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PECULIAR FEATURES OF THE POLICY OF DEVELOPING NEW LANDS IN THE CULTIVATION OF FINE-FIBER COTTON IN THE KARSHI DESERT

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Annotation: This article scientifically analyzes the specific features of the policy of developing new lands in the process of cultivating fine-fiber cotton in the Karshi desert. The study highlights the natural-geographical and climatic conditions of the region, the construction of irrigation systems, the implementation of meliorative measures, and the stages of involving desert areas into agricultural use. It also examines the large-scale land development policy implemented during the Soviet period, its economic efficiency, and ecological consequences. Furthermore, the improvement of this policy during the years of independence, the introduction of modern agrotechnologies, and the rational use of land resources are also considered.

Keywords: Karshi desert, fine-fiber cotton, land development policy, melioration, irrigation system, desert areas, agrarian policy, agriculture, environmental problems, agrotechnology, land resources, economic efficiency.

During the Soviet period, the policy of developing virgin and fallow lands, which began in the second half of the 20th century, became one of the most important measures for agricultural development. The need to expand crop production and increase cotton cultivation areas led to the necessity of developing new lands and constructing irrigation facilities. For this purpose, the construction of irrigation structures was initiated throughout the republic. When such measures were implemented together with melioration, they contributed to increasing both the diversity and productivity of agricultural crops. Therefore, in the process of land development, attention was paid not only to irrigation but also to meliorative measures. The science that generalizes and theoretically develops humanity's experience of transforming natural conditions for agricultural purposes is called agricultural melioration, or simply melioration. The term "melioration" comes from Latin and means "improvement." Meliorative works can be carried out in various sectors of the national economy [1].

Thus, melioration represents a комплекс of measures aimed at improving the productivity of lands that have become unsuitable either naturally or artificially. In general, melioration primarily includes irrigation of arid regions, drainage of waterlogged and swampy lands, and desalination of soils. The implementation of meliorative measures can transform lifeless deserts and barren lands into flourishing agricultural areas within a short period of time [2]. Meliorative infrastructure includes systems that lower groundwater levels and remove excess moisture from the soil, such as drainage networks, ditches, and collector systems. For example, vertical and horizontal drainage systems play an important role in reducing soil salinity in newly developed lands [3].

The resolution adopted on February 2, 1946, in the Uzbek SSR "On the plan and measures for the restoration and further development of cotton growing in 1946–1953" [4] defined the direction of agricultural development. As a result, attention to irrigation and melioration increased significantly in the republic.

In particular, specific plans for land melioration were developed for the years 1947–1950. Efforts were launched in all regions to improve land conditions and construct hydraulic structures. In Kashkadarya as well, meliorative measures began with the cleaning of existing drainage and irrigation channels. These activities were carried out depending on the geographical location of irrigated lands. In the upper reaches of Kashkadarya, natural geographical conditions did not require large-scale melioration structures, as groundwater was naturally discharged

through existing water sources. Therefore, only minor meliorative measures were carried out in these areas. In contrast, in the lower regions such as Karshi, Koson, and Beshkent, where groundwater levels were deeper and irrigation systems were underdeveloped, meliorative works were initially conducted on a smaller scale.

An analysis of the meliorative condition of irrigated lands in Kashkadarya during the 1950s–1980s shows that in the early years, land conditions were studied by regional water management authorities. By 1950, in upper regions such as Kitab, Shakhrisabz, and Yakkabog districts, soil salinity and waterlogging were at acceptable levels. To maintain these conditions, collector-drainage networks were cleaned twice a year. The planned volume of 17,000 m³ was exceeded, reaching 21,639 m³. In collective farms, 31 observation wells were established to monitor land conditions. In the lower regions, particularly in Karshi district, 11,200 m³ of land works were carried out in 1950, the Khudoyzot collector was constructed, and 16 hectares of waterlogged land were drained in the Sharq collective farm [4].

Until the 1950s, large-scale melioration projects involving major hydraulic structures were not widely implemented. In this period, especially in upper Kashkadarya, irrigation relied mainly on natural water sources. Following the decree of August 17, 1950, on transitioning to a new irrigation system, melioration activities intensified from 1951 onward. Farms were reorganized according to their territorial location, irrigation maps were developed, and unified canal systems were introduced. As a result, previously existing 120 km of irrigation canals were replaced by 11 new irrigation facilities [6].

The transition to the new irrigation system also changed water usage practices. Water became subject to pricing, and additional fees were introduced for overuse. Consequently, some farms reduced or abandoned irrigation use [7], which negatively affected land conditions. This system was implemented for only three to four years. By this time, irrigated lands in Kashkadarya expanded from the planned 31,000 hectares to 39,000 hectares. Land development and irrigation expansion continued until 1953.

Large-scale construction of irrigation facilities began in 1952, accompanied by the mechanization of melioration works. Compared to earlier periods, new meliorative infrastructures were partially introduced, and the cleaning of collector-drainage systems increased significantly. By 1955, cleaning operations reached 187,621 m³ mechanically and 19,863 m³ manually, several times higher than in 1950. The commissioning of the Eskianhor canal and the construction of the Chimkurgan reservoir created new opportunities for irrigating newly developed lands. However, this also increased the need for measures to prevent soil salinization.

In 1958, a rapid rise in groundwater levels was observed, particularly in Shakhrisabz, Kitab, and Yakkabog. That year, 476,638 m³ of collector-drainage systems were cleaned mechanically and 14,470 m³ manually, covering 137.2 km of inter-farm and 79 km of internal drainage networks [8].

On March 3, 1958, the Ministry of Melioration and Water Management of the Uzbek SSR adopted a resolution “On preventing water losses in canals and improving land melioration obligations” [9]. This decision aimed to strengthen melioration measures, improve irrigation systems, reduce water losses, and increase agricultural productivity.

In general, during this period, melioration was carried out within the limits of existing irrigated lands and available water resources, and the expansion of irrigated areas progressed gradually. However, the transition to new irrigation systems disrupted traditional irrigation practices that had developed over centuries. In the Soviet state, the development of irrigation and melioration became a central issue in agriculture, particularly as the foundation for cotton production.

As a result, great importance was given to the development of virgin and desert lands. One of the largest such projects was the освоение of the Karshi desert. The development of the Karshi desert required not only irrigation but also the construction of collector-drainage systems, land leveling, and extensive anti-salinity measures such as soil leaching. Depending on soil salinity, the Karshi desert territory was divided into two zones [10].

The first type includes lands where groundwater is stable, filtration through the soil is ensured, and the soils are not saline, nor do they become re-salinized as a result of irrigation. The other part of the desert territory consists of lands where groundwater is unstable and soil filtration is not ensured. Such lands are more or less saline, and if meliorative measures are not implemented, they become salinized again after irrigation. Desert areas generally belong to this category. Although the surface of the desert may appear non-saline, the subsoil layers are saline; after irrigation, rising groundwater levels quickly lead to salinization. As a result, crop yields do not meet expectations, and in some cases, the land becomes unsuitable for use [11].

For this reason, the implementation of irrigation and melioration measures is a crucial factor in the development of desert lands. In the 1960s, the level and condition of land melioration became directly linked with the policy of developing the Karshi desert. Starting from 1963, the construction of large main canals and reservoirs led to an increase in the area of newly developed lands. The master plan for desert development предусматривал that the construction of irrigation networks should be carried out in parallel with meliorative measures. It is known that in the first years after newly developed lands are brought into agricultural circulation, high yields can be achieved through irrigation alone, without immediate meliorative interventions. However, if such measures are not implemented in time, within 3–4 years the land becomes rapidly salinized and groundwater levels rise.

During this period, insufficient attention was paid to melioration alongside irrigation. Crop yields continued to increase annually. Priority was mainly given to the construction of large hydraulic structures, particularly the Southern Collector and its drainage networks. The construction of the Southern Collector was carried out between 1965 and 1967, and this meliorative structure, with a length of 98 km, was put into operation [12].

In 1965 alone, more than 270 km of collector-drainage networks were constructed [13]. The May 1966 Plenum of the CPSU Central Committee and the directives of the 23rd Congress of the Communist Party of the Uzbek SSR emphasized the development of irrigation and melioration works [14]. Water supply systems and irrigation infrastructure continued to expand rapidly year by year [15].

However, as a result, meliorative infrastructure for removing groundwater from newly developed lands proved insufficient. For example, in 1966 the total length of collector-drainage networks in the region was only 29 km, which amounted to just 2–3 meters per hectare instead of the required 30–60 meters. Melioration networks were not implemented according to the planned standards, which accelerated the deterioration of land conditions in subsequent years.

In the development and irrigation of the Karshi desert, the volume of irrigation construction exceeded that of planned meliorative measures. Although the construction of major hydraulic structures, collectors, and drainage systems continued, meliorative works were not carried out systematically in the newly developed areas. Once irrigation facilities were completed, water was immediately supplied to the lands without proper consideration of melioration requirements. For instance, the first pumping stations, canals, and initial sections of collectors were put into operation as soon as they were completed [16].

Conclusion: In conclusion, the policy of developing new lands in the Karshi desert for fine-fiber cotton cultivation played an important role in expanding agricultural production and increasing cotton yields. The construction of large irrigation systems, reservoirs, and canals

made it possible to bring vast desert areas into agricultural use and significantly strengthened the region's cotton-growing potential.

However, this policy was largely implemented with a priority on irrigation rather than a balanced approach that included melioration. As a result, insufficient attention to drainage systems, soil desalination, and groundwater regulation led to the rapid deterioration of land conditions. Rising groundwater levels and soil salinization reduced productivity and, in some cases, rendered lands unsuitable for further use. Thus, while the освоение of new lands in the Karshi desert brought short-term economic gains, it also created long-term ecological and agricultural problems. This experience demonstrates that sustainable agricultural development requires the integrated implementation of irrigation and melioration measures, as well as careful and rational management of land and water resources.

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