ECOLOGICAL CONDITION OF THE SHORKOL RESERVOIR AND ITS SURROUNDING LANDSCAPES

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Abstract: the article deals with the information about the Shorkol reservoir, located in the northwestern part of the Bukhara region, on the border of the Gijduvan district and the Konimekh district of the Navai region, as well as its natural geographical features and ecological condition.

Keywords: reservoir, rodent, exploitation, river, lake, sea, energy, industry, ecological condition, water resource, ecosystem, landscape.

Annotatsiya: ushbu maqolada, Buxoro viloyatini shimoliy g'arbiy qismida, G'ijduvon tumani va Navoiy viloyatining Konimex tumani chegarasida joylashgan Sho'rko'l suv ombori va uning tabiiy geografik xususiyatlari va ekologik holati to'g'risida ma'lumot berilgan.

Kalit so'zlar: suv ombor, kemiruvchi, ekspluatatsiya, daryo, ko'l, dengiz, energetika, sanoat, ekologik holat, suv resurs, ekotizim, landshaft.

ЭКОЛОГИЧЕСКОЕ СОСТОЯНИЕ ШОРКУЛЬСКОГО ВОДОХРАНИЛИЩА И ОКРУЖАЮЩИХ ЕГО ЛАНДШАФТОВ

Аннотация: В данной статье представлена информация о Шуркульском водохранилище, расположенном в северо-западной части Бухарской области, на границе Гиждуванского района и Канимехского района Навоийской области, а также о его природно-географических особенностях и экологическом состоянии.

Ключевые слова: водохранилище, грызун, эксплуатация, река, озеро, море, энергетика, промышленность, экологическое состояние, водные ресурсы, экосистема, ландшафт.

In world experience, river flow management using reservoirs and large water intake structures is considered as one of the important directions of integrated use

of water resources. The study of historical processes shows that water bodies have played an important role in the development of mankind. On the one hand, floods, droughts, changes in the regime of rivers, lakes and seas have caused disasters and great socio-economic damage, on the other hand, water bodies have ensured the development of agriculture, energy, industry and economic sectors. The UN 2030 Agenda for Sustainable Development includes 17 "goals". The tasks set out in Goal 6: "Ensure the rational use of water resources and prevent water pollution". It means the necessity to conduct research on the relationship of reservoirs with irrigation facilities and landscapes, as well as recreational opportunities and issues of their use, analysis of changes in landscapes adjacent to reservoirs, as well as assessment of their ecological status and monitoring.

Water is of great importance for human health and economic activity. Otherwise, dirty water can lead to various negative consequences. It causes and spreads diseases, negatively affects the technological process in industrial enterprises, reduces the quality of products, disables expensive equipment, corrodes hydraulic, reinforced concrete structures, water pipes, and causes enormous economic and moral damage.

Reservoirs are water bodies created and managed by man, operating under the strong influence of natural phenomena. Therefore, reservoirs occupy a place between natural and artificial objects, that is, they are natural-technical systems.

The Zarafshan River does not reach the western part of the region, and for irrigation water is mostly taken from the Amu Darya. It is for this purpose that the Amu-Karakol, Amu-Bukhara, and Yomanjar canals were built. The canal of the same name begins from the Kuyimozor reservoirs located in the neighboring Navai region and irrigates part of the Bukhara, Kogon, and Jondor districts. In addition, there are canals such as Zarafshan, Khairabad, and Shofirkon, as well as the Shorkol reservoir.

Today, in order to effectively use these lakes, the most important issue is to improve their condition and create a natural nutrient base. Regarding such issues,

the “Shurkul Suv” reservoir is located in the northwestern part of the Bukhara region, on the border with the Gijduvan district and the Konimekh district of the Navai region.

The approximate coordinates of the Shorkul reservoir are: 40.33° north latitude, 64.86° east longitude. The Shorkol reservoir was built in 1977–1980. It is operated by the “Toshrabot-Jilvon” irrigation system department under the Amu-Bukhara irrigation systems basin department. The source of water intake for the reservoir is the Zarafshan River. Some sources say that it was founded in 1978.

The Shorkol reservoir is located on the border of the Gijduvan district of the Bukhara region and the Konimeh district of the Navai region. Shorkol was commissioned in 1983. Its area is 4200-5000 ha, and its water capacity is 170-230 million m³. The deepest point is 12-13 m, the average is 8 m. The maximum depth is 20-25 meters. 3 sources of water flow into Shorkol: Konimeh, Zarafshon and the Amu-Bukhara canal. The function of Shorkol is to collect water, that is, to act as a reservoir and provide water to the lands of the Shafirkon district throughout the year. The water cover of the lake with aquatic plants is 10%. Currently, water is stored only in deep places. 5-10 m³ / sec of water is flowing in. Microphytes are found around the water intake channel of the reservoir and in the upper part of the reservoir. Macrophytes are mainly reeds and cattail. The amount is not very large. Phytoplankton is quite diverse, with more than 130 species. There are 9 species of kolovrats, 8 species of cladocera and 5 species of copepods. Zoobenthos mainly includes chironomids, oligochaetes, mollusks, and pelago benthos, including river shrimp and mysids. The water composition of Shorkul is rich with chlorosulphate and highly mineralized - 12097.3 mg/l.

Shorkol Reservoir is filled with water through the Shorkul water inlet channel. The reservoir's water intake source is the Zarafshon River, which is filled with water through the Shorkol water inlet channel. The area attached to the reservoir is 29.0 thousand hectares, of which 28.3 thousand hectares are the “Jilvan” and “Toldi” massifs of the Shafirkan district and 0.7 thousand hectares are

the “Kutchi” massif of the Gijduvan district. The total water volume of the reservoir is 394.0 million m3, the useful volume is 380.0 million m3, the dead volume is 14.0 million m3, the surface area is 30.5 km2, the length is 5.5 km, the width is 3.5 km, the depth is 30.0 meters, the average depth is 5.7 meters, the length of the dam is 560 meters. The earthquake resistance of the reservoir is 6 points.

The newly developed lands are located in the Gijduvan and Shafirkan districts of Bukhara region, previously used as pastures, and occupy the area around the Shorkol reservoir. The main conditions of the reservoir and new land development project are as follows:

• Use of the autumn and winter flows of the Zarafshan River (348.8 million m³ per year with a 90% probability) as a reserve water source, including the discharge of the Navai TPP, and later filling the reservoir with water delivered via the Amu-Bukhara Canal;

• Total capacity of the reservoir - 394 million m³, useful capacity - 380 million m³;

• Provision of water to 200 thousand hectares of irrigated land through the use of natural depressions and the gradual commissioning of the reservoir, and subsequent development of 32.3 thousand hectares of new land.

It is planned to use the waters from the Shorkol reservoir for irrigation and development of 32.3 thousand hectares of land adjacent to the reservoir. According to studies, it is planned to gradually provide new lands for irrigation, and by the end of the construction of the reservoir (1982), 3.3 thousand hectares of land were developed. Full development was completed in 7 years. By 1982, the water supply of existing irrigated lands was improved by using 100 million m³ of water annually. The economic efficiency of the reservoir was determined for the following two options:

1. Increasing the water supply of existing irrigated lands subordinate to the Amu-Bukhara Canal.

2. Improving the water supply of existing lands along with the development of new lands.

The Shorkol reservoir is used to irrigate surrounding arable land. Approximately 35 thousand hectares of arable land are irrigated. In addition, it is also used for fishing. There are several species of fish in the reservoir: the slobber and other types of fish. The fauna is inhabited by desert plants, reptiles, and rodents. Over the past half century, the development of new desert areas for agriculture, the continuous expansion of existing arable land, the construction of new reservoirs and canals, the increasing scarcity of running water, and pollution have caused many serious economic, social, and geoecological problems.

In conclusion, it is worth saying that the Shorkol reservoir has an ecologically important and life-rich landscape. In order to effectively use the landscapes of the reservoir, we have made the following proposals:

– there are risks such as illegal fishing, water pollution, and control and environmental management measures are necessary to reduce them;

– in the educational process, it is necessary to form a positive attitude towards water in students, while closely familiarizing them with the country's water resources and water supply;

– the role and place of future geographers and ecologists is considered extremely important, and through this, it is necessary to instill patriotic qualities in students;

– expanding environmental monitoring, regulating fishing, and preserving surrounding plant ecosystems may be positive in the future.

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