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CHANGES IN LEACH WATER LEVEL AND ECOLOGICAL STATUS OF THE CONE SPREAD OF THE SOK RIVER

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Abstract: this article devoted for imigation and melioration activities effects about conic overflows of Sukh Described of changing of underground water's laying level and its mineralization, as seasonal and periodic cycle, and dynamics Tooke up rhythmic regulational changes of underground water's effect Sukh river's water level

Key words: underground and gruit water, antisuan field, urigation and melioration activities. bydrologic and ecologic environment underground water's laying level and its mineralization, regulation, stream, water expand.

Introduction

Uzbekistan has created an inastitusional and competent base for the use of land and water resources of the Republic and their protection. This is the case of the Land Code, "nature conservation tax", "state land cadastre tax", "farm cell tax", "underground wealth tax", and Baska cones. Within the framework of the activities set out in the current general program of the strategy of actions for the development of Uzbekistan in 2017-2021, the tasks of improving the reclamation of land and sum resources, developing irrigation and reclamation facilities, ensuring their safe and barkaror operation are defined in maksadi.

The implementation of the tasks set by the chukur scientific foundation, its geoecologist, hydrogeological, soil-reclamation conditions in every concrete area, comprehensively studies extensive taxlil construction and development of ways to okilona use of resources.

It is known that the conical spread of the Sokh river is distinguished by its classic symmetrical structure. Its central and wing parts are fully formed. The hydrogeological regions typical for mountain river reaches are clearly represented. In carrying out scientific-research works in the study of the bends of mountain rivers, in solving the issues of using the area of the bends in the national economy, the Sokh Konus bend takes a special place.

Research results and background

The distribution of the Sokh cone is divided into regions of surface water subsidence, formation and transit of underground water, leakage of seepage water, and spreading or secondary subsidence of seepage water depending on the slope of the place, geological structure of layers and hydrogeological conditions. The rocky-gravel head part of the spread constitutes the first hydrogeological region. Here, seepage waters form a strong underground flow at a great depth. The depth of the Sizot water level is 11 km from the head of the cone, in the middle of the gravel part

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(well 258 of GGP) it is about 100 m, 6-7 km below it is 50-70 m and at the beginning limit of the lower part of fine rock is 3-10 m. The seepage region of the syzot waters surrounds the gravelly part in an arc about 8 km wide at the beginning of the lower part of the fine rock. This region is characterized by abundant seepage of freshwater in the form of springs and wetlands.

The formation of this region is related to the facies change of hydrous gravels and their deposition under fine rocks. At the beginning of the lower part of the floodplain, seepage water with a much higher flow rate in the large cavities of the gravels is trapped in the fine rock layers and the towing pressure increases. This pressure decreases with the rising tides. The main part of the spread sends the flow of seepage water in gravels, in the lower part of small rocks, in its vertical section, sand and clay layers, as a result, they become pressurized water between the layers. The hydraulic connection of pressurized water with seepage water causes the water level to rise and even seep to the surface of the earth.

The seepage water level was 0.5 m in the depressions of the seepage region until the 40s of the last century. at a depth of up to 1-1.5 m at relatively flat elevations, and at a depth of 0.5-1 m in the rest of the main part of the region.

The commissioning of the Big Fergana Canal (*KFK) (January, 1940) had a great impact on the settling depth of flood waters. The channel, whose bottom was dug much deeper than the level of seepage waters, blocked the flow of seepage waters coming from above. As a result, the level of seepage water rose from a depth of 6-10 m to 2-3 m in most of the gravel areas. There have also been drastic changes in the water regime. The level of Sizot waters increased during the growing season when the canal was full of water and decreased during the winter months when the water flow was stopped, the waterlogging increased, but the level of mineralization of the waters did not change.

The fluctuation amplitude of the Sizot water level is 50-100 cm, the maximum occurs in February, and the minimum occurs in June-July.

V.A. Gents divided the second hydrogeological region into the regions of intensive seepage of seepage and weak seepage along streams. The first region bounded by the KFK arc has a width of 3-3.5 km. Its upper limit corresponds to the starting limit of small rocks. To the north of KFK, there is a region of weak seepage of seepage and pressure waters along the riverbeds, up to 5 km wide. There are few springs in this region, and underground water always seeps through ditches and deeply carved river valleys.

The level of mineralization of seepage waters in the seepage area is 0.3-0.5 g/l, the chemical composition is mainly hydrocarbonate, calcium. Currently, in the main part of the leakage region, the seepage water level is at a depth of 1.5-2.0 and 1.0-1.5 m. The average long-term amplitude of the level is 60-70 cm. The order of irrigation water is related to the volume of irrigation water supplied to the fields.

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The lower part of the Sokh cone spread is the third hydrogeological region of the spread or secondary subsidence of the syzot water flow, which is supplied with additional water due to the upward filtration of groundwater pressure and infiltration of irrigation water.

Until the 1950s, the fluctuation range of the mineralization level of the lower syzot waters was much smaller. The amount of dry residue varied from 1-2 g/l in the water of irrigated areas and up to 30 g/l in the water of waste and protected lands. The chemistry of the degree of mineralization is sulfate rich in chlorides in terms of anions and magnesium-sodium in terms of cations.

The formation of seasonal and multi-year patterns of runoff in the irrigated areas of the lower part of the cone spread depends on the balance between the water level of the Sokh River, the infiltration of irrigation water, the volume of evaporation and transpiration. In the natural order of the water level of the lower part of the cone, the maximum increase in the level is observed in March, and the minimum decrease in the level is observed in November-December. But the recorded natural rhythmic state of seepage water in irrigated areas is disturbed by the influence of irrigation water during the growing season: the level rises 2 times during the year. The first seasonal rise is due to spring salt leaching, in March, and the second is in July-September due to the influence of summer vegetation irrigation.

The groundwater level of the irrigated fields was 1-1.8 m deep during 1935-1965. The amplitude between the average annual minimum and maximum values of the level varied in the range of 0.87-1.08. The level of mineralization of waters was from 0.6 g/l to 16 g/l, depending on the length of the irrigation period. The desalination effect of irrigation has increased over time. The waters of the newly developed lands have a high level of mineralization, and those of the old irrigated areas have small values.

Irrigated agriculture has been practiced in the area of Sokh Konus since ancient times. Zovurs have also been here since ancient times. They served to avoid excess moisture in swampy lands, and to increase the effectiveness of salt washing in saline lands. But the ditches were small and did not have a part to drain the water.

Waste water, as well as ditch water, was sent to depressions in the western, northeastern and eastern parts of the area, where reed-covered lakes, marshes and grasslands are common. As soon as the collector system was activated, the excess moisture was expelled outside the area. The land began to dry out, soil salinity increased, water mineralization increased. The development of lands and the application of the washing method of irrigation stopped these processes.

In the western, northeastern and eastern parts of the Sokh cone spread, the depressions of the area where waste water accumulates in the inter-cone lowlands are occupied by lakes. The level of mineralization of waters increased in summer months, and decreased in winter. The level of mineralization of seepage water in irrigated lands was up to 8 g/l, the mineralization of water under the soil of protected areas was in the range of 11-34 g/l. As the degree of mineralization increases, the amount of chlorides increases sharply.

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The seepage waters of the ancient alluvial plain have the highest mineralization. In waters with a weak mineralization level, the amount of chlorides is small, and at the level of high mineralization, an increase in the amount of chlorine and magnesium is noted.

In the modern valley of the Syrdarya, the level of mineralization of syzyt waters decreases to 4-9 g/l in the I- and II-supas of the Kyyr and the upper Kyyr. They are of the sulfate type and contain equal amounts of magnesium and sodium. They increase alkalinity. In the first suba, syzot waters are weakly mineralized and have a hydrocarbonate-sulphate type.

The sandy alluvium of the Syrdarya has a strong flow of seepage. This stream forms in the eastern part of the Fergana valley and gradually flows into the river in the western direction. The alluvial flow is blocked by the Supetau anticline and flows into the river. In front of this barrier, the underground flow of the Sokh cone spread, as well as the flow coming from the right bank cones, join the sandy alluvium of the Syrdarya. The subsurface flow coming from the right bank does not completely empty into the river, part of it passes from the deep layers with high permeability to the left bank and creates a certain barrier to the subsurface flow of the Sokh Konus distribution.

Not only the sandy alluvium, but also the fine rock cover of the platform is saturated with seepage waters.

Their level is located in a pit of 0.5-1.5 m, rarely up to 2 m. The level of seepage water in the fine rock layer is below the piezometric level of water in the sandy alluvium. The difference between them increases with the increase in the thickness of the fine rock layer - the difference between the levels is 5-18 cm at a thickness of 3-4 m and 30-57 cm at a thickness of 6-8 m. The seepage waters of the sandy alluvium and fine rock cover are in a hydraulic relationship with each other, and the level of mineralization differs sharply. The water flow rate of sandy alluvium is very high, they have 1-2 g/l of dry residue. In large areas of fine rock, the seepage flow is weak, and seepage is developed under the influence of evaporative salinization processes. The amount of dry residue in them is 5-30 g/l. Water with a mineralization level of 1-3 g/l is found near the river and in irrigated areas.

In the alluvial plain, there are two main types of water according to the chemical composition: sulfated magnesium-calcium-sodium and chloride-sodium. Sulfate type is typical for the main flow of syzot waters, and chloride waters have a focal distribution across the flat area. They are characterized by an anomalously high temperature and an anomalously small geothermal degree (up to 1 m/degree). This phenomenon was observed for the first time in 1962 during the construction of the former Frunze pumping station near the village of Olakhamak. As a result of inspection of wells that receive water from alluvium at a depth of 200-300 m, anomalously high temperature (23-29°C) and weak mineralization level (up to 1 g/l.), but chloride-dominated waters are 40 km long and 6 km wide. area is determined. Such hydrogeochemical and hydrothermal anomalies associated with the buried structure of pre-Quaternary deposits were later identified in other regions of the Fergana Valley.

As of the end of 2017, the total irrigated area in the Sokh Cone area is 168,897 hectares. This value was 142,675 hectares in 2005 and 129,063 hectares in 1991.

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In the present conditions, where the collector-zovor network is developed, the lands with a depth of 1.5-2.0 m of seepage water are prioritized in all parts of the research area. The area of this group has increased by 8,500 hectares in the last 20 years, and the area of land with seepage water deeper than 2 m has decreased significantly. There is also a regularity of increase in the level of mineralization of seepage waters. Due to the decrease of land areas with water mineralization level up to 1 g/l, land areas with water mineralization level of 1-3 and 3-5 g/l increased.

In connection with the above, the water supply of irrigated areas has been improved, new land has been developed, land waste has been removed, and saline has been washed away. Significant positive changes have occurred in the depth of settlement and hydrochemical composition of Sizot waters.

At the same time, the industrial enterprises located in the center of the spreading cone of Ko'kan and the surrounding areas are a source of groundwater pollution. In this process, there is also a share of the use of toxic chemicals on the developed land (more than 16 thousand hectares) in the main part of the spread.

Thus, creation of stable water supply of irrigated areas in the Sokh river cone, improvement of land reclamation, improvement of agriculture is related to deep study and analysis of hydrogeological conditions and problems related to them.

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