
IN KASHKADARYA PROVINCE MELIORATIVE - ECOLOGICAL CONDITION OF IRRIGATED LANDS

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Abstract

This article describes the state of reclamation of irrigated land areas in Kashkadarya region and its changes, causes, consequences, and ongoing measures.

Keywords: agrolandscape, agroecosystem, natural territorial complex, land reclamation, irrigation networks, irrigated lands, ecosystem, degradation, desertification, collector-drainage.

Introduction

It is known that the land area of any country is the leader among its national wealth in terms of its national wealth and importance. Measures of political, legal, organizational, economic and social importance are being implemented by our state for the purpose of rational use of land resources. Indeed, land differs from other reserves in that it is a natural resource and the main means of production in agriculture. After all, the wealth of land is the population of the country it is not a secret to anyone that it supplies its needs for food products and industry with raw materials. Due to the fact that each economic sector requires certain conditions for its development, the components of the natural territorial complex of Kashkadarya region also have their own geographical description. Scientific analysis of these factors is important to increase the possibility of effective use of agricultural systems of the region. In particular, geographical-ecological assessment works are of great importance for irrigation farming in the natural territorial complexes of Kashkadarya region.

The main part. The state of the ecological situation and the direction of its change is one of the most important criteria in the process of using natural resources. When using any resource, it is necessary to pay attention to the ecological situation of the area and its direction [1; p. 20].

Deterioration of the ecological situation, which is one of the urgent problems of agriculture, prompts experts in the field to develop measures to preserve and protect against the unpleasant consequences of the natural environment. Naturally, it is impossible to solve all the agroecological problems that have arisen in the near future, but it shows that the main problems that form the basis of agricultural production must be under the constant control of scientific researchers. V. V. Udalov, O. G. Nazarenko (2003). considering the functions of the agricultural landscape gave the following definitions. An agroecosystem is a stable ecosystem that is artificially created and regularly maintained by humans for the purpose of producing agricultural products. Agroecosystems are components of agrolandscape. Agrolandscape is a set of different ecosystems in nature, united by a single production and territorial principle [3; p. 63-89].

The agricultural landscape is characterized by ecological instability. The equilibrium state of the agrolandscape is ensured by the system of agrotechnics, reclamation and environmental measures. In the analysis of the state of agricultural landscapes, the steepness, length, shape and exposure of the surface

slopes, the size of the contours, the hydrological regime, the type, variety and degree of soil erosion, the distance of water sources from the farm, the availability of land reclamation systems and communication routes that connect the territory with each other should be taken into account.

Soil erosion, floods, landslides, karst and other geodynamic processes, which determine the ecological situation, and their negative impact on the environment, are especially pronounced in mountainous areas. In particular, a number of ecological problems can be observed in mountainous areas of Kashkadarya region, such as the dangerous nature of floods in spring and autumn, degradation of soils and plants in mountainous regions, reduction of forest area, rapid washing of mountain slopes towards the mountains of the region.

Among the natural geographical processes, water erosion, wind erosion, gravity processes, floods, silting, waterlogging, salinity, and mud formation have the most negative impact on agricultural production in the irrigated agricultural zones of Kashkadarya region [2; V8, Issue 5]. In order to effectively fight against natural geographical processes that have a negative impact on agricultural production, it is necessary to study them comprehensively. Processes that occur in the geographic crust or some of its parts and lead to changes in quantity and quality are called natural geographic processes. Prevention of such incidents and fighting against them, nature protection plays an important role in the rational use of land resources. In fact, one of the founders of soil science V.V. As Dokuchaev said, "The soil is a mirror of nature", the soil cover is the result of the physical, chemical and biological processes of the natural elements that are interrelated, interacting and requiring each other for a long time in the lithosphere, hydrosphere, atmosphere and biosphere. Indicators determining the quality of land are the main factors for land use and measures to protect it.

It is known to everyone that processes expressed in soil impoverishment, such as soil degradation - salinization, erosion, desertification, make the land unsuitable for agricultural use. However, this is a general situation, and in this regard, the land used for agriculture, especially the irrigated land, is of great importance.

According to the data of January 2022, within the territory of Kashkadarya region, which is located in 3 geomorphological zones that differ from each other in terms of natural geography and ecology, the salinized area in the region is 232,389 thousand, of which the strongly saline area is 9,650,000, the weakly saline area is 184,690,000, on average the saline area is 38139 thousand ha [6].

According to the information on soil salinity level of irrigated land areas of Kashkadarya region (0-100cm thickness) Kason 46910, Nishon 34625, Kasbi 31344, Mubarak 28861, Mirishkor 26290, Karshi 23030, Guzor 22748, Qamashi 16243 land area salted. Of these, the highly saline areas are 2700 ha in Koson, 2840 ha in Mubarak, and 1834 ha in Nishon. corresponds to districts. In our conducted researches, the salinized areas in farms of Nishan district are as follows: Samarkand 3078 ha, Turkmenistan 3052 ha, Khamza 3180 ha, Aydin 2983 ha, Ibn-Sina 2212 ha. is The areas with the strongest salinity are Aydin (Nishan) 640 ha, Al-Khorazmi (Mubarak) 1040 ha, Bukhara (Mubarak) 485 ha, Gulbog (Kosan) 481 ha, Silk Road (Karshi) 315 ha. is The salinity of irrigated soils also naturally increases downstream. For example, due to the absence of salinity in the irrigated soils in the mountainous part of the Kashkadarya River. This situation, in turn, indicates that the soil of the Karshi desert has a high level of salinity and the rise in the level of underground water. The size of the saline areas in these areas is related to the location of the Karshi desert in the arid zone and the high level of evaporation in the soil composition and soil cover. Consequently, the lack of constant surface flow, the presence of dry riverbeds and the high salinity of the soil-grounds, much more evaporation compared to the precipitations are characteristic of the Karshi desert. As a result of the development of land without taking into account the specific characteristics of the Kary desert, processes such as soil washing,

various manifestations of erosion phenomena, and the rise of the underground water level are observed in large areas. As a result, many damaged landscapes were created [4; pp. 46-51].

According to the data of Kashkadarya Branch LLC (agrochemical laboratory), provision of humus (humus) of the land area in the region is defined as 11394 low, 6583 average, and 3798 high indicators of the total inspected area of 25320.2. Supply of land areas with mobile phosphorus is defined as 9115 low, 3544 average, and 1012 high indicators of the 25320.2 total inspected area. The supply of land areas with variable potash is defined as 12913 as low, 7596 as average, and 4051 as high. Phosphorous fertilizers allocated for grain in the region in 2021 will be 44 ha/kg, potash fertilizers will be 16 ha/kg. But even this amount is insufficient to increase the fertility of the land due to the poor soil humus. According to M.A. Pankov (1969), the amount of salt in the 10-meter layer of each hectare in the Karshi desert ranges from 680 to 3786 t per hectare. At the moment, the level of salinity of the soil and water is increasing as a result of unreasonable agrotechnical activities, that is, the excessive use of mineral fertilizers and the use of toxic chemicals to protect against pests. In particular, in the arid plains of the oasis, very little precipitation, high evaporation of moisture from the soil, increases the salinity of the soil. Sudden changes in the daily and annual amplitude of air temperature increase weathering. The soils scattered in Karshi, Koson, and Nishon districts are very prone to salinity, and they are always in need of irrigation and drainage reclamation. In the center of the Karshi desert, groundwater is of the non-flowing or low-flowing type, and the concentration of salts in these waters is higher than in mountainous areas. In addition, due to the occurrence of Harmseel and Afghan winds, which are unique in these districts, the small particles of the soil are blown away, resulting in a decrease in soil fertility, air pollution due to dust rising in the atmosphere, and dusty days lasting for weeks.

The results of the analysis of statistical data of Kashkadarya region show that the highest quality of irrigated land is observed in Shahrisabz district (72 points). Soil quality is higher than the regional average in Yakkabog (60 points), Kasbi (64 points) and Qamashi (58 points) districts, where factors such as the salinity level of irrigated land and the location of underground water have little influence. In the rest of the districts, the credit rating is lower than the regional average. Improving the quality of land in districts located in the desert zone is a priority. Currently, the results of soil mapping in the region and corrections to soil monitoring show that the quality of the soil in the desert districts is decreasing in the following years [5; 893-899 pp.].

The main part of the land used as arable land in agriculture is located in the districts of Koson, Mirishkor, Nishon, Karshi, Mubarak and Kasbi on the slope of Karshi. In these districts, it is necessary to build and reconstruct existing reservoirs against salinity and contamination of the land. It is also important to apply measures against soil erosion in the districts located on the sloping and undulating plains of the foothills, such as Yakkabog, Qamashi, Kitab, Guzor, Chirakchi, Shahrisabz. 1/4 of the area of Kashkadarya region is occupied by mountains, and activities aimed at increasing the productivity of land in such intermountain farming areas are of great importance.

Summary

Thus, the effectiveness of irrigated land in the agricultural production of Kashkadarya region is very high, and the country occupies a leading position in the gross yield of cotton and grain. As a result of regular monitoring of the condition of irrigated lands, it is possible to get the expected harvest. From this point of view, it is desirable to modernize and diversify agriculture, to adequately control the reclamation of irrigated lands.

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