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FACTORS AFFECTING THE ECOLOGICAL CONDITIONS OF SURKHANDARYA REGION (BIOTIC, ABIOTIC, ANTHROPOGIN, TEMPERATURE, WATER)

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Abstract
This article considers the factors influencing the ecological conditions of Surkhandarya region (biotic, abiotic, anthropogenic, temperature, water), including air pollution from industrial enterprises, water pollution.

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THE MAIN PART: Any human activity brings with it many side effects. One side of it can lead to development, while the other side of the coin can have a detrimental effect. These adverse changes often lead to environmental problems that affect the natural balance of the environment.

We can define environmental problems as the harmful effects of human activities on the environment. This includes both biological and physical aspects of the environment. Air pollution, water pollution, pollution of the natural environment, pollution of garbage, etc. are one of the major environmental problems of great concern.

Many of these problems are also present in Uzbekistan. As an example, we consider a number of environmental problems in Surkhandarya region.

Sources of water pollution in the Surkhandarya basin can be divided into three groups: 1) industrial enterprises in the basin; 2) contaminated water from irrigated lands; 3) household and other household waste.

The first industrial waste is an aluminum plant in the town of Regar in neighboring Tajikistan. The city is located in the Surkhandarya Valley, about 30 km from the Uzbek border. Uzun, Denov and

Sariosiya districts of Surkhandarya region are located near the border with Tajikistan and the main part of the population of this district is densely populated in the Surkhandarya valley.

Some of the liquid and gaseous toxic wastes from the aluminum plant enter the country through air streams and some through Surkhandarya. Harmful effects of the Tajik Aluminum Plant (TojAZ) on air, soil, water, natural plants, agricultural crops, the population of Uzun, Sariosiya and Denau districts of the region, livestock, fruit trees, vegetables, cotton and nature and organisms in general. We describe the losses below. As a result of TajAZ's operation, the ecological situation in the above districts of Surkhandarya region remains critical. As in previous years, TojAZ continues to emit harmful substances into the atmosphere, especially hydrogen fluoride. The region has a population of about 570,000. Harmful substances that affect the health of the population and worsen the environmental situation are also harming agricultural production. Despite some work on the agreement on cooperation in improving the environmental situation between the governments of Uzbekistan and Tajikistan, the negative impact of TojAZ, signed in Tashkent on November 17, 1994 The program of scientific research and technical work to improve the environmental situation for the 2000s was not implemented without the need to be funded by TojAZ. The measures envisaged in Article 5 of the Agreement and aimed at reducing the negative impact of the plant on the population and the environment in the mentioned areas of Surkhandarya region have not been fully implemented in the following areas, in particular:

1. Financing the development of sanitary and hygienic standards for hot climates and the development of environmental standards, as well as determining the extent of economic damage;
2. Introduction of an automated control system for air pollution;
3. Reimbursement of economic losses in Uzun and Sariosiya districts of Surkhandarya region;

Increased production capacity at TajAZ could worsen the environmental situation in the region and exacerbate tensions. TajAZi conducted a preliminary assessment of the impact of transboundary pollutants, especially hydrogen fluoride, on the health of the population and the environment (statistical reports, research results, expeditionary research, etc.). Data from the Ministry of Health, Uzhydromet, the State Committee for Geodesy and Cadastre, the Institute of Botany and Zoology of the Academy of Sciences, and the Ministry of Agriculture and Water Resources were used. TojAZ was built near the ancient village of Regar. TojAZ has a projected capacity of 517,000 tons of aluminum per year. The first casting of the new plant was received on March 31, 1975. Beginning in January 1978, TojAZ produced the first burnt anode in the former Soviet Union. In January 1981, the first large-scale castings were received in the foundry. In the early 80s and 90s of the last century, TojAZ produced eight grades of aluminum and four grades of silum.

Soil pollution The Research Institute of Soil Science and Agrochemistry of the State Committee for Geodesy and Cadastre of the Republic of Uzbekistan in 1985-1989 conducted research to determine the amount of negative impact of TojAZ on soil and plants in the region. Between 1982 and 1989, the plant was found to emit about 40,000 tons of pollutants into the air each year, including 300-400 tons of hydrogen fluoride. The waste contains large amounts of sulfur and nitrogen dioxide, calcium compounds, and sulfate ions.

It should be noted that fluoride can cause significant changes in soil processes:

• Increases the solubility of organic matter in the soil, which is one of the reasons for the

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development of dehumidification processes in irrigated lands;

- Reduces the redox potential and biological activity of the soil;
- Quantitatively and qualitatively changes the composition of soil microflora;
- Disrupts the balance of soil mineralization and synthesis processes.

These findings were also confirmed in 1990 by the Environmental Monitoring Station (AMNQES), a division of the World Laboratory in the former Soviet Union, which tested water-soluble fluoride in soils close to the plant at various distances. For example, the amount of water-soluble fluoride in the upper part of the soil at a distance of 40 km from the plant was higher than the STC, in some cases up to 1.5 STC. At a distance of 40-60 km, its volume was found to be at the level of STChK. However, on the south side of the plant, cases were found to be higher than the STC. At a distance of 60-90 km, the amount of water-soluble fluoride in the soil was determined at the level of STChK, but in some samples the fluorine level was higher. An excess of water-soluble fluoride was found in the soil at a distance of 90 km, which was believed to be due to the high use of pesticides at that time.

In addition to the Regar aluminum plant, cities and towns in the Surkhandarya basin are also major sources of water pollution. There are more than a hundred industrial enterprises and consumer services in Shargun, Sariosiya, Uzun, Shurchi, Denau, Kumkurgan, Jarqurghon and other cities. These cities have almost no sewage and water treatment facilities. therefore, the bulk of municipal waste from industrial enterprises and domestic services falls into rivers, canals and ditches.

In many cities of the country, including Surkhandarya region, landfills are built in accordance with state standards. In developed countries, landfills are usually similar to large landfills. Upon arrival at the landfill, the waste is sorted and sorted, and each of them, such as plastic, glass, metal, paperboard, etc., is collected in separate rooms and received and sent to recycling facilities. Organic waste is collected and stored in special dumps for biogas production, which are then sent to special recycling facilities. In general, waste entering the landfill is not allowed to seep into the ground and pollute or drain groundwater. Neon lamps are collected and sent to a special company for disposal. We also need to start using waste as a secondary raw material.

CONCLUSION. One of the major sources of water pollution in the Surkhandarya basin is saline water from irrigated lands. These waters increase from the top to the bottom of the Surkhandarya valley. Saline water from irrigated lands in the country accounts for 30-35% of irrigation water (Chembarisov, Bakhriddinov, 1983). Such waters reach 50% in the deltas of large rivers. In the lower reaches of the Surkhandarya and Sherabad rivers, they are discharged into the Amudarya without treatment.

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