

Appendix E

Transboundary Groundwater Governance Legal Frameworks

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Effective groundwater governance is crucial for managing transboundary water resources, ensuring equitable access, and preventing environmental degradation. Over time, various legal frameworks have emerged to regulate shared groundwater, from early instruments like the Helsinki Rules (1967) and Seoul Rules (1986) to the more recent Draft Articles on the Law of Transboundary Aquifers (2008), all emphasizing equitable and reasonable utilization, obligation not to cause harm, and mandatory cooperation.^{1 2} Regional and basin-specific instruments, such as the European Union (EU) Water Framework Directive (2000) and the Southern African Development Community (SADC) Protocol on Shared Watercourses (2000), provide tailored approaches to governance, while multilateral environmental and human rights treaties, including the Convention on Biological Diversity (CBD) (1992) and the International Covenant on Economic, Social, and Cultural Rights (ICESCR), reinforce the connection between groundwater sustainability, ecosystem protection, and human rights.

Additionally, governance frameworks must account for both on-reservation and off-reservation tribal water rights, ensuring that treaties, federal trust responsibilities, and relevant legal principles are incorporated into groundwater management strategies. Complementing these legal frameworks, global governance initiatives like Governance of Groundwater Resources in Transboundary Aquifer (GGRETA) and Global Environmental Facility International Waters (GEF) supporting Transboundary Waters Assessment Programme (TWAP) enhance cooperation, data-sharing, and scientific assessments. Together, these mechanisms form the backbone of international groundwater governance, promoting sustainable use, preventing disputes, and ensuring the long-term viability of shared aquifers.

Foundational Legal Frameworks

- I. Helsinki Rules (1967)
 - A. Established the principle that international drainage basins include both surface and connected groundwater but did not cover confined aquifers.
 - B. Defined an international drainage basin as a system of waters, including surface and underground sources, flowing into a common terminus.

¹ The Helsinki Rules on the Uses of the Waters of International Rivers, 1966, were adopted by the 52nd International Law Association (ILA) at its meeting in Helsinki, Finland, in 1966 and subsequently published in 1967. While the official publication date is 1967, the rules are often referred to by the year of their adoption in legal and policy discussions.

² The Seoul Rules on International Groundwaters, 1986, were adopted by the 62nd International Law Association (ILA) conference held in Seoul, Korea, in 1986. These rules supplemented the earlier Helsinki Rules on the Uses of the Waters of International Rivers, 1966, by addressing groundwater resources, particularly those that are hydraulically connected to surface waters.

C. Key Provisions:

1. Equitable and Reasonable Utilization: States are entitled to a fair share of the beneficial uses of an international water basin.
2. Obligation to Prevent Harm: States must prevent new forms of water pollution or changes that could harm other basin states.

II. Seoul Rules (1986)

- A. Expanded the Helsinki Rules by incorporating confined groundwater into transboundary water governance.
- B. Defined aquifers as all underground water-bearing strata capable of yielding water.
- C. Clarified that aquifers intersecting state boundaries qualify as part of an international basin.

D. Key Provisions:

1. Protection of Groundwater: Stresses the need to prevent groundwater over-extraction and pollution.
2. Integrated Management: Encourages the combined governance of surface and groundwater resources.

III. Bellagio Draft Treaty (1989)

- A. Focused on governance of shared aquifers and cooperation between states.

B. Key Provisions:

1. Joint Management Mechanisms: Proposed establishing joint commissions for managing transboundary groundwater resources.
2. Data Sharing: Encourages states to exchange relevant groundwater data and information.

IV. UN Watercourses Convention (1997)

- A. Extended international water law to groundwater, defining watercourses to include aquifers linked to surface water.

B. Key Provisions:

1. Obligation Not to Cause Significant Harm: Article 7 requires states to take appropriate measures to prevent significant harm to other watercourse states.
2. Notification of Planned Measures: States must inform other watercourse states of planned activities that could have adverse effects.
3. Dispute Resolution: Provides mechanisms for peacefully resolving conflicts between states sharing a watercourse.

V. Draft Articles on the Law of Transboundary Aquifers (2008)

- A. First global instrument specifically addressing aquifer governance.
- B. Key Provisions:
 - 1. Sovereignty of Aquifer States: Affirms that states have sovereignty over the portion of a transboundary aquifer located within their territory.
 - 2. Equitable and Reasonable Utilization: Requires that states use groundwater in a fair and sustainable manner.
 - 3. Obligation Not to Cause Significant Harm: Mandates that states take precautions to prevent harm to neighboring states.
 - 4. Mandatory Cooperation: Establishes the duty of states to cooperate on aquifer management.
 - 5. Data Exchange: Encourages states to share relevant groundwater data.
 - 6. Recharge and Discharge Zones: Recommends that states identify and protect aquifer recharge and discharge zones.
 - 7. Monitoring: Calls for regular assessment of aquifers to ensure sustainable use.

Regional and Basin-Specific Legal Instruments

- I. EU Water Framework Directive (2000)
 - A. Introduced basin-based water management, groundwater quality standards, and the polluter pays principle.
 - B. Key Provision:
 - 1. Mandates economic analysis of water use and monitoring and reporting on water quality.
- II. Southern African Development Community (SADC) Protocol on Shared Watercourses (1995, revised 2000)
 - A. Provides a legal framework for regional cooperation in managing shared water resources.
 - B. Key provisions:
 - 1. Requires states to protect and preserve shared water ecosystems.
 - 2. Establishes procedures for coordinated responses to water-related emergencies.
- III. African Union's Shared Watercourses Framework (2000)
 - A. The African Water Vision 2025 emphasizes integrated water resources management for shared watercourses across the African continent.
 - B. Key Provisions:
 - 1. Focuses on sustainable management of transboundary water resources, including groundwater.

2. Encourages cooperation among member states for the equitable development and management of water resources.

IV. Water Charter for the Niger River Basin (1964)

- A. Regulates the management of the Niger River and its associated groundwater resources.
- B. Key Provisions:
 1. Defines the cooperative framework for managing both surface and groundwater resources within the Niger River Basin.
 2. Provides for the establishment of a shared water resources commission to oversee governance.

Multilateral Environmental and Human Rights Instruments

I. Convention on Biological Diversity (CBD) (1992)

- A. Protects biodiversity, which indirectly supports the preservation of groundwater-dependent ecosystems.
- B. Key Provisions:
 1. Parties are obligated to conserve biodiversity, including groundwater-dependent ecosystems.
 2. Encourages integrated management strategies that connect groundwater sustainability with broader environmental health.

II. Ramsar Convention on Wetlands (1971)

- A. Protects wetlands, including those dependent on groundwater resources.
- B. Key Provisions:
 1. Protects wetlands, which are often dependent on groundwater, and promotes integrated water resource management.
 2. Encourages transboundary cooperation to protect groundwater-fed wetland areas.

III. International Covenant on Economic, Social, and Cultural Rights (ICESCR)

- A. Key Provisions:
 1. States are required to ensure access to safe drinking water, including the sustainable use of groundwater resources.
 2. Ensures that groundwater governance aligns with human rights principles, ensuring equity in access and sustainability.

Global Water Governance Initiatives

- I. Governance of Groundwater Resources in Transboundary Aquifers (GGRETA) – UNESCO Project
 - A. Aimed at improving transboundary groundwater governance through pilot studies.
 - B. Key Provisions:
 - 1. Conducting technical, legal, and socioeconomic assessments of aquifers.
 - 2. Providing training and technical support to groundwater governance stakeholders.
- II. The Strategic Action Programme (SAP) for International Waters (Global Environment Facility)
 - A. Provides a framework for addressing transboundary water issues, including groundwater, through collaborative efforts.
 - B. Key Provisions:
 - 1. Focuses on integrated water resources management and the promotion of joint management frameworks for shared groundwater.
 - 2. Supports capacity building and the development of strategic action plans for groundwater governance.
- III. Global Environmental Facility International Waters (GEF) supporting Transboundary Waters Assessment Programme (TWAP)
 - A. Also referred to as the Global Transboundary Water Assessment Programme (GTWAP)
 - B. Assesses transboundary water systems, including groundwater, and recommends cooperative management approaches.
 - C. Key Provisions:
 - 1. Focuses on gathering data and providing recommendations for the management of both surface and groundwater in shared basins.
 - 2. Promotes scientific assessments to inform governance practices and facilitate cooperation between states.

Tribal Water Rights - Foundational Legal Principles and Treaties

- I. Winters Doctrine (Winters v. United States, 207 U.S. 564 (1908))
 - A. Established the principle of federally reserved water rights for tribes.
 - B. Affirms that tribal reservations include sufficient water to fulfill their purpose, which has been

extended to include groundwater.³

C. Key Principle:

1. Reservations include an implicit right to water necessary to fulfill their purpose.

II. Federal Trust Responsibility

- A. The U.S. government has a fiduciary duty to protect tribal water rights.
- B. Groundwater governance frameworks must respect and uphold these rights through cooperative management.

C. Key Principle:

1. Federal agencies must consider tribal water rights in decision-making, permitting, and water resource management.

III. Treaty of La Pointe (1842)⁴

- A. Guaranteed Ojibwe (Chippewa) tribes the right to hunt, fish, and gather in ceded lands across present-day Wisconsin and Minnesota.
- B. These rights have been interpreted to include necessary environmental protections, which may extend to groundwater.⁵

C. Key Principle:

1. Tribal water rights extend beyond reservations to ensure the viability of treaty-protected resources.

International Legal Frameworks

I. United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) (2007)

- A. Adopted by the UN General Assembly in 2007, this declaration affirms indigenous peoples' rights to manage and protect their natural resources, including water.
- B. Emphasizes that indigenous communities must have free, prior, and informed consent in any governance framework affecting their water resources.

3 Arizona v. California, 373 U.S. 546 (1963), is a landmark U.S. Supreme Court case solidified the Winters Doctrine, extending federal water rights to Native American tribes, ensuring that they possess adequate water, including groundwater, to fulfill the purposes of their reservations. The case emphasized the federal trust responsibility and was pivotal in establishing that water rights reserved through treaties or executive orders can include groundwater.

4 Other treaties establishing usufructuary rights of Tribes can be found in the introduction, under the section Treaties in EPA Region 5.

5 Minnesota v. Mille Lacs Band of Chippewa Indians, 526 U.S. 172 (1999), affirmed the Mille Lacs Band's usufructuary rights (hunting, fishing, and gathering) guaranteed by the 1837 treaty, rejecting Minnesota's claims that these rights were extinguished by later actions.

C. Key Provisions:

1. Article 25 recognizes indigenous peoples' rights to maintain and strengthen their spiritual relationship with water and other resources.
2. Article 26 recognizes the right to own, use, develop, and control lands, territories, and resources they have traditionally occupied or used.

II. Obligation to Prevent Harm & Equitable Use

- A. Principles from international water law, including the UN Watercourses Convention (1997) and Draft Articles on the Law of Transboundary Aquifers (2008), reinforce the duty to consider tribal rights in managing shared water resources.

B. Key Principle:

1. Tribes must be considered stakeholders in transboundary water governance to prevent harm to their rights and resources.

Considerations

A broader approach to groundwater governance in EPA Region 5 must integrate both international principles and domestic frameworks to ensure sustainable and equitable management of groundwater resources. Given the region's shared aquifers and their significance for tribal nations, states, and local communities, effective transboundary groundwater governance should be a priority.

One key consideration is adopting integrated water resources management (IWRM), a concept championed by the Ramsar Convention and UN Watercourses Convention, which promotes a holistic approach to managing both surface and groundwater resources. This could involve establishing interstate cooperative agreements modeled after the Bellagio Draft Treaty's joint management mechanisms, where shared aquifers are governed collaboratively to prevent over-extraction and contamination.

Additionally, incorporating tribal co-management principles aligned with the federal trust responsibility could strengthen governance structures, ensuring that groundwater policies respect and uphold treaty-protected water rights. A data-sharing framework, inspired by the Draft Articles on Transboundary Aquifers, could enhance transparency and accountability, allowing states and tribes to monitor groundwater quality and usage collaboratively across jurisdictional boundaries.

Further, public engagement and capacity-building—as emphasized in the Global Transboundary Water Assessment Programme (GTWAP)—could enhance local participation, ensuring that all stakeholders, including tribal nations, municipalities, and industrial users, have a voice in groundwater decision-making. By incorporating these international and domestic best practices, EPA Region 5 can develop a resilient, cooperative, and adaptive groundwater governance model, preventing conflicts and ensuring long-term sustainability and equitable access to groundwater resources across state and tribal jurisdictions.