



**EFFECTIVE FROM THE WATERS OF THE NORTHERN MAIN
COLLECTOR POSSIBILITIES OF USE
(ON THE EXAMPLE OF BUKHARA REGION)**

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Abstract

This article examines and analyzes the reclamation status of currently irrigated lands in Bukhara region and the northern collector ditch network in the region. There is also information about large ditches in the region and changes in their mineralization

Keywords: Irrigated lands, ditches, water resources, collectors, ditches, reclamation of lands, natural drainage, mineralization of water.

Introduction

After gaining independence, the country has taken comprehensive measures in all areas, including the efficient use of available water resources, improving the condition of irrigated lands, increasing soil fertility, the formation of additional water sources, and as a result, positive results are being achieved. PF-60 of the President of the Republic of Uzbekistan dated January 28, 2022 "On the development strategy of the New Uzbekistan for 2022-2026," Introduction of intensive methods, first of all, modern agro-technologies that save water and resources.

In carrying out these tasks, including the construction of collector-drainage systems, mitigation of water shortages and their effective use, they play an important scientific and practical role.

More than seventy percent of the territory of the republic belongs to the coastal, ie desert and foothill, semi-arid steppe zone. The oases created in this zone are satisfied with the socio-economic systems and water supply of the population, mainly at the expense of water sources coming from other areas. Therefore, today the problem of drinking and irrigation water in our country is one of the tasks at the level of state policy. In particular, this problem is a matter of life and death for the Bukhara region, located in the central desert zone of the country. The demand for drinking and irrigation water in the region is met by the Amudarya water through the Amu-Bukhara canal.





This water is pumped to the above lands through a series of pumping stations and is costly. Currently, access to water from the Amudarya River is becoming increasingly complex. The reclamation situation is more complicated, especially in the middle and lower parts of the region, due to the slow movement of groundwater and its proximity to the surface.

First of all, when digging ditches, it is important to place the collector-ditch networks correctly in the plan. It is advisable to run the ditch along the main slope of the land between the irrigation canals.

As the ditches deepen, the effect of groundwater pressure also increases and leads to an increase in water flow in the ditch. The deeper the ditch, the lower the groundwater level, and the longer the ditch's impact area. When calculating the distance between the ditches, a given modulus of the ditch water flow is considered.

The distance between the ditches also depends on the depth of the ditches and the rate at which the groundwater level drops.

The deeper the groundwater level in the ditch, the shorter the ditch interval should be. Ditches with a depth of 2-2.5 m can reduce the groundwater level at a distance of 100-125 m in soils with heavy mechanical content, and 200-300 m in soils with light mechanical content.

There are many collectors (ditches) and sewage lakes (black lakes) in the region. Examples are the North, Ogitma, Parsonkul ditches, Dengizkul, Shurkul, Ayogogitma, Karakir lakes.

The amount of water from the collector-ditches of Bukhara region, water consumption and level of mineralization.

Table 1

No	Name of collectors	Water consumption m ³ / s	The amount of water mln. m ³	Solid residue g / l
1	Dengizkol collector	16.08	507.07	5.867
2	General Karakol collector	2.16	68.13	5.358
3	North collector	25.27	796.77	2.867
4	Central Bukhara collector	13.85	436.76	3.063
5	Fertilizer collector	0.53	16.71	2.488
6	Parsankol discharge	33.25	1048.69	4.534
7	Tashkuduk collector	4.08	128.63	4.782
8	Халач collector	0.84	26.56	3.244
9	West Ромитан collector	3.19	100.59	3.081

*Note: The table is based on data from the Amu-Bukhara ITXB.





As can be seen from the table, the analysis of the amount of water, water consumption and mineralization levels of inter-district collector ditches in Bukhara region by the staff of the Department of Irrigation Basins revealed the following.

Central Bukhara collector water consumption 13.85 m³ / s, water volume 436.76 million m³, salinity level 3.063 g / l, Fertilizer collector water consumption 0.53 m³ / s, water volume 16.71 million m³, salinity level 2.488 g / l, Northern collector water consumption is 25.27 m³ / s, water volume is 769.77 million m³, salinity level is 2,867 g / l, and Dengizkul collector water consumption is 16.08 m³ / s, water volume is 507.07 million m³, salinity level is 5,867 g / l.

The Northern Interdistrict Trench was commissioned in 1948 and has a length of 139.9 km and a flow capacity of 56.5 m³ / s. The northern inter-district collector removes groundwater from crop fields in Gijduvan, Shafirkan, Rometan, Peshku and Vobkent districts of the region.

Figure 1



Figure 1 North ditch

The collector flows through the territory of these districts and discharges its water into the Karakir discharge lake.



Figure 2 North ditch

The chemical composition of the northern collector-ditch waters in the region has been studied, divided into good quality, satisfactory, unsatisfactory, generally unsuitable, and recommendations on the conditions of their use in agriculture have been developed.

When using saline soils from collector-drainage waters with a salinity of up to 6 g / l, the salinity leaching rate is increased by 35-40%. When mineralized collector-ditch water is used to irrigate agricultural crops, the salts in the water have a certain negative effect on the plant, especially in its early phases.

In order to ensure a moderate seedling thickness in irrigated lands, the planting rate should be slightly higher than in the case of irrigation with river water. One of the main factors in creating a rich harvest of agricultural crops on irrigated lands in the region is the stabilization of the balance of irrigated lands.

During the year, 5.6 million tons of various harmful salts are added to the irrigated areas by the water received at the border of the region, and 6.43 million tons of harmful salts are annually removed from the irrigated areas through ditches. We can see that the water discharged through the collector drains is 8.33 million tons more than the added salts. The salinity of the wastewater in the existing collectors in the region varies. The main reason for this is the warm weather and the high salinity of the water supplied to irrigation and soil composition



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