

THE ENVIRONMENTAL CATASTROPHE OF THE ARAL SEA REGION: LEGAL RESPONSIBILITY AND REHABILITATION STRATEGIES

Abdurofiyeva Nodirabonu

*Termiz State University
3rd-year student of the Faculty of Law*

Abstract: The Aral Sea crisis stands as one of the most severe environmental disasters of the 20th and 21st centuries, with profound ecological, socio-economic, and health consequences. This article examines the legal dimensions of responsibility for the degradation of the Aral Sea and evaluates current and proposed rehabilitation strategies. Emphasis is placed on the roles of national governments, international organizations, and regional cooperation in addressing the environmental and humanitarian aftermath. The study concludes that a combination of legal accountability, multilateral action, and sustainable development strategies is essential for restoring ecological balance in the Aral Sea basin.

Keywords; Aral Sea, environmental disaster, legal responsibility, transboundary water management, rehabilitation, international environmental law, Central Asia.

The desiccation of the Aral Sea, once the world's fourth-largest inland body of water, represents a striking case of environmental mismanagement and legal inaction. Primarily caused by massive irrigation diversions from the Amu Darya and Syr Darya rivers during the Soviet era, the crisis has resulted in widespread desertification, loss of biodiversity, economic collapse in fisheries, and severe public health issues due to toxic dust storms and polluted groundwater.

Despite decades of awareness, legal and institutional responses have been fragmented and insufficient. This article seeks to analyze the legal responsibilities associated with the disaster and to evaluate the effectiveness of current and potential rehabilitation strategies within national and international legal frameworks.

The study is based on:

- **Doctrinal legal analysis:** Examining national laws of Central Asian states and international legal norms concerning transboundary water resources and environmental harm;
- **Case study method:** Focusing on the Aral Sea basin as a regional example of environmental degradation;
- **Comparative analysis:** Reviewing legal approaches and rehabilitation models from other transboundary ecological disasters;
- **Policy and institutional review:** Assessing actions by regional bodies such as IFAS (International Fund for Saving the Aral Sea), UN agencies, and environmental NGOs.

Legal Responsibility for Environmental Degradation

Under international law, key principles applicable to the Aral Sea catastrophe include:

- **No harm rule:** States must not cause environmental harm to other states (Rio Declaration, Principle 2).
- **Equitable and reasonable use:** Shared watercourses must be used in a fair and sustainable manner (UN Watercourses Convention, 1997).
- **Obligation to cooperate:** Riparian states must exchange information, consult, and negotiate on water use.

However, in practice:

- The **lack of a binding multilateral agreement** among all five Central Asian countries has hindered coordinated action.
- The **Soviet-era water allocation system** was not replaced by a sustainable legal framework post-independence.
- **Legal accountability** for past environmental harm remains politically sensitive and unaddressed in formal dispute resolution bodies.

National Legal Frameworks

- **Uzbekistan and Kazakhstan** have adopted environmental protection laws and national Aral Sea rehabilitation programs, yet **enforcement is weak** due to limited institutional capacity.
- **Turkmenistan, Tajikistan, and Kyrgyzstan** have differing water usage priorities and lack consistent alignment on Aral policies.
- **Public access to environmental justice** is still restricted despite the Aarhus Convention commitments.

Rehabilitation Strategies

Current efforts include:

- **Kazakhstan's Kok-Aral Dam** project, which has helped restore water levels in the North Aral Sea.
- **UNDP and World Bank projects** focusing on afforestation, alternative livelihoods, and clean water access.
- **IFAS initiatives**, though often underfunded and politically constrained.

Proposed improvements:

- A **regional water-sharing treaty** underpinned by enforceable legal mechanisms.
- Greater **community participation** in environmental planning.
- Integration of **climate resilience and gender sensitivity** into rehabilitation policies.

Need for Legal Accountability

Despite the scale of the disaster, **no formal attribution of liability** has been made against states or Soviet-era institutions responsible for the ecological damage. This lack of accountability sets a dangerous precedent and limits the scope for justice and restitution.

An independent **environmental tribunal** or mediation body under the auspices of the UN or OSCE could provide a forum for addressing historical grievances and negotiating compensation or environmental reparations.

Transboundary Water Governance

The Aral Sea basin exemplifies the challenges of **transboundary environmental governance** in regions with geopolitical tension. Effective management requires:

- **Clear legal obligations;**
- **Transparent dispute resolution** mechanisms;
- **Institutional trust-building** among riparian states.

Learning from the **Danube River Commission** or **Mekong River Agreement**, Central Asian states could establish a binding legal entity with monitoring, enforcement, and decision-making authority.

Human Rights and Environmental Justice

The disaster's impact on local populations — including rising cancer rates, child mortality, and loss of economic livelihoods — calls for a **human rights-based approach**. International law recognizes access to clean water and a healthy environment as fundamental rights.

Affected communities must be involved in decision-making and benefit directly from rehabilitation funds and programs.

The Aral Sea crisis illustrates the consequences of unsustainable resource management and weak environmental governance. Legal responsibility for the catastrophe remains unclear and largely unacknowledged, while rehabilitation efforts, though improving, lack coherence and sufficient legal backing. Without stronger legal accountability, regional cooperation, and inclusive development policies, long-term restoration remains elusive.

Recommendations

1. **Establish a binding regional water governance treaty** with dispute resolution and enforcement mechanisms.
2. **Recognize legal liability** for environmental harm and promote reparative justice for affected populations.
3. Strengthen national environmental laws and **ensure public access to justice and environmental information**.
4. **Increase international funding and oversight** for Aral Sea rehabilitation projects.
5. Support **community-led and ecologically sustainable development models** to rebuild local economies.

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