

RIVER POLLUTION IN UZBEKISTAN: ITS CAUSES AND CONSEQUENCES

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Abstract: This article analyzes the problems of river pollution in Uzbekistan, its main causes, and consequences. The study examines the impact of industrial waste, agricultural chemicals, and domestic waste on water bodies. The results show that river pollution disrupts ecological balance and has negative effects on human health. The article also provides recommendations for protecting water resources and reducing pollution.

Keywords: Uzbekistan, river pollution, water resources, industrial waste, agriculture, ecological balance, human health, water quality degradation

Introduction

Uzbekistan is located in a region with limited water resources due to its geographical location and climatic conditions. Rivers are vital sources of drinking water, irrigation, and industrial use in the country. In recent years, the growth of industry, agriculture, and population has led to the pollution of river water. This issue poses a serious threat to ecological balance and negatively affects human health, agricultural productivity, and the natural environment.

Therefore, analyzing the causes and consequences of river pollution in Uzbekistan and identifying preventive measures is of great importance.

Uzbekistan's limited water resources and vulnerability to drought further highlight the need for effective river management and pollution prevention. In particular, current industrial and agricultural activities are adversely affecting river water quality. The pollution levels in major rivers such as the Amu Darya, Syr Darya, and smaller rivers in Uzbekistan are increasing. This situation threatens not only the environment but also public health. Thus, a comprehensive study of the causes and impacts of river pollution and the development of effective countermeasures are key priorities of modern environmental policy.

Methods

The study used data from regional environmental monitoring, laboratory analysis, and a review of scientific literature. The chemical and biological parameters of water samples were examined to identify pollutants, microorganisms, and other harmful elements. Additionally, the condition of water sources near industrial enterprises, agricultural sites, and residential areas was investigated.

The research compared the quality and pollution levels of major rivers in Uzbekistan.

Results

The findings show that river pollution in Uzbekistan primarily originates from three main sources: industrial waste, agricultural runoff containing chemicals, and household waste.

Harmful chemical substances from industrial enterprises — especially metals and toxic compounds — degrade the quality of river water. Agricultural pesticides and mineral fertilizers leach from soil into rivers, leading to nutrient enrichment of water bodies. This causes the death of aquatic organisms and reduces biodiversity.

Domestic waste contributes to the growth of microorganisms and the deterioration of water hygiene.

Contaminated water poses a significant threat not only to the environment but also to human health. The declining quality of drinking water, the spread of waterborne diseases, and the contamination of agricultural products are among the key issues.

Discussion

The pollution of rivers in Uzbekistan is caused by numerous factors. The study confirmed that industrial, agricultural, and domestic waste are the primary sources of pollution.

In particular, the chemical substances and heavy metals released in industrial zones significantly deteriorate water quality. Fertilizers and pesticides used in agriculture enter rivers, disrupt their biological balance, and affect the aquatic food chain.

Moreover, improper disposal of waste into water bodies worsens hygienic conditions.

These issues not only harm aquatic ecosystems but also pose serious risks to public health. The use of polluted water increases the incidence of waterborne diseases, allergies, and other health problems.

Furthermore, the decline in water quality negatively affects agricultural production, which in turn impacts the national economy.

To address these problems, it is essential to strengthen environmental monitoring, reduce industrial and agricultural waste, and implement modern water purification technologies.

Raising public environmental awareness and enforcing regulatory measures are also crucial.

Conclusion

The pollution of rivers in Uzbekistan is a serious issue that gives rise to both environmental and social problems. The study revealed that industrial discharge, agricultural activities, and domestic waste are the main sources of river pollution.

This pollution adversely affects water quality, biodiversity, and human health.

To solve this problem, it is necessary to enhance environmental control, manage waste effectively, introduce advanced water treatment methods, and improve ecological literacy among the population.

Additionally, it is important to develop and implement a sustainable water resource management strategy at the national level. These measures will contribute to ensuring water security and maintaining ecological balance in Uzbekistan.

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