

PROCESSES OF AGRICULTURAL SPECIALIZATION IN THE ARAL SEA REGION: RICE CULTIVATION AND ITS CONSEQUENCES IN A HISTORICAL ANALYSIS

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Abstract: The article analyzes the process of formation of the rice-growing industry in Karakalpakstan in the 1970s–1980s, its impact on the regional economy, and existing problems in the sector based on historical sources. It also highlights the role of scientific and breeding work in the development of rice cultivation in the northern districts, the creation of local varieties such as "Nukus-1," and specific features of industry management.

Keywords: Karakalpakstan, rice-growing, state farms (sovkhozes), labor productivity, selection, "Nukus-1" variety, economic efficiency, water resources.

Аннотация: В статье на основе исторических источников проанализированы процесс формирования рисоводческой отрасли в Каракалпакстане в 70–80-х годах XX века, ее влияние на экономику региона и существовавшие в сфере проблемы. Также освещены роль научно-селекционной работы в развитии рисоводства в северных районах, создание местных сортов, таких как «Нукус-1», и особенности управления отраслью.

Ключевые слова: Каракалпакстан, рисоводство, совхозы, производительность труда, селекция, сорт «Нукус-1», экономическая эффективность, водные ресурсы.

Аннотация: Мақолада XX асрнинг 70–80-йилларида Қорақалпоғистонда шолчилик тармоғининг шаклланиши, унинг ҳудуд иқтисодийётига таъсири ва соҳадаги мавжуд муаммолар тарихий манбалар асосида таҳлил қилинган. Шунингдек, шимолӣ туманларда шолчиликни ривожлантиришда илмий-селекция ишларининг ўрни, “Нукус-1” каби маҳаллий навларнинг яратилиши ҳамда тармоқ бошқарувидаги ўзига хосликлар ёритилган.

Таянч сўзлар: Қорақалпоғистон, шолчилик, совхозлар, меҳнат унумдорлиги, селекция, “Нукус-1” нави, иқтисодий самарадорлик, сув ресурслари.

Throughout history, the fate of the peoples inhabiting the Aral Sea region has been intrinsically linked to the Amu Darya and Syr Darya rivers, and the Aral Sea itself. However, at the end of the 19th century, the Russian climatologist A.I. Voyzakov proposed the idea of draining the Aral Sea, which he deemed an "unnecessary lake".[1] Later, during the Soviet era, its implementation led to dire environmental and social consequences. Despite this, in the 60s–80s of the 20th century, large-scale measures were implemented in the Karakalpak ASSR to specialize agriculture, particularly the intensive development of rice cultivation in the northern regions.

In rice farming, production relations are defined by the forms of ownership, possession of the means of production, and methods of labor organization and distribution. In Karakalpakstan, during the 1980s, new state and collective rice farms (sovkhozes) were established, where the means of production belonged entirely to the state. According to K. Rzayev, the emergence of rice farming—a new sector capable of competing with cotton growing in the northern region—was a significant economic shift. [2]. In accordance with the resolutions of the March 1965 and May 1966 plenums of the Central Committee of the CPSU, rice cultivation began to develop rapidly in the lower reaches of the Amu Darya. Currently, 90,300 hectares of irrigated land have been allocated for rice crop rotation,

and 23 specialized rice-growing state farms have been established. In 1985, these farms produced 259,800 tons of rice. In terms of cultivated area and gross product value, rice farming has become the leading sector in the Taxtako'pir, Qo'ng'iro't, Leninobod, Nukus, and parts of the Chimboy districts. It should be noted that in the northern regions, the efficiency of cotton farming was significantly lower than that of rice farming. In unfavorable climatic years, this difference was clearly felt; cotton farming often caused economic losses, and the re-sowing of fields required additional labor and material costs. Rice-growing state farms, on the other hand, were more profitable than cotton-growing state farms, finishing their work annually with a profit of 1–2 million soums. [3].

In rice cultivation, labor productivity is measured by the ratio of the harvested crop to the labor input. This indicator is directly influenced by soil fertility, irrigation methods, technical equipment, agrotechnical measures, and the knowledge and skills of the personnel[3,4].

In the 1980s, new seed farms were established to further develop rice cultivation, and the material and technical base was strengthened.

In order to strengthen research work, a resolution of the Council of Ministers of the Karakalpak ASSR was adopted on July 29, 1981. Thus, the activities of the Sh. Musaev Karakalpak Research Institute of Agriculture and the Karakalpak branch of the Uzbek Research Institute of Rice Production have been expanded. As a result of selection, a new "Nukus-1" variety with a growing season of 110–115 days and a yield of 60–70 c/ha was created and tested in 1980. This variety showed an average yield of 3.6 centners higher than the "Uzbekistan-5" variety. [5].

Nevertheless, the network also had a number of problems:

- Due to the lack of scientific recommendations, the rice paddies were damaged by weeds;
- The shrinkage of rice and the incomplete destruction of red grain forms negatively affected the quality of the product;
- The material and technical base of scientific institutions (repair workshops, chemical analysis equipment) was insufficient.

Analysis shows that efforts have been made to eliminate problems such as territorial fragmentation and the inefficient use of resources by concentrating rice cultivation within administrative districts and improving management [6]. The relevant resolution of the USSR Council of Ministers in 1980 served to provide rice farming with mineral fertilizers and strengthen the material and technical base [7]. However, by the late 1980s, the depletion of water resources led to a reduction in rice cultivation areas. [8].

Territorial redistribution of production was of great importance for the optimization of agriculture and the development of the rice complex in Karakalpakstan. Such measures contributed to increasing management efficiency, improving infrastructure, implementing innovative solutions, and ultimately further expanding agricultural production.

In the memoirs of the former agronomist Allambergenov Yesemurat, the rice farming activity is described as follows:

"The optimal date for sowing rice is the period from April 25 to May 25." This agrotechnical measure was to be completed within a month. Previously, 1 ton of nitrogen and 800 kg of phosphorus fertilizers were applied per hectare... The most productive year for the former state farm was 1975, when the Altynkul state farm harvested 52 centners per hectare. The total yield was 22,000 tons. Thanks to this efficiency, Sarsenbay Kurbanbaev, an advanced worker of the Altynkul state farm, was awarded the title of Hero of Labor in 1976 [9].

Although these achievements were the result of the heroic labor of the peasants, they were realized through the extensive economic method of the totalitarian era. The misuse of land and water rules later became one of the factors that led to the Aral Sea tragedy. The Karakalpak ASSR is one of the regions with high thermal resources for rice cultivation. However, in the autonomous republic, rice yields decreased to 26.1 centners in 1982. This is 20 centners less than in 1981, and despite favorable climatic conditions, the main reason was the sharp shortage of irrigation water in the Amu Darya [10].

Nevertheless, interviews with former rice farmers show that the view that the expansion of rice fields in the region was a direct cause of water scarcity is controversial. In particular, Madenov

Abdigani, a veteran from Muynak born in 1938, based on his observations: "I do not agree with the opinion that water shortages occurred due to the widespread development of rice farming in Karakalpakstan." Because the decrease in the water level of the Aral Sea began in 1960–1962..." [11].

To increase rice yields and strengthen human resource potential, the agricultural technical school located in Turtkul, which was later relocated to Nukus, became a major center for training mid-level specialists. In the 1980–1981 academic year, the number of its students reached 1,283 [12].

Furthermore, in August 1983, an All-Union seminar titled "Implementation of Intensive Agrotechnical Methods in Rice Cultivation and Programmed Rice Cultivation" was held in Karakalpakstan, attended by domestic and foreign scientists and industry leaders [13].

As a result of training highly qualified personnel and applying advanced experience 61,000 tons of rice were produced in Karakalpakstan in 1983 [14].

In order to improve the irrigation system and stabilize the ecological situation in the region, a 120-hectare irrigation system was created between the Ustyurt collector and the Raushan canal based on the Uzgirovodkhoz project between 1984 and 1986, along with the construction of the Sholi canal [15].

Such measures, as well as the center's resolution "On measures for the further development of rice farming" (1980), served to provide material and technical support to the industry.

In conclusion, the development of the rice industry in Karakalpakstan in the 70s and 80s of the 20th century was of great economic and social importance and served to stabilize the region's agriculture. The creation of new varieties adapted to the local climate, such as Nukus-1, and the introduction of scientific achievements into production have increased labor productivity. However, the extensive development policy implemented without considering the limitedness of water resources subsequently led to serious environmental problems. This indicates the need to strictly account for economic factors when placing agricultural sectors in the future.

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