of automatic gates

have been tested. The dam in height of 32 m., overlying a ravine, was built of gravel and clay. For the dam construction, 1300 thousand m³ of clay was delivered.

In 1957, the construction of a reservoir on Kamashi Yakkabogdarya with the volume of 18 million m³ was completed, and in 1963, the construction of Chimkurgan reservoir was completed. The "Uzglavvodstroy" constructed these facilities. In a result of their activities, the water supply of irrigated lands in Kashkadarya region significantly increased. If in 1962, before the putting the reservoir Chimkurgan into work, gross harvest of cotton in the area was 139 thousand tons, then in 1966 this figure amounted up to 218 thousand tons, making an increase of more than 57%.

The Council of Ministers of Uz SSR on March 19, 1958 accepted a decree "On the construction the South Surkhon reservoir in Surkhandarya region". The length of South Surkhon water reservoir was 4930 m, its height - 30 m [27]. According to the technical project, the reservoir's volume was 800 million. m³, its useful capacity - 610 million m³, and the total area was 65 thousand m² [28], [11].

The Soviet Government and its officials from year to year extended their policy on the construction of water reservoirs. In particular, "Related to the construction of irrigation systems during 1981-1990 in the Republic the number of active reservoirs reached 23, construction of 15 was still going on, and there were carried works on designing of 6 more new reservoirs" [29], [129]. As is clear from all of the above information, the main goal of the Soviet government in the construction of reservoirs was saving water and developing cotton growth.

At the same time, the Soviet Government has created many artificial canals and pumping stations to provide water for hillside areas where the natural irrigation was not possible. Many activities to improve and maintain their technical condition have been developed. On July 12, 1952 the Ministry of cotton production of the USSR issued a decree "On measures to improve the technical condition of the Great Fergana Canal named after Stalin" [30], [39]. The main objective pointed here was the extensive use of water resources in order to improve the technical condition of the channel, and the development of irrigation of the Ferghana Valley. In accordance with this decree, the Minister of Water Resources of the Uz SSR and the Chief Operating Manager of the Big Fergana Canal received the order, in the term of 3 months in cooperation with the local organizations, to optimize the staff of the management, and to provide the controlling and hydro-technical areas with highly skilled professionals. During 1953, it was entrusted to make cleaning of the Grand Fergana Canal in the area from the dam of Kuyganyar until the Asaka siphon, and complete cleaning of the South Fergana Canal.

In 1955-1959, in the Fergana Valley they built 9 pumping stations, providing water for 10 thousand hectares. At the same time, the collector-drainage system's length has reached 37 thousand km. In order to avoid the disappearance of the filtered water, during seven years (1959-1965) in the areas with water shortage, 545 km of water channels were covered by concrete. On February 17, 1970, the Central Committee of Communist Party of Uzbekistan and the Council of Ministers of the UzSSR adopted a resolution "On the second stage in the construction of the Amu-Bukhara Canal". It noted that the transferring the water from the Amu Darya and the oasis of Small Zarafshan for the first phase of construction of the Amu-Karakul and Amu-Bukhara Canal has increased the water supply of irrigated land in Bukhara, Samarkand and Kashkadarya regions.

CONCLUSION

It was promised, that the commissioning of the second phase of the channel would allow increasing cotton procurement to 100 thousand tons; to receive additional horticultural products and more fully utilize the capabilities of agricultural production. However, these actions, in their turn, led to even more strengthening the Soviet policy of the cotton monoculture in comparison with the previous years. In 1981, in Namangan region in the state grape farm "Samarkand" the executive committee of the district council, based on the decision from 14 July of the same year, has allocated 630 liters of water, which made 65% of total plants water maintenance. Besides, in a result of numerous breakdowns at pumping station "Kukumboy" and its negative impacts on the environment 100 hectares of cotton, 90 hectares of maize, 10 hectares of beets, and 16 hectares of gardens have dried up, thus, the station did not justify the costs allocated for its construction. Carrying regular activities on the development of land and excessive construction of irrigation facilities in the end led to a shortage of water and to the global tragedy - the drying of the Aral Sea. As a result, the degree of water supply of irrigated land available in the area of the Aral Sea basin fell significantly. In

particular, out of 7 million hectares of irrigated land in the Aral Sea basin the level of water provision of about 2.5 million hectares was below 85%. In the region due to lack of 10-12 bln. m³ of water each year reduction in agricultural yields exceeded 600 billion rubs. In general, during the Soviet era the government ignored the problems of life and health of the local population and the fate of the inhabitants of the Aral Sea coast region. In order to increase cotton yields, in unlimited amounts they used toxic chemicals. Naturally, this process affected on the health of the population of the Aral Sea coast, the health of women and children, causing the occurrence of various diseases associated with the environment conditions. In the area year after year, the number of difficult-to-cure diseases was growing.

References:

- [1] T.Abdurakhmanova. Irrigation of our epoch (Present and future of the Uzbek irrigation).-Tashkent: Uzbekistan, 1976 (In Uzbek).
- [2] Z.M.Akramov, A.A.Rafikov.The Past, Present and Future of the Aral Sea. Tashkent. Mekhnat.1990 (In Russian).
- [3] L.A.Alibekov. The generosity of the desert. -Moscow: Thought, 1988 (In Russian).
- [4] Collection of legislation of the Republic of Uzbekistan.№17.April 29, 2013 - Tashkent: Adolat, 2013 (In Uzbek)
- [5] I.Karimov. Uzbekistan is on the threshold of gaining independence. - Tashkent: Uzbekistan, 2011 (In Uzbek).
- [6] I.Karimov. Uzbekistan is for a great future. - Tashkent: Uzbekistan, 1998 (In Uzbek).
- [7] R.Igamberdyev, A.Razzakov. The history of land reclamation in Uzbekistan (on the materials of the Mirzachul).-Tashkent: Science, 1978 (In Russian).
- [8] A.Mamedov. Development irrigation in Uzbekistan.-Tashkent: Science, 1967 (In Russian).
- [9] National Archive of Uzbekistan (NAUz), Fund.R.2483, List.1, Collective volume 1993, page 141.
- [10] Komilov, O. K., & Khamidova, R. F. (2022). TRAINING OF EXPERT PERSONNEL IN THE FIELD OF IRRIGATION IN UZBEKISTAN (1951-1990). *EPRA International Journal of Research and Development (IJRD)*, 7(8), 148-152.
- [11] G.Rizaev. Agriculture Uzbekistan for 40.-Tashkent: Gosizdat UzSSR, 1957 (In Russian).
- [12] A.Razzakov A. Water and life.-Tashkent: Mekhnat, 1991 (In Uzbek).
- [13] From the material of the general report for 1978th current archive of the irrigation system of the Norin-Karadarya rivers' basin management under the Ministry of Water resources Republic of Uzbekistan.
- [14] Fergana State Regional Archive (FSRA), Fund 711, List.1, collective volume 71, p. 44.
- [15] Komilov, O. K., & Khamidova, R. F. (2022). TRAINING OF EXPERT PERSONNEL IN THE FIELD OF IRRIGATION IN UZBEKISTAN (1951-1990). *EPRA International Journal of Research and Development (IJRD)*, 7(8), 148-152.
- [16] The information is taken from the interview with T.Hodjiboev (born on 20.02.1950 in Andizhan region) who was sent to Afghanistan in 1986-1988 by Ministry of water resources of UzSSR to work on the reclamation of the virgin lands (19.07.2016)
- [17] The information is taken from the interview with A.Razzakov (born on 5.08.1948 in Andizhan region), who was sent to Syria by the organization "Glavzarubejstroy" under the Ministry of the water resources of UzSSR to work with the land development in Steppe West-Maskene. He worked in Syria from June 1985 till June 1988. (19.07.2016)
- [18] The information is taken from the interview with D.Kuldoshev (born on June 12, 1949 in Pahtaabad city, Andizhan region) who was send by the organization "Glavzarubejstroy" under the Ministry of the water resources of UzSSR to the People Republic of Mozambique, Nampulo province. He worked in the state farm "Mezerpane" from September 1981 till February 1983 (20.07.2016).
- [19]RUZ President's Administration Archive of Ferghana regional branch, Fund-1, List-264, collective volume-239, page35.
- [20] Komilov, O. K., & Khamidova, R. F. (2022). TRAINING OF EXPERT PERSONNEL IN THE FIELD OF IRRIGATION IN UZBEKISTAN (1951-1990). *EPRA International Journal of Research and Development (IJRD)*, 7(8), 148-152.

- [21] Komilov, O. K. (2021). Modernization History of the Irrigation System in Uzbekistan (In the Example of the Period of Independence). *Design Engineering*, 6111-6120.
- [22] Oybek Kamilovich Komilov. (2022). LAND RECLAMATION AND IRRIGATION MEASURES OF VIRGIN LANDS IN KARSHI STEPPE. *Frontline Social Sciences and History Journal*, 2(01), 35–42. <https://doi.org/10.37547/social-fsshj-02-01-05>
- [23] Komilov, O. K. (2019). The history of the development irrigation and land-reclamation in Uzbekistan and its effects (1950-1990). *Theoretical & Applied Science*, (7), 265-269.
- [24] NAUz, F. R-2483, list 1, cv. 1382, p. 285 (back).
- [25] M.Spoor. Agricultural Restructuring and Trends in Rural Inequalities in Central Asia: A Socio-Statistical Survey. Programme on Civil Society and Social Movements. -Geneva: UNRISD, 2004.-P.6.
- [26] Komilov, O. K., & Yunusov, N. K. (2023). IRRIGATION SYSTEM IN UZBEKISTAN AND ITS MAIN MEASURES. *American Journal of Interdisciplinary Research and Development*, 13, 69-79.
- [27] NAUz, F. R. 837, l. 38, cv. 6112, p. 159.
- [28] KOMILOV O. Mastering of virgin lands in Uzbekistan (as an example of Surkhan-Sherabad deserts, 1950–1980). – 2024.
- [29] Komilov, O. K. (2022). From the history of irrigation and land reclamation in Uzbekistan (1950-1990). *American Journal of Interdisciplinary Research and Development*, 10, 416-417.
- [30] KOMILOV, O. (2023). Irrigation-melioration works in Uzbekistan (1950–1990).