American Journal of Bioscience and Clinical Integrity
https://biojournals.us/index.php/AJBCI
ISSN: 2997-7347

The Tragedy of the Aral Sea and its Impact on Human Life

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Received: 2025, 15, Sep
Accepted: 2025, 21, Oct
Published: 2025, 21, Nov

Abstract: The drying of the Aral Sea has led to serious environmental changes and caused significant health problems among the local population. Ecological factors arising from the shrinking of the Aral Sea — such as declining water levels, accumulation of pesticides in the environment and food chains, dust storms, and changes in air quality — negatively affect human health.

Keywords: Aral Sea, pastures, livestock, ecology, pesticides.

Introduction

The Aral Sea was once one of the largest water bodies in Central Asia. Due to improper use of water for irrigation, the sea has drastically shrunk, leaving behind salt and other minerals on the exposed seabed. These toxic substances contaminate the soil and are carried by wind to surrounding regions, including agricultural lands. As a result, respiratory diseases and cancer rates have increased. The reduction in the sea's volume has also influenced the local climate, leading to stronger and more frequent dust storms.

1. Causes of the Aral Sea Drying

During the Soviet era, the waters of the Amu Darya and Syr Darya rivers, which once fed the Aral Sea, were largely diverted for irrigating cotton fields in Uzbekistan. As a result, inflow to the sea sharply decreased. Additionally, global warming and climate change accelerated the drying process.

2. Ecological Consequences

The exposure of the seabed has created vast areas of salt and sand deserts. Strong winds carry these salts over hundreds of kilometers, polluting the environment. Consequently, air quality has deteriorated, and biodiversity — including flora and fauna — has significantly declined.

3. Social and Health Impacts on the Population

The people living in the Aral Sea region are directly affected by this ecological disaster. Due to poor air and water quality, respiratory, cardiovascular, renal, and skin diseases have become widespread. Shortages of drinking water and declining food quality further worsen public health.

4. Measures to Mitigate the Consequences

One of the main challenges in restoring the region is reducing salt and other harmful deposits on the exposed seabed. Some potential solutions include building reservoirs to regulate water flow and limiting the amount of water allocated for irrigation.

Purpose of the Study

The aim of this article is to analyze the causes of the Aral Sea's desiccation, examine the ecological crisis's impact on the population, environment, and economy, and propose possible solutions for mitigating existing problems.

Methods

The following methods were used in the study:

- Analytical method: Scientific literature, articles, and reports on the causes and consequences of the Aral Sea drying were reviewed.
- Comparative method: The past condition of the sea was compared with its current state.

Results

Since the 1970s, infant mortality rates in the region have been increasing. Reports indicate that by 1993, harmful substances contributing to increased infant mortality had risen to 70 cases in Kazakhstan. Toxins enter the body through air, drinking water, and food sources. In Turkmenistan alone, around 50% of diseases recorded in children are associated with respiratory problems.

Conclusion

The drying of the Aral Sea remains one of the largest environmental tragedies affecting the entire region. This crisis disrupts not only the natural environment but also human health, economic stability, and social life. Therefore, rational use of water resources, strengthening environmental protection measures, and enhancing international cooperation are essential for securing the future of the Aral Sea region.

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