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POLLUTION OF GROUNDWATER RESOURCES LOCATED IN THE SANZZOR RIVER BASIN

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It is known that the water of Sangzor river together with the wastewater from industrial enterprises, poultry complexes, hospitals, car factories, household utilities in the city of Fallaorol and the mineral fertilizer saturated with mineral fertilizers from the irrigated fields around Fallaorol and household waste water is polluted due to disposal through three collectors (Karabulok, Kichikbulok and SHorbulok)[1-3]. Long-term observations have shown that the salinity of this wastewater flowing into the Sangzor River reaches 2.7-3.2 g|l and the hardness exceeds 20-31 mg.eq|dm^3. The amount of chloride, sulfate, phosphate, nitrate and nitrite ions in water is increasing year by year. In particular, the amount of iron in water increased from 0.007 mg|l to 0.35 mg|l and the amount of solid residues (substances that do not settle in water) increased by 1.5-2 times.

In order to improve the hydromelioration condition of land in Jizzakh region, a lot of ditches and drainages have been dug and are being used. These include Qli, GPK-S, Karabulok, Shorbulok and others. Return water consumption in Qli ditch-drainage is 0.65-8.48 m^3/sec, GPK-S is 1.95-3.65 m^3/sec, Karabulok-Shorburluq is 1.56-2.08 m^3/sec is enough. The quality and salinity of return water in Zovur-drainages is similar to that of ground seepage water distributed in these places and is on average 2.72 and the highest is 7.91 g/l. Studies have shown that the water quality parameters of sulfates are 10-12 times higher, chlorine 8-10 times higher, magnesium 10-19 times higher and sodium-potassium 10-18 times higher than the standards set for running water.

It is known that ground water in pre-mountain and inter-mountain depressions is saturated due to rains, seepage from rivers, canals, reservoirs and water flowing (leaking) from the mountain region through cracks and tectonic breaks. According to the natural conditions of these regions, ground water is fresh only in the basin of the Sangzor river, in the cones of the Ravot and Zomin rivers, on the northern slopes of the Northern Nurota mountains and in the rest of the places, the water is salty and the underground soil is water salinity exceeds 2 grams.

It is known that the upper Sangzor underground water deposit is located in the valley of the Sangzor river on the territory of Fallaorol and Bakhmal districts. Groundwater is distributed in alluvial, prolluvial sand, sandstone and gravel deposits belonging to the Quaternary period. They appeared from the seepage of the Sangzor River, the Eskituyatatortar canal and the Chumkortog streams[4,5]. Based on the observations, it was found that the quality of underground water here is good and has not changed.

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Sources of mine water pollution have not yet been identified. Currently, the water of the mine is used for public needs.

The Sangzor underground water field is located in the cone spread of the Sangzor River, which has an important place in Jizzakh region in terms of its resources and water quality. Groundwater in this mine is scattered in gravel-gravel deposits of the Quaternary period. The waters of this mine originate from the water absorption of the Sangzor River and if water is taken from the mine without complying with the requirements of the project, the flow of the river will decrease and lead to a violation of the general water balance. Natural water resources of the mine are 259.2 thousand m^3/day [1-3].

Currently, the main water pumping facilities of the region are located in this underground water field. The quality of groundwater is good, but in the peripheral parts of the cone spread, groundwater is more saline and salinity exceeds 1.3-1.8 g/l. At the same time, the underground water of the mine has a high level of hardness, it is 8-10 mg.equiv/l. Long-term observations show that the waters of the underground water field are polluted mainly by waste water flowing from the city of Fallaorol.

It is known that, based on the geological structure of the Sangzor underground water deposit, there are 2 water distribution basins, they are the basin of the Molguzar and North-Nurota mountain ranges. The lower watershed of the Sangzor River is located in the hydrogeological region of Mirzachol, the main part of which is included in the territory of Jizzakh district. The upper water basin is located in the territory of Bakhmal district and the formation of underground water and hydrogeological conditions are different compared to the lower water basin of the Sangzor river.

The underground water basin of the Sangzor River is located in the middle part of the upper Quaternary layer and is spread over a certain area. The aquifer is mainly located in the underground gravel and sand deposits. In the exit cracks of the underground water, the water is under no pressure and the pressure on the inner layers of the earth increases more and more. From the observations, it was found that the mineralization of underground water is lower in front of cracks (0.6-0.8 g/l) and increases as it deepens (2.8-3.2 g/l). Here, the main source of underground water pollution is the seepage of surface water along the Sangzor riverbed, return water from irrigation networks and field irrigation.

Thus, the mineral content of underground water is at the level of OzDSt-950 (drinking water) norms, but its hardness is higher than the norm.

Sources of pollution (Jizzakh battery plant JSC, regional oil enterprise, chemical fertilizer base, etc.) are located in the territory of the Sangzor water basin, which are the main factors of groundwater pollution. Because groundwater pollution depends on the sources of pollution in the basin.

Therefore, biogenic substances in water - ammonium (17.2-18.9 mg|l), nitrite (0.6-0.9 mg|l), nitrate (8.9-9.8 mg|l), phosphate (8.5-9.8 mg|l), sulfate (115.5-123.6 mg|l), chloride (320-365 mg|l) ions are indicators of mountain and sub-mountain zones is higher than the side. Such pollution of water resources can lead to the accumulation

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of all kinds of organic, inorganic and other substances in this water and change its quality.

Rawat underground water mine is located in Jizzakh and Zarbdar districts. Groundwater is distributed in prolluvial sandstone-gravel deposits of the Neogene-Quaternary period in the Ravotsoy cone spread. The waters of the mine appeared from the water seepage of the Ravot River, the streams on the northern slope of the Molgozar Mountain and the seepage of water from the irrigated fields [5-7]. Groundwater Groundwater with a salinity of 1.3-1.8 g/l is distributed in the western part of the mine, and the quality of the ground water in the rest is good, there are no sources of pollution.

Zomin underground water deposit is located in Zomin district. Groundwater is distributed in prolluvial harsang-sandstone and gravel deposits belonging to the Neogene-Quaternary period in the cone spread of the Zomin River [5-7]. The water in the mine appeared from the absorption of water from the Zaminsuv river and streams on the south side and from the seepage of return water from canals and irrigated fields on the north side. Observations showed that the water quality of the underground water field did not exceed the norm, but in the northern part there were also waters with a salinity of 1.4-1.6 g/l.

In the eastern part of Jizzakh region, there is an underground water deposit of Khavos. Groundwater is distributed in the sandstone-gravel deposits of the Neogene-Quaternary period of the foothill zone [5-7]. The water in the mine comes from seepage of streams on the northern slopes of the Turkestan mountain range and seepage of return water in canals and irrigated fields. Therefore, the salinity of these waters is 1.5-1.8 g/l and higher, so they are not important for the economy of the Republic.

Fallaorol underground water mine is located in Gallaorol district. Groundwater is distributed in shale-sandstone and gravel deposits belonging to the Neogene-Quaternary period. Groundwater mainly originates from underground water flows from Fubdun Mountain and the upper Sangzor underground water field, as well as seepage from the Sangzor River [1-3]. The quality of underground water is exceeding the norm in the central part of the mine and no changes have been observed in the other parts.

Thus, in some mines, the level of underground water is decreasing, while in others, the quality of water is deteriorating. The hardness of underground water, especially in the region, is increasing year by year. Therefore, it is necessary to carry out protection works in all underground water deposits of Jizzakh region, including underground water deposits located in the Sangzor river bed.

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