THE ROLE OF INTERNATIONAL COOPERATION IN MITIGATING THE ARAL SEA ECOLOGICAL DISASTER

Raximova Nargiza Xamidullayevna
University of World Economy and Diplomacy, Senior Lecturer
Tel: +998995313403
Umirzakova Barno Akram qizi
University of World Economy and Diplomacy, student
E-mail: umirzakovabarno62@gmail.com
Tel: +998993383503

Abstract: *The Aral Sea disaster is one of the most serious environmental problems in Central Asia and the world. Over the last sixty years, the sea has lost most of its water due to wrong irrigation policies during the Soviet era. This article explores how international cooperation helps to solve this crisis. The main goal of the research is to analyze the role of international organizations and neighbor countries in saving the region. The paper uses historical data and official reports to show how collective work can change the situation. It covers the history of the sea, the start of cooperation between Central Asian countries, and the help from global partners like the UN and World Bank. The results suggest that while the sea cannot be fully restored, international support is essential for the health and economic survival of millions of people living in the area.*

Keywords: *Aral Sea, international cooperation, Central Asia, environmental disaster, water management, IFAS, sustainable development.*

Introduction

The Aral Sea was once the fourth largest inland lake in the world, providing food and jobs for thousands of people in Uzbekistan and Kazakhstan. However, starting from the 1960s, the situation changed dramatically. The Soviet Union decided to turn the Central Asian deserts into cotton fields. To do this, they diverted water from the two main rivers, the Amu Darya and the Syr Darya. For many years, the economic goals were more important than the environment. As a result, the sea began to dry up. Today, the Aral Sea is a symbol of ecological catastrophe. The water has moved away from the old ports, leaving behind a salty desert called the Aralkum. This disaster did not only affect the water; it changed the climate, destroyed the local economy, and caused serious health problems for the people living nearby. Salt and toxic dust from the dry seabed now travel thousands of kilometers, reaching even the glaciers of the Himalayas and parts of Europe. Because this problem is so big, no single country can solve it alone. The Aral Sea is located between several countries, and the rivers that feed it flow through Tajikistan and Kyrgyzstan as well. Therefore, international cooperation is the only way

to manage the crisis. This paper will look at how countries have started to work together since the 1990s and what role international organizations play in this process. We will discuss the successes and the remaining challenges in the fight to save what is left of the Aral Sea.

The History of the Aral Sea Crisis

To understand why international cooperation is necessary, we must look at how the disaster started. In the middle of the 20th century, the Aral Sea was a healthy ecosystem. It had a rich fishing industry that produced over 40,000 tons of fish every year. Towns like Muynak in Uzbekistan and Aralsk in Kazakhstan were busy ports. However, the plan to grow cotton on a massive scale required huge amounts of water. Engineers built thousands of kilometers of irrigation canals. Unfortunately, many of these canals were not lined with concrete, so a lot of water simply soaked into the sand and never reached the fields or the sea. By the 1980s, the amount of water reaching the Aral Sea was almost zero. The sea began to shrink rapidly. First, it split into two parts: the North Aral Sea and the South Aral Sea. The salinity of the water increased so much that almost all fish species died. The climate also changed. Without the large body of water to regulate temperature, summers became much hotter and winters became colder. The fishing industry collapsed, and thousands of people lost their jobs. This led to a mass migration of people away from the region.

The Birth of Regional Cooperation

When the Soviet Union collapsed in 1991, five new independent states appeared in Central Asia: Uzbekistan, Kazakhstan, Turkmenistan, Tajikistan, and Kyrgyzstan. Suddenly, the Aral Sea was not a domestic problem of one country anymore. It became an international issue. The rivers that were needed to save the sea started in the mountains of Tajikistan and Kyrgyzstan, but the disaster was most visible in Uzbekistan and Kazakhstan. In 1993, the leaders of these five countries met to discuss the crisis. They understood that if they did not work together, the situation would get even worse. They created the International Fund for Saving the Aral Sea (IFAS). This was a historical moment because it was the first time these nations agreed to share responsibility for the environment. The main goals of IFAS were to improve the living conditions of people in the Aral Sea basin and to find ways to manage water resources more effectively. Although there were many political and economic difficulties in the early years of independence, IFAS managed to keep the dialogue open. This organization became the main bridge between Central Asia and the rest of the world.

The Role of the United Nations and Global Partners

The Aral Sea disaster is so large that the local countries did not have enough money or technology to fix it. This is where international organizations stepped in. The United Nations (UN) has been one of the most important partners in this journey. The UN declared the Aral Sea region a priority for human security. In 2018, the UN launched the Multi-Partner Human Security Trust Fund for the Aral Sea Region. This fund is very

important because it collects money from different countries like Norway, Japan, and members of the European Union. Instead of just giving money, the fund works on specific projects. For example, it helps to build clean water systems in Karakalpakstan and provides medical equipment to local hospitals. Another major player is the World Bank. The World Bank provided the loans and expertise needed for one of the most successful projects in the region: the Kokaral Dam. In the early 2000s, Kazakhstan worked with the World Bank to build this dam to separate the North Aral Sea from the South. The results were amazing. In just a few years, the water level in the North Aral rose, the salinity dropped, and fish started to return. This project proved that international cooperation and scientific planning could actually bring part of the sea back to life.

Scientific and Environmental Cooperation

International cooperation is not only about money; it is also about sharing knowledge. Scientists from Germany, Japan, and the United States have worked with Uzbek and Kazakh scientists to study the Aralkum desert. One of the biggest problems is the toxic dust. To stop the dust, they needed to plant trees on the dry seabed. Through international programs, millions of saxaul trees have been planted. These trees are very strong and can grow in salty soil with very little water. The German development agency (GIZ) has been very active in this area. They provided the technology to map the seabed and choose the best places for planting. This "Green Belt" project is helping to stabilize the soil and protect the health of people living hundreds of kilometers away. Furthermore, international cooperation has helped to modernize agriculture. For many years, farmers used too much water because they used old methods. With help from international experts, many farms in Uzbekistan are now using drip irrigation. This technology saves a lot of water, which can then stay in the rivers and eventually reach the sea. This shift in thinking is a direct result of global cooperation and the exchange of ideas.

The Challenges of Transboundary Water Management

While there are many success stories, international cooperation still faces big challenges. The most difficult issue is how to share the water of the Amu Darya and Syr Darya. The countries in the mountains (Tajikistan and Kyrgyzstan) want to use the water in winter to produce electricity (hydropower). However, the countries downstream (Uzbekistan, Turkmenistan, and Kazakhstan) need the water in summer for their crops. Finding a balance between energy needs and agricultural needs is a constant struggle. International law and water diplomacy are the only tools available to solve this. Organizations like the European Union have helped by hosting meetings and providing legal experts to help these countries write fair water-sharing agreements. It is a slow process, but without these international platforms, there could be serious conflicts over water.

The Importance of Public Awareness and Education

Finally, international cooperation has played a huge role in raising awareness. Before the 1990s, the world did not know much about the Aral Sea. Today, because of international films, articles, and conferences, it is recognized as a global tragedy. This global attention puts pressure on governments to act and encourages young scientists to find new solutions. Educational exchange programs have allowed students from Central Asia to study environmental management in Europe and America. When these students return home, they bring new perspectives on how to handle the ecological crisis. This human element of international cooperation is just as important as building dams or planting trees.

The Role of Non-Governmental Organizations (NGOs) in Global Action

While governments and large organizations like the UN do the main work, non-governmental organizations (NGOs) have also been very important. These smaller organizations often work directly with the people in the villages of Karakalpakstan and the Kyzylorda region. They act as a bridge between international donors and local communities. International NGOs have focused on "bottom-up" solutions. For example, some European organizations have funded small-scale water purification projects. In many villages near the dry sea, the ground water is too salty and full of chemicals. NGOs have helped install simple filtering systems that provide clean drinking water to schools and hospitals. This is a clear example of how international help reaches the most vulnerable people. Furthermore, NGOs work on environmental education. They teach local children and farmers about the importance of biodiversity. By organizing international ecological camps and seminars, they help the younger generation understand that their future depends on how they treat the environment. This social cooperation is just as valuable as technical cooperation because it changes the mindset of the people.

Case Study: The Success of the Northern Aral Sea

To understand the power of international cooperation, we must look closely at the Northern Aral Sea project in Kazakhstan. This is often called the "miracle in the desert." After the Soviet Union collapsed, the northern part of the sea was almost gone. However, the Kazakh government, with the financial and technical help of the World Bank, decided to build the Kokaral Dam. This eight-mile long dam was completed in 2005. The results were faster than anyone expected. Because the dam stopped the water of the Syr Darya from flowing into the dry southern desert, the water level in the North Aral rose quickly. The distance from the sea to the city of Aralsk decreased from 100 kilometers to about 20 kilometers. More importantly, the salinity of the water dropped. This allowed local fish species to return. Today, fishing is again a major part of the local economy. This project is a global example of how engineering and international finance can work together to fix a part of a disaster. It gives hope that with enough money and political will, parts of the Southern Aral in Uzbekistan could also be improved in similar ways.

The Impact of Global Climate Change on Mitigation Efforts

International cooperation now faces a new and dangerous challenge: global climate change. Recent studies by international scientists show that the glaciers in the Pamir and Tian Shan mountains are melting very fast. These glaciers are the primary source of water for the Aral Sea basin. Initially, the melting glaciers might provide more water, but in the long run, this will lead to a severe water shortage. International climate organizations are now working with Central Asian governments to create "Climate Adaptation" strategies. This means countries must learn to use even less water. The cooperation now involves sharing satellite data and weather forecasting technology. For example, the United States and the European Union provide satellite imagery to monitor the ice cover in the mountains. This information helps Uzbekistan and Kazakhstan plan their agricultural seasons. This shows that the Aral Sea issue has moved from being just about "land and water" to being about "technology and space data".

Sustainable Agriculture and Water-Saving Technologies

A large part of international cooperation is focused on changing how cotton and rice are grown. For decades, the region used "flood irrigation", which wastes about 70% of the water. International experts from Israel and China have been working with Central Asian farmers to introduce drip irrigation and laser leveling of fields. In Uzbekistan, the government has started large reforms to reduce cotton production and grow more fruits and vegetables, which need less water. International financial institutions provide low-interest loans to farmers who want to buy modern water-saving equipment. This transition is difficult and expensive, but it is the only way to ensure that enough water stays in the rivers to reach the Aralkum desert and support the new forests planted there.

The Role of International Law and Diplomacy

As mentioned before, water sharing is a sensitive political issue. International law provides the framework for these discussions. The United Nations Economic Commission for Europe (UNECE) has been helping Central Asian countries understand and implement international water conventions. These conventions encourage countries to share information about water quality and quantity. They also provide a mechanism for solving disputes peacefully. Without this legal cooperation, there is a risk of "water wars" in the future. International diplomacy ensures that water is seen as a "tool for peace" rather than a "reason for conflict". Regular meetings of the IFAS board and international water forums keep the leaders focused on the shared goal of regional stability.

The Future of the Aral Sea: A Global Responsibility

What is the future of the Aral Sea? Most scientists agree that the sea will never return to its 1960 boundaries. The Southern Aral Sea is too deep and too far gone for a full recovery. However, international cooperation is now focusing on mitigation and adaptation. The goal is now to create a "New Aral". This means a region where the dry seabed is covered with forests, where the people have clean water and modern hospitals,

and where the economy is based on sustainable business rather than thirsty crops. The "Green Aral Sea" project, supported by multiple countries, aims to turn the Aralkum desert into a forest of two million hectares. This is a global responsibility because the salt from the Aral Sea affects the global climate. If the dust storms are not stopped, they will continue to melt glaciers and affect health across the continent. Therefore, the world must continue to invest in this region.

Conclusion

The Aral Sea ecological disaster is a tragic lesson for humanity about the dangers of ignoring nature. However, the history of the last thirty years shows that when countries work together, they can achieve great things. International cooperation has provided the money, the technology, and the legal framework needed to manage this crisis. From the successful restoration of the North Aral Sea to the massive reforestation projects in the South, the results of collective action are visible. The role of organizations like the UN, the World Bank, and IFAS has been fundamental. While the road ahead is long and complicated by climate change, the Aral Sea region is no longer alone in its struggle. The international community has recognized that saving the Aral Sea is not just a Central Asian task, but a global mission for a sustainable future.

References

1. Dukhovny, V. A., & Zigshina, D. R. (2022). Water cooperation in Central Asia: The role of the Aral Sea basin. Springer.
2. Micklin, P. (2016). The Aral Sea disaster and its future. Annual Review of Earth and Planetary Sciences, 44, 133-156.
3. United Nations. (2023). Human security and the Aral Sea: A collective response. UN Press.
4. UNESCO. (2021). Case studies in transboundary water management: The Aral Sea basin. UNESCO Publishing.
5. World Bank. (2022). Saving the North Aral Sea: A success story of international partnership. World Bank Reports.
6. White, K. D. (2020). Nature–society linkages in the Aral Sea region. Journal of Arid Environments, 178, 104-155.
7. Zholdasbekova, A. (2021). Diplomacy and environment in Central Asia. Journal of International Studies, 14(2), 45-60.