BG Pulse Journal USA
ISSN:1947-2536 http://www.bgpulseusa.com/index.php/bg

USE AND CONSERVATION OF SECONDARY WATER RESOURCES. (BUKHARA PROVINCE IS AN EXAMPLE)

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Doi: https://doi.org/10.5281/zenodo.24014848

Abstract: Currently, as a result of excessive use of water resources, their reduction and deterioration in quality is causing a number of environmental problems. That is why the study and protection of the dynamics of collector-wastewater, which is used for irrigation and is formed in cultivated fields, is considered one of the urgent problems.

Key word: Water resources, cultivated areas, pollution of water resources, rational use of water, ecological problem.

Enter. Despite the fact that water resources are limited in our republic, little attention is paid to water conservation, as a result, most of the water is wasted. During the years of independence, a number of laws, decrees, decisions and other normative documents regulating the development of agriculture were adopted.

In our republic, comprehensive measures are being implemented in connection with the rational use of water resources, the purification and reuse of wastewater, the development of water-saving technologies and equipment for irrigation, and certain results are being achieved. In the 31st goal of the development strategy of New Uzbekistan for 2022-2026, including ".... "Saving at least 7 billion cubic meters of water due to effective use of water resources" is an important task. In the implementation of these tasks, among other things, the construction of the collector-water system, the integrated use of water resources, the development of improved methods of mitigating the water shortage and their effective use are of significant scientific and practical importance.

Purpose and tasks of work. Determining the features of the formation of collector-zozur (inter-district, inter-farm and intra-farm) waters in the irrigated areas of Bukhara region, changes in hydrological indicators by district and relatively less mineralized collector-zozur waters are resistant to salt (Cotton, alfalfa, rice, wheat) is used as additional water resources in various sectors of the economy.

Main results and their discussion. Based on the scientific results on the use and protection of collector water in the irrigated areas of Bukhara region, changes in the quantity and quality of collector water were determined and evaluated, as well as the level of mineralization and hydrological indicators of collector water. It was determined that it depends on the amount of water received for irrigation purposes. As a result, an opportunity was created to use and protect mineralized collector water in agriculture. The role and importance of water in nature and in the ecological system is extremely important, according to academician Oparin's theory, it forms the basis for the emergence of life on earth and its development. Water is important in the exchange of matter and energy in nature, especially in the regeneration of the plant world.

The ecological basis for protecting water resources from pollution, evaporation and depletion is that water is an integral component of the ecological system, that is, it is a factor that ensures the existence of life on earth. Pollution, evaporation, even poisoning and reduction of water, which is a whole system of nature, causes the biological balance of the occurrence of negative processes in

this system, as well as the destruction of matter and energy in it, and has a negative impact on the world of flora and fauna, including human health.

Scientifically based recommendations on the protection and rational use of collector water in the region have been given. Great attention has been paid to the creation and improvement of the legal framework for the rational use and protection of nature, including water resources, However, changes in the quality and quantity of catchment water used for irrigation purposes, mineralization and hydrological indicators of catchment water, changes in the hydrological indicators of catchment water by districts, economic benefits from catchment water use as additional water resources in various fields, between the Central Bukhara, North, Ayokogitma and other districts in the relatively less mineralized Bukhara region, the water-salt regime of inter-farm and intra-farm collector-water bodies has not been sufficiently studied and evaluated.

This article contains opinions on the use and protection of collector ditch waters in the region. [4].

Usually, collectors are placed in the lowlands, along the boundaries of agricultural and crop rotation fields. In flat areas, the length of collector-zovors is built at an interval of 0.8-1.2 km from each other, taking into account the operation of agricultural machinery. The most common dimensions of the cross-section of collectors;

- household collectors - depth 3.0-6.6 m, width of the bottom 1.0-1.5 m, width of the shore of the collector 40-80 m

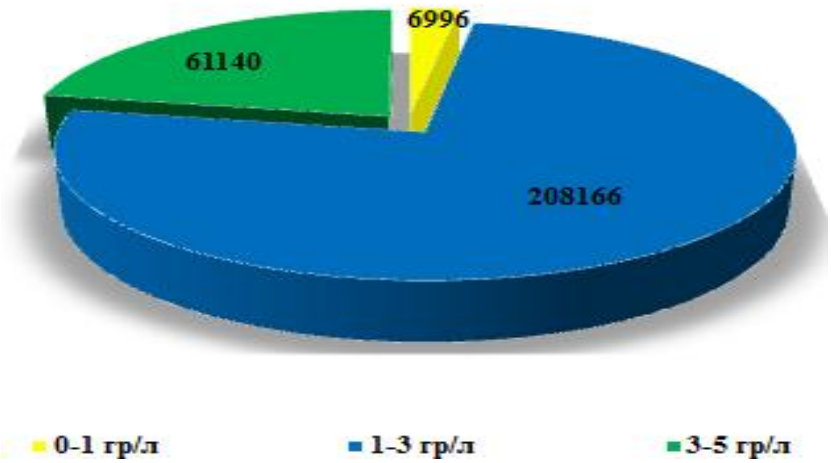
- in inter-farm collectors, the above indicators are 4.5-8.0 m deep, 1.0-3.0 m deep, and 80-140 m along the shore of the collector, the main collectors are even larger. The slope of inter-district collectors should be 1:1.5, 1:2.5, and the slope of the bottom should not be less than 0.003. The use of artificial irrigation leads to the consumption of water for filtration, and this leads to the rise of the level of seepage waters in lands with a low level of natural drainage. In order to lower the level of sizot water and remove it outside, collector-sink networks are widely used.

It is impossible to imagine improving the reclamation condition of irrigated lands in the Bukhara region without collector-water supply networks. In the conditions of Bukhara region, in order to improve land reclamation or to maintain it at the same level, at least 40-45 percent of the water supplied to the irrigated areas should be discharged through drains.

Otherwise, the water-salt balance in the fields will be disturbed. In 2023, 3,597.50 million m3 of water was taken to the irrigated areas, of which 1677.03 million m3 was discharged through the collector-growers. Sewage from the territory of the region is discharged through the "Bosh Karakul", "Dengizkol", "Parallel", "Central Bukhara" and "Garby Romitan" collector-sources.

1-rasm.

Level of mineralization of underground water of irrigated areas of Bukhara region (per hectare)



The total land area of Bukhara region is 40.3 thousand square km. Of this, the irrigated area is 274.6 thousand hectares. Of this, the areas with 0-1 g/l are 6996 hectares, the areas with 1-3 g/l are 208,166 hectares, and the areas with 3-5 g/l are 61,140 hectares. Today, the total length of 8851.60 km of collector-zovur networks is used for the cultivation of salt-resistant crops in the regional agriculture and in other areas of the economy, and in times of water scarcity, especially during the growing season, after the initial irrigation, the collector-zovur ratio is 50/50. re-use of networks in irrigated agriculture, prevention of water demand in farms, improvement of land reclamation of irrigated areas, soil It also serves to increase productivity and protect the environment.

1-jadval

Recommended intervals for the placement of collector-exhaust networks

The depth of the sizot water before digging the zovur, m	Zovur range, m		
	Soil with heavy mechanical composition	Soil with average mechanical composition	Soil with a light mechanical composition
2-3	250-300	300-400	400-600
1-2	200-250	250-300	300-400
0-1	100-150	150-200	200-300

As can be seen from the table, it is necessary to pay attention to the composition of the piles when digging trenches. When digging ditches with a depth of 2-3 m, their interval is up to 250-300 m in soils with a heavy mechanical composition, up to 300-400 m in soils with an average mechanical composition, 400-600 m in soils with a light mechanical composition. should be up to When digging ditches in areas with a water depth of 1-2, their spacing should be 200-250 m in soils with a heavy mechanical composition, 250-300 m in soils with an average mechanical composition, and 300-400 m in soils with a light composition. Digging trenches in places with a water level of 0-1 m and their spacing is 100-150 m in soils with heavy mechanical composition, 150-200 m in soils

with medium mechanical composition, and 200-300 m in soils with light mechanical composition. should be.

2-jadval

Existing collector-drainage networks in the districts of Bukhara region

t/r	Name of districts	Over the years	Total length of collector-drainage networks (km)
By province		2024 2025	8743.04 8851.60
1	Bukhara	2024 2025	901.18 901.18
2	Vobkent	2024 2025	271.59 271.59
3	Jondor	2024 2025	1425.96 1442.79
4	Kogon	2024 2025	781.27 791.72
5	Olot	2024 2025	1345.68 1379.68
6	Peshku	2024 2025	480.39 504.10
7	Romitan	2024 2025	834.19 830.70
8	Shofirkon	2024 2025	617.16 619.26
9	Qorako‘l	2024 2025	1216.23 1216.18
10	Qorovulbozor	2024 2025	491.93 517.87
11	G‘ijduvon	2024 2025	377.46 379.53

When using collector water with a mineralization level of up to 6 g/l on saline lands, the rate of salt washing is increased by 35¬-40 percent. When using mineralized collector water to irrigate agricultural crops, the salts in the water have a negative effect on the plant, especially in its initial stages.

In order to ensure a moderate seedling thickness on irrigated lands, the planting rate should be increased from that under river water irrigation conditions. One of the main factors of creating an abundant harvest from agricultural crops in the irrigated areas in the region is the provision of water to the irrigated areas.

During the year, 5.6 million tons of various harmful salts were added to the irrigated areas with the water taken to the border of the region, and 6.43 million tons of harmful salts are removed from the irrigated areas every year through ditches.

We can see that the water coming out through the collectors is 8.33 million tons more than the added salt.

The salinity level of the existing collector-source waters in the region varies. The main reason for this is the hot weather and the high salinity of the irrigation water and soil. [2].

Conclusion. The total irrigated land in the Bukhara region is 274,600 hectares, mainly using the water resources of the Zarafshan River from the Amudarya through the Amu-Bukhara machine canal. A total of 4.1-4.3 billion m3 of water resources are used for agriculture in a year for the purpose of irrigation. Every year, 1.9-2.1 billion m3 of water is removed from the irrigated areas through collectors. In the years of water scarcity, 60-61% of the collector water can be re-used in irrigated agriculture, and 5.2-5.3% of river water can be used to irrigate agricultural crops. This information is one of the important factors in the protection of regional water resources and their rational use.

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