

Hazards of Ecological Consequences of Unreasonable Use of Water Resources

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Annotation: According to research by ecologists, it has been established that there are two groups of conditional causes of pollution of rivers and lakes: the impact of natural and human factors. Both options are equally dangerous for the environment and lead to irreparable results. Industry, the use of various chemical compounds, and sewer discharges into natural bodies of water lead to the most tragic consequences. This article is devoted to the consideration of the dangers of environmental consequences of unreasonable use of water resources.

Keywords: water, resource, nature, industry, ecology.

Relevance. The rapid deterioration of the environmental situation and the depletion of the Earth's natural resources require increasing the efficiency of all parts of the national economy. Solving this problem is possible only through the introduction of resource- and energy-saving technologies at all levels of production processes [6-10, 39-42, 51-53].

Along with this, it is known that the main goal of treatment and preventive measures carried out by healthcare institutions is aimed at maintaining the health and well-being of our population. Regardless of age and gender, that is, every citizen of our society. Naturally, representatives of the weaker sex and children are more susceptible to the influence of pathological influences [1, 16, 55, 56]. Women of childbearing age are especially vulnerable during pregnancy [19-30, 44-51] and subsequent breastfeeding dynamics. It has been shown that during pregnancy through the placenta, and during lactation through the milk, the transfer of adoptive immunity from mother to fetus and newborn occurs, therefore during this period they are most sensitive to pathological changes in the body, including negative environmental influences that are noted in our planet, as ecologists constantly trumpet [31-38, 56].

In particular, as regards water resources, namely fresh water reserves, which are depleted every year, and even if there are water reserves, they are polluted due to unreasonable human use.

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As shown, the natural causes of environmental pollution are: rain runoff from fields where farmers apply fertilizers. By settling at the bottom, soil mixtures accelerate the growth of grass, which is why the water pool becomes overgrown and, most often, becomes unsuitable for further use.

Another natural cause is volcanoes. During the eruption process, clouds of dust, gas, and sulfur enter the atmosphere, promoting the formation of nitric and sulfuric acids. Subsequently, with rain, acids fall to the ground and into water and lead to the extinction of many living organisms.

However, the negative impact of natural factors is not as significant as the damage resulting from human action. Industry, the use of various chemical compounds, and sewer discharges into natural bodies of water lead to the most tragic consequences. It has been established that spraying chemicals to control pests causes severe damage to rivers and lakes. When washed away by rain streams, harmful substances directly enter water bodies, penetrate through the soil into groundwater and poison all organisms living in the water.

If humanity continues to destroy water bodies, it will face dire consequences from the pollution of water bodies, that is, it will face a banal shortage of fresh and clean water, and subsequently a chain of irreparable events will arise - beneficial bacteria will die, then all living organisms. If we take into account statistics, there is currently no more than 35 million m³ of water in the world that can be consumed. More than 1.2 billion people experience a constant lack of water for normal life. It has been proven that every day the number of people whose water consumption is limited is increasing.

In the modern world, most fresh water reservoirs are in poor condition. Despite the measures taken, an ideal cleaning method has not yet been found. Experts are developing methods to reduce the harmful effects of nature and activities on the environment.

In the modern world, the rapid increase in the number of vehicles in recent years has led to a deterioration in the environmental situation not only in cities, but also along major highways, often passing through numerous settlements. When 1 liter of gasoline is burned, 16 m³ of a mixture of various gases is formed, which includes toxic and carcinogenic components, such as carbon monoxide, nitrogen oxide, hydrocarbons, aldehydes, saxophone, benzopyrene, as well as lead (tetraethyl lead), bromine, chlorine and their compounds. When there is no wind in large cities, exhaust gases form smog. The settling components of exhaust remain on city streets, on roadside soil, plants and on the open surfaces of the cars themselves. During rains and snowmelt, pollution is partially washed off from roads and cars into the storm network and further into water bodies. Thus, the environment, which is the basis for normal human life, is polluted - air, water and soil [15].

Along with motor vehicles, it is shown that in large livestock farms and complexes for raising and fattening cattle, pigs and poultry, due to the concentration of animals in large farms, they cause the formation of a significant amount of liquid manure (a mixture of liquid and solid excrement). The entry of such large masses of non-neutralized liquid manure into the external environment (soil, water bodies, etc.) is unacceptable, as this poses a danger in sanitary and epidemiological terms.

Livestock farms are powerful sources of air pollution in rural populated areas. In the areas where the complexes are located, increased concentrations of ammonia, increased bacterial contamination of the air, and specific odors are detected that worsen the living conditions of the population. Based on a large amount of factual material, patterns of distribution of these contaminants have been established depending on the types and capacity of complexes, and differentiated standards for sanitary protection zones have been developed. It should be noted, however, that the significant size of the zones is due to the large power of pollution sources and the absence of modern systems for purifying emissions into the atmosphere and treating manure, ensuring a reduction in air pollution [2, 3, 6-9, 14]. It should be noted that green spaces near livestock and poultry farms are a reliable protective barrier and prevent the spread of atmospheric pollution.

Along with motor vehicles and livestock breeding complexes, one of the main consumers of water resources in industry are the oil refining and petrochemical industries, where large-scale changes are currently taking place associated with increasing the depth of oil refining and improving product quality. All these processes are inextricably linked with the need to use huge amounts of purified water.

To achieve these goals, most enterprises have developed and are implementing reconstruction and technical re-equipment programs, which entails a change in the quality and quantity of wastewater.

Let us note some current problems associated with the treatment of wastewater generated at the enterprise:

1. Failure of treatment facilities to ensure the degree of wastewater treatment to meet the requirements. Most treatment facilities at oil refineries and petrochemical plants were built decades ago, so the equipment used is physically and morally outdated. Another reason may be a change in the composition of wastewater entering treatment plants.

2. Lack of effective economic incentives for rational use of water resources. The introduction of recycling and re-sequential water supply makes it possible to reduce not only the consumption of fresh water, but also to reduce the amount of discharged wastewater, thereby obtaining both economic and environmental benefits [17]. The very presence of a circulating water supply system is a fairly important indicator of the level of technical equipment of an enterprise.
3. Lack of facilities at enterprises for processing sediments released during cleaning, with their subsequent disposal. Most often, waste is sent to open sludge ponds, which has a significant negative impact on the environment.

A machine-building enterprise differs from others in the generation of large amounts of wastewater in galvanic and pickling areas [4, 10-13]. The problem becomes even more pressing and the environmental situation worsens if these enterprises are located in a basin of open water bodies and many factors arise, including wastewater from most industrial enterprises [4, 5, 10-13, 18, 56].

To clean them, treatment facilities are used to neutralize acid-base, chromium- and cyanide-containing wastewater. The purpose of the work is to evaluate the cleaning efficiency with a view to optimizing it using the example of a large machine-building enterprise. Currently, all wastewater generated at a large engineering enterprise is discharged through three existing systems: 1) storm sewer; 2) industrial sewerage; 3) domestic and fecal sewerage.

Thus, as can be seen from the above data, even a simple listing of all industries shows that the operation of any industrial enterprise is associated with technical costs, leading to both environmental pollution and the use of large quantities and, ultimately, pollution of fresh water. In this regard, every year the problem of treatment facilities for minimal pollution of both the environment and fresh water becomes more and more urgent.

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