EXCELLENCIA
INTERNATIONAL MULTI-DISCIPLINARY JOURNAL OF EDUCATION

Volume 02, Issue 12, 2024 ISSN (E): 2994-9521

Studying the Problems of River Pollution in the Modern World

Madraim Khasanovich Sarikulov [1], Ikromjon Esanboyevich Uzoqov [2],

Yusupov Bobirmirza Bakhtiyar ogli [3], Nurmatov Begzod Khasan coals [4]

[1, 2] Senior Lecturer, Of the Almalik branch of the Tashkent State Technical University, Almalyk, Uzbekistan

[3, 4] Assistant, Of the Almalik branch of the Tashkent State Technical University, Almalyk, Uzbekistan

Abstract:

At present, the most vulnerable part of nature and society has become the process of pollution of river oases, which are often intensively polluted. The article is devoted to current issues of ensuring the cleanliness of river oases. The analysis of the problem of river pollution with various wastes and pollutants in different regions and countries of the world is given.

Keywords: household waste, red liquid, nitrates, toxic waters, aerobic extremophile bacteria, chemical waste, thermal pollution.

INTRODUCTION

The problem of river pollution on Earth is becoming more and more urgent every year. The problem of river pollution and, in parallel, the issue of drinking water shortage since the last decade of the twentieth century is considered one of the global problems of our time. It should be noted that due to the growth of the world's population, 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.

In the process of observing the flow of rivers, we rarely think about the dangers waiting in its waters. But there are rivers that are simply terrifying and are heavily polluted. It is no secret that some rivers are dangerous because of the predators living in them, and some are even a kind of poison. There is a water artery in the world, the temperature of which approaches the boiling point

and, naturally, anyone who decides to swim in it is taking a great risk. Also on our planet there is a river in the bed of which, instead of water, a dangerous acid splashes, corroding everything organic. This article examines the problems of river pollution by various wastes in the modern world.

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. As a rule, polluted water seeps into the ground, penetrates into underground sources. This destroys deep soil layers. In agricultural regions, nitrates and animal waste poison water bodies.

The process of pollution of rivers with sewage in the form of human waste and detergents is constantly occurring. In turn, these pollutants lead to the development of pathogenic microflora - a source of various infectious diseases dangerous to public health.

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.

Jonah Fisher [1] believes that the world's rivers are heavily polluted with various medications and other pharmaceutical products, and this poses a threat to both the environment and human health - these are the results of a large study conducted by British scientists. In her work, the author notes that during a large study organized by the University of York, scientists found that traces of paracetamol, epilepsy and diabetes medications, as well as nicotine and caffeine, can most often be found in the world's rivers. The author also drew attention to the fact that the most polluted rivers are in countries such as Pakistan, Bolivia and Ethiopia. The least polluted are the rivers of Iceland, Norway and the Amazon basin. The study by the University of York, the report of which was published in the journal Proceedings of the National Academy of Sciences, has become one of the largest in this area: 258 rivers in 100 countries, more than a thousand sampling sites. The report also says that antibiotic pollution in rivers can reduce their effectiveness by allowing antibiotic-resistant bacteria to develop in water. This is one aspect of the threat that drug pollution poses to human health.

Referring to the data of the source [2] we can state that the Mississippi River, which flows through 10 US states, is the mother of all American rivers. All this in turn is extremely toxic wastewater, which brings millions of cubic meters of microbes, toxins and waste. The territory of the Gulf of Mexico is a real "death zone" - not only because of pollution, but also because of the low concentration of oxygen, for this reason there are no aquatic organisms here.

Figure 1. Photo illustrating the pollution of the Yangtze River.

As noted in the source materials [3], the third largest river, the Yangtze, flows through China. This river is the main waterway for many kilometers, its length is approximately 6440 km. The Yangtze (Fig. 1) is rich in flora and fauna. Chinese crocodiles, paddlefish and guinea pigs, listed in the Red Book, live in this river. The waterway gives stability and income to people who have settled along its banks, but not everything is as good as it may seem. Settlements are often subject to flooding, the river overflows its banks and destroys not only housing, but also takes lives. The most terrible flood was in 1954. In this tragedy, more than 30,000 people died, and even more were left homeless and without livestock, they had to start all over again, from scratch. Every year, the river tests the strength of residents during the rainy season, which lasts from May to August. Water flows are very dangerous, despite everything people continue to live, build new settlements on its banks. Another problem is the ecology of the Yangtze. Along the river there are many settlements and small factories that dump untreated wastewater into its bed. For this reason, this river becomes a large sewer with toxic waste.

The materials of the site [4] note that the largest tributary of the Ganges, the Yamuna (Jamna) (Fig. 2), flows from the Lower Himalayas and flows through several states of Northern India, forming a very fertile valley at the confluence with the Ganges. In terms of composition, this river is considered absolutely clean, but only in the spiritual sense. But at present, the situation with the real state of the river is critical; it is second in pollution (possibly because it is smaller in size) only to the Ganges. Millions of tons of household garbage and wastewater are dumped into the Yamuna every day, and this monstrous process cannot be stopped. In addition, more and more wastewater and agricultural waste have been found in the water lately. The site's materials also provide a list of the most polluted rivers in the world: Rio Tinto (Spain), Sarno (Italy), Marilao (Philippines), Yellow River (China), Jordan (Israel), Buriganga (Bangladesh), Mississippi (USA), Matanza-Riachuelo (Argentina), Ganges (India), Citarum (Indonesia).

Figure 2. Photo illustrating pollution of the Yamuna River.

The process of river pollution at the present stage occurs 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. To a large extent, chemical pollution in it is indistinguishable due to its dissolved state. At the same time, oil spills, untreated household and industrial wastewater, and foamy detergents are very noticeable.

METHODOLOGY

Land and water bodies (lakes, seas and oceans) are connected by rivers flowing into water bodies and carrying various pollutants. It should be noted that these wastes, when in contact with the soil, chemical substances such as petroleum products, oil, fertilizers (especially nitrates and phosphates), insecticides and herbicides as a result of leaching get into rivers and then into clean lakes, seas and oceans. As a result, all lakes, seas and oceans of the globe turn into a dumping ground for this "cocktail" of nutrients and poisons.

Rivers have always been a source of fresh water. It is necessary to state that at the present stage they have begun to transport waste. In general, all these pollutants from water intake areas flow along river beds into seas and oceans. Most of the used river water returns to rivers and reservoirs in the form of wastewater. Until now, the growth of treatment facilities has lagged behind the growth of water consumption. And at first glance, this is the root of the evil. In fact, everything is much more serious. Even with the most perfect purification, including biological, all dissolved inorganic substances and up to 10% of organic pollutants remain in purified wastewater. Such water can again become suitable for consumption only after multiple dilution with clean natural water. It should be noted that for a person, the ratio of the absolute amount of wastewater, even purified, and the water flow of rivers is important.

According to experts, drinking water reserves are considered limited, and they are already running out. According to data from the Washington World Resources Institute, about a third of the planet's population - about 2.6 billion people live in countries with "severe water shortages," and 1.7 billion people in 17 countries face "extreme water shortages." About a dozen countries in the arid Middle East are experiencing a very acute shortage of drinking water, and in India, the process of drinking water shortages has reached a critical level. All this can lead to fraught consequences in all areas of the national economy - from economic development to deterioration of the health of the country's population. Countries such as Pakistan, Botswana, Turkmenistan and Eritrea are also experiencing extreme shortages of water resources. According to expert forecasts, by 2040 at least 33 countries in the world will be subject to the greatest shortage of drinking water.

Pollution of river oases occurs as a result of harmful substances entering river runoff. These substances usually include microorganisms and chemicals such as oil and other pollutants. With these and other types of waterway pollution, water quality deteriorates and eventually becomes toxic to humans and the environment. As is known, much needs to be done to protect the environment, one of the very important methods of maintaining a healthy environment is to reduce water pollution in rivers and reservoirs, for which there are many effective solutions that can help achieve this goal.

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.

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

CONCLUSIONS

We believe that the level of human influence on the planet is regulated by the technical equipment of people. The development of mankind 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 discharges into rivers and seas of various waste and pollutants, as well as other deteriorating factors, increases. All this can entail fraught consequences for civilization and humanity. 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 the use of clean technologies in all production processes. At the same time, it is necessary to tighten the rules for monitoring compliance with the requirements of water quality standards for consumed water. In our opinion, this mechanism of influence is considered the most effective.

REFERENCES

1. Jonah Fisher BBC Environment Correspondent 15 February 2022.
2. https://waterservice.kz/blog/art32.html.
3. Source: https://megatopof.ru/priroda/strashnye-reki.html.
4. Source: www.buzzle.com.
5. 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, No. 1, Pp.35-45.

6. 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.
7. Baratov B. N., Umarov F. Ya., Toshov Zh. B. Evaluation of the performance of three-cone drill bits / Mining magazine - Moscow, 2021. - No. 12. - P. 60-63.
8. O. V. Tuyboyov, N. F. Raxmanova, B. N. Baratov. Investigation into sustainable innovations in mining engineering for resource optimization and environmental efficiency // “Kon mashinalari va tekhnologiyalar” ilmiy-tekhnik magazine, Tashkent, 2024, No. 1 (7), Pp. 51-58.
9. Toshov, Z.B., Rahutin, M.G., Toshov, B.R., Baratov B.N. Tracking prevention in roller cone bit drilling // Eurasian Mining, 2024, 41(1), pages 62–66. DOI:10.17580/em.2024.01.15.