

Ecological Problems of Rivers at The Present Stage

Madraim Khasanovich Sarikulov

Senior Lecturer of the Almalyk branch of the Tashkent State

Technical University, Almalyk, Uzbekistan

sarikulov.madraim4@gmail.com

Bobirmirza Bakhtiyar o'gli Yusupov

Assistant of the Almalyk branch of the Tashkent State

Technical University, Almalyk, Uzbekistan

Bakhodir Maratovich Bekimbetov

Assistant of the Almalyk branch of the Tashkent State

Technical University, Almalyk, Uzbekistan



Abstract

This article examines the environmental problems of river pollution in various regions of the world at the present stage. An analysis of the problem of river pollution with various wastes and pollutants in different regions and countries of the world is given. The article examines the factors polluting rivers and the problems of drinking water shortage, and gives recommendations on maintaining the cleanliness of rivers. Currently, the most vulnerable part of nature and society has become the process of clogging river oases, which are often intensively polluted. Wastewater, pesticides, fertilizers, heavy metals and much more in huge quantities flow into rivers and lakes. According to experts, the level of pollution of such rivers as the Ganges, Mississippi, Rhine, Danube, Volga, as well as the Great American and other lakes exceeds the maximum permissible standards. According to experts, in some regions of the globe about 80% of all diseases are caused by poor quality drinking water. If we take into account that water intake structures and water pipelines, which, as a rule, receive water from open water bodies, show in samples almost 30 percent contamination, both in microbial and chemical terms, which in turn has a direct negative impact on the health of the population.

Keywords: Liquid waste, soil erosion, household garbage, red liquid, extremophile bacteria, dead zones, pathogenic microorganisms, thermal pollution.

Introduction

At the present stage, the process of river pollution occurs all over the world. The problem of river pollution on Earth is becoming more and more urgent every year. The problem of river pollution and, in parallel with this, the issues of drinking water shortage have been considered one of the global problems of our time since the last decade of the twentieth century. As the population of our planet grows, the scale of river pollution and, accordingly, water shortage has increased significantly, which subsequently led to deteriorating living conditions and slowed down the economic development of countries experiencing a shortage of water resources.

Humanity is too cruel to natural resources. Despite the fact that HE is considered a rational being, but he cannot properly control his actions. Hence, the situations encountered in everyday life shock us all: first, this concerns rivers, from which we usually expect freshness and purity.

LITERARY RESEARCH

In many ecologically dirty regions of the world, hazardous waste and harmful chemicals flow into water bodies. The most polluted rivers are in large cities. Dirty water seeps into the ground, penetrates into underground sources. This destroys deep soil layers. In agricultural areas, nitrates, animal waste, poison water bodies.

Rivers are polluted by sewage with waste residues, detergents. All this leads to the development of pathogenic microflora - a source of infectious diseases that are dangerous to human life.

An unfavorable situation is observed in the coastal zones of all seas and oceans of the world, where rivers and canals with wastewater flow. Liquid industrial waste, oil industry waste and other household waste from nearby water areas enter the world's water bodies (lakes and seas). Human intervention in natural processes has led to the pollution of even such large rivers as the Mississippi, Marilao, Yellow River, Matanza-Riachuelo, Ganges, Dnieper, Danube, Rhine, Volga, changing the volume of transported water masses (river flow) to a decrease.

The materials [1] noted that three French MEPs wrote in August 2022 stating that the UK was threatening human health, marine life and fisheries by discharging untreated sewage into the English Channel and the North Sea. They wrote that "With Brexit, the UK has freed itself from EU environmental rules and we now fear negative impacts on the quality of the seawater we share with the country, as well as on marine biodiversity, fisheries and shellfish farming." The letter pointed out that although the UK is no longer bound by EU rules, it is still obliged to comply with the UN Convention on the Law of the Sea and the Charter on the Protection of Common Waters. "Despite this, the UK has chosen to lower water quality standards. This is unacceptable and calls into question the efforts made by EU Member States over the past 20 years. The UK has a duty to preserve the seas that surround it and that we share with it."

As noted in the source materials [2], the process of soil erosion is especially great in the largest and most densely populated countries. The Yellow River in China annually carries about 2 billion tons of soil into the World Ocean. Soil erosion not only reduces fertility and lowers crop yields. As a result of erosion, artificially constructed water reservoirs silt up much faster than usually envisaged in projects, reducing the possibility of irrigation and generating electricity from hydroelectric power plants.



Figure 1. Photo illustrating the pollution of the Rio Tinto River

The materials of the site [3] state that a red liquid flows along the Rio Tinto River (Spain) (Fig. 1), like blood. The waters of the Rio Tinto River, which originates in the Spanish province of Huelva and flows through Andalusia, are unattractive not only externally. Due to the high concentration of metals coming from copper, silver and gold mines, this reservoir has received the reputation of being one of the most acidic places on Earth. Water, the pH of which fluctuates between 1.7-2.5 and practically corresponds to the acidity of gastric juice, is dangerous for any living creature. The only inhabitants of the "Martian river" are the scientists' favorite aerobic bacteria extremophile, which feed on iron.

Referring to the materials of the site [4], we can state that the Citarum River is the most polluted in Indonesia (Fig. 2) and one of the dirtiest rivers in the world. Its surface is covered with such a dense layer of household garbage, most of which practically does not decompose, that it is no longer possible to determine what color the river was before pollution. Is it worth mentioning that all living things that once lived in the river are rapidly dying out, and the current gradually stops, turning the once powerful river into a stagnant swamp?



Figure 2. Photo illustrating the pollution of the Citarum River

The materials of the site [5] note that the Mississippi River Delta in North America (and the 4th longest in the world), the greatest natural and economic resource of the United States, is one of the most fertile agricultural zones in the world (Fig. 3). Unfortunately, today the waters at the mouth of the Mississippi are increasingly called "dead zones": along its entire route from north to south of the country, the river is overflowing with toxic waste such as nitrates, benzene and arsenic, sewage, petroleum products and just garbage. Due to the terrible pollution, the water at the mouth of the river is overgrown with algae, which absorb all the oxygen, and their dominance does not allow any other organisms to survive. The site also provides a list of the most polluted rivers in the world: Sarno (Italy), Marilao (Philippines), Yellow River (China), Jordan (Israel), Yamuna (Jumna), Buriganga (Bangladesh), Matanza-Riachuelo (Argentina), Ganges (India), Citarum (Indonesia).

As is known, the level of human influence on the planet is regulated by the technical equipment of people. The development of humankind required the creation of comfortable conditions for existence. The deterioration of the planet's environmental problems changes in parallel with the progress of human thought. With the development of technology, the world becomes better, but the amount of emissions and other deteriorating factors increases. All this can entail fraught consequences for civilization and humanity.



Figure 3. Photo illustrating pollution of the Mississippi River

METHODOLOGY

Environmental problems of rivers at the present stage occur due to a significant deterioration in the quality of water resources as a result of chemical waste entering the rivers and the development of pathogenic microorganisms in them. This process is directly related to the failure to apply the necessary environmental protection measures to disinfect fresh water. Most often, chemical pollution in it is indistinguishable due to its dissolved state. Oil spills, untreated household and industrial wastewater, and foamy detergents are immediately noticeable.

As a rule, the volume of natural pollutants is negligible compared to the work of human hands, but it also makes its contribution. Floods wash chemical compounds out of the soil and carry them into rivers, poisoning fish. Dumping untreated wastewater infects water bodies with microbes. A huge number of diseases in the world are caused by the improper state of water in river oases.

One of the types of pollution of rivers and reservoirs is thermal pollution. Power plants and industrial enterprises often discharge heated water into rivers and reservoirs. This leads to an increase in the temperature of the water in it. As the temperature in rivers and reservoirs increases, the amount of oxygen decreases, the toxicity of water pollutants increases, and biological balance is disrupted. Along with this, pathogenic microorganisms and viruses begin to multiply rapidly in polluted water as the temperature increases. If they get into drinking water, they can cause outbreaks of various diseases.

According to world statistics, in general, in all regions of the world there is excessive and unplanned consumption of drinking water. The main reasons for this are the rapid development of production and the growth of the world's population. The process of reducing unplanned water consumption is no longer possible, since in this case, it would be necessary to sharply reduce the production process for the production of material goods and it would be necessary to refuse many benefits of civilization. The shortage of drinking water is also affected by pollution factors,

because the volume of water suitable for consumption is decreasing. Therefore, more attention should be paid to maintaining the cleanliness of rivers. In this regard, we can note that the life and health of all inhabitants of planet Earth depend on its quality.

Society is already aware of the need for radical action to solve the problem of waterway pollution and alleviate water shortages. There is a rethinking of the principles of water use and a search for acceptable and adequate measures to overcome established stereotypes in the management of natural resources. It is noteworthy that it is the low water levels of recent years, when the value of water is felt very acutely, that makes each of us think about what we can do personally to improve the situation and, in many ways, ensures a return to the traditions of careful treatment of water.

At present, we can confidently state that it is impossible to boast of a single river in the world that would meet the ideal condition, because humanity is too ignorant of the gifts of nature. Despite the desire of humanity for rivers to be clean and unpolluted, we nevertheless have to face the process of widespread contamination with all kinds of waste from the life of humanity itself. It turns out to be an absurdity of human thinking and actions.

CONCLUSION

In conclusion, we would like to note that all countries of the world community should change their water use strategy and maintain the purity of river oases at the present stage. Necessity forces us to isolate the anthropogenic water cycle from the natural one. This is the essence of the transition to closed water supply, to low water or low waste, and then to "dry" or waste-free technology, accompanied by a sharp decrease in the volume of water consumption and river pollution.

In our opinion, one of the ways to solve the problem of reducing the problem of river pollution and the associated shortage of drinking water is to use water resources sparingly, as well as to use clean technologies in all production processes. At the same time, it is necessary to tighten the rules for monitoring compliance with water quality standards. This will give much more significant results than it seems at first glance.

REFERENCES

1. Marina Romadova BBC October 29, 2022
2. Millennium Ecosystem Assessment // Ecosystems and Human Well-being: Desertification / World Resources Institute. - Washington (DC), 2005. - 36 p.
3. http://www.cawater-info.net/all_about_water/?p=10052
4. <https://www.redbull.com/ru-ru/pollution-of-our-planet>
5. Source: www.buzzle.com.
6. Toshov J., Baratov B., Sherov K., Mussayev M., Baymirzaev B., Esirkepov A., Ismailov G., Abdugaliyeva G., Burieva J. Ways to optimize the kinetic parameters of tricone drill bits// Material and Mechanical Engineering Technology, Kazakhstan, 2024, №1, pp.35-45
7. Toshov, Javokhir & Toshov, B.R. & Baratov, Bakhtiyor & Haqberdiyev, A.L.. (2022). Designing new generation drill bits with optimal axial eccentricity. Mining informational and analytical bulletin. 133-142. 10.25018/0236_1493_2022_9_0_133.

8. Баратов Б. Н., Умаров Ф. Я., Тошов Ж. Б. Оценка работоспособности трехшарошечных буровых долот / Горный журнал – Москва, 2021. - №12. – С.60-63.
9. O.V. Туьбойов, N.F. Рахманова, B.N. Baratov. Investigation into sustainable innovations in mining engineering for resource optimization and environmental efficiency// “Кон машиналари ва техологиялар” илмий-техник журнал, Тошкент, 2024, №1(7), pp.51-58.