INTERNATIONAL JOURNAL OF LEGAL STUDIES AND SOCIAL SCIENCES [IJLSSS]

ISSN: 2584-1513 (Online)

Volume 3 | Issue 5 [2025] | Page 657 – 670

TRANSBOUNDARY RIVER POLLUTION AND OVERFLOODING

- **Arushi Srivastava**[1]

INTRODUCTION

Scientific and technical advancements, coupled with heightened anthropogenic pressures on the environment, eventually result in the deterioration of ecological conditions natural resources are exhausted, the environment is contaminated, the bond between humans and nature is weakened, aesthetic ideals are lost, the political and economic climate deteriorates, and the competition for living space and commodity markets intensifies. Since river pollution has now gotten to such extreme levels, practically every state is facing a serious issue. The integration and reciprocal coordination of all states' operations are essential to their resolution. Ecological incompetence is one of the primary causes of the unbalanced and detrimental relationships between man, society, and nature that have recently drastically deteriorated. These relationships can result in river pollution and other worldwide environmental catastrophes that make it more difficult for humans to survive.

As previously indicated, the extent of human influence on the environment is growing, and new approaches to this impact are emerging as science and technology advance. In this sense, new areas of interstate relations are developing that call for a successful legal resolution with the aim of limiting and controlling state actions that negatively impact river conditions. The concept on the transition of the Republic of Kazakhstan to a "green economy" noted that, Transboundary environmental issues include pollution of transboundary water bodies.[2] An actual external threat to a nation's environmental security is transboundary river pollution, which can be resolved by the coordinated efforts of surrounding nations within the parameters of international agreements. Regulation of transboundary contamination is also a function of national law. But generally speaking, this function will result from the ratification and codification of the pertinent international regulations.

Moreover, rivers transcend national borders, sustaining communities, promoting agriculture, fostering ecosystems, and promoting trade across borders. However, when pollution and flooding issues come up, their inherent transboundary nature frequently leads to complicated disagreements. Large-scale river ecosystem degradation is caused by untreated sewage, hydropower projects,

---

[1] Student, B.A.LL.B (Hons.), ISPG College (University of Allahabad).

[2] N. Ravichandran, "Transboundary harm in International Environmental Law" 16 *Journal of Private International Law* (2021).

agricultural runoff, and industrial effluents. Uncontrolled building near riverbanks and climate change have also increased the frequency of overflooding.

These issues create transnational environmental and humanitarian issues because they spread beyond the boundaries of one state and affect nearby countries.

Therefore, it is both necessary and timely to examine transboundary river contamination from the perspective of international environmental law. It enables us to investigate how established legal theories interact with contemporary ecological realities, how national interests and global environmental obligations are balanced, and how international adjudicatory bodies and treaties try to resolve disputes involving common natural resources. More significantly, it highlights the pressing need for preventative measures, collaborative governance, and sustainable river management, since rivers continue to be vital to nations and future generations.

TRANSBOUNDARY RIVER POLLUTION

UNDERSTANDING TRANSBOUNDARY RIVER POLLUTION

When contaminants discharged in one nation's portion of a shared river or basin move downstream or beyond a political border and negatively impact water quality, ecosystems, human health, and livelihoods in another nation, this is known as transboundary river pollution. Industrial discharges, agricultural runoff, untreated sewage, plastic and solid waste, thermal pollution, heavy metals, and other forms of pollution are all included in this category.

By looking at its more profound aspects and dimensions, the idea of transboundary river contamination can be better comprehended. The source of pollution is the first crucial factor. Untreated household sewage is frequently dumped into rivers, bringing with it, germs and nutrients like phosphorous and nitrogen that cause eutrophication in the waters downstream. The presence of heavy metals, hazardous compounds, and occasionally radioactive materials in industrial effluents presents additional risks. Long-term water contamination is caused by fertilizer and pesticide-containing agricultural runoff that seeps into river systems. Additionally, as rivers carry enormous volumes of plastics that eventually run across borders and into oceans, solid waste and plastic pollution present growing threats. Beyond national borders, thermal pollution from industries that release heated water can change river temperatures and disturb aquatic ecosystems.

The routes that pollutants take are an additional important factor. Particularly during dry seasons when dilution is minimal, rivers serve as natural conduits, transporting pollutants downstream where their impacts become more pronounced. Heavy metals that are frequently trapped by sediments might become remobilized during floods, further dispersing pollutants. Particularly during floods, pollutants spread more quickly over borders and into floodplains, and when

groundwater linked to rivers becomes contaminated, the issue spreads to shared aquifers.[3]

The effects of this kind of pollution are multifaceted. In terms of ecology, it causes fish kills, eutrophication, biodiversity loss, and algal blooms that upset aquatic systems. In addition to endangering livelihoods reliant on fishing, farming, and tourism, contaminated rivers pose major health dangers to the human communities through chemical poisoning and waterborne illnesses. As downstream countries accuse upstream states of carelessness or intentional environmental damage, these problems frequently lead to social and political unrest.

Moreover, seasonal and temporal fluctuations affect how bad the pollution is. Because there is less flow during dry seasons, pollutant concentrations increase; during monsoon or flood seasons, toxins spread extensively and exceed the body's natural cleansing systems. Furthermore, by changing natural flow patterns and concentrating pollutant loads, human activities like dam construction and extensive water withdrawals make the issue worse.

Collectively, these factors demonstrate that transboundary river pollution is a complicated and dynamic issue with extensive ecological, social, and legal ramifications rather than a straightforward instance of localized contamination.

DATA AND KEY STATISTICS

The data and statistics collected from various credible sources such as reports of UN World Water, UNEP, IPCC, WHO, UNICEF clearly demonstrate the severe impact of transboundary river pollution on livelihoods, habitats, and the environment at large. These findings highlight the urgent necessity of addressing this issue in a systematic and coordinated manner to safeguard ecological balance and ensure sustainable development.

ASPECT	**DATA**
Extent of shared water resources	Around 60% of the world's freshwater flows are in transboundary rivers, lakes, and aquifers.
Countries Involved	153 countries share at least one of the 286 transboundary river/lake basins.
Coverage of Cooperation	Only 43 countries have operational arrangements covering 90%+ of shared waters.
Untreated Wastewater Globally	80% of wastewater worldwide is discharged untreated into rivers or lakes.

[3] Transboundary Pollution, *available at:* https://www.safewater.org/fact-sheets-1/2017/1/23/transboundary-pollution (last visited October 1, 2025).

Impacts on Health	Around 1.7 billion people use drinking water sources contaminated with faeces which causes 505,000 diarrhoeal deaths annually.
Economic Costs of Poor Sanitation	Developing countries lose up to 1–2% of GDP annually due to waterborne diseases and lost productivity.

River Pollution in South Asia	Dissolved Oxygen in Dhaka's Buriganga River and other rivers sometimes drops to near zero due to untreated waste, making water ecologically "dead."
Plastic Pollution	Rivers carry 1.15–2.41 million tonnes of plastic into oceans every year. Almost, 86% comes from Asia's rivers, e.g., Ganga, Mekong, Yangtze.
Industrial Waste in India	The Central Pollution Control Board CPCB reported 296 polluted river stretches in India in 2025, including many transboundary rivers like the Ganga and Yamuna.

GOVERNING LEGAL PRINCIPLES AND TREATY FRAMEWORKS-

In international law, transboundary river pollution poses a special challenge since it necessitates striking a balance between the downstream states' right to a healthy environment and the upstream state's sovereign rights. In order to ensure collaboration and fair use of shared water resources, international environmental law has established a set of principles and treaty instruments expressly targeted at preventing, controlling, and managing such pollution.

SIGNIFICANT HARM-

The foundation of international environmental law is the no-harm norm. It states that no state has the authority to use its territory in a way that seriously harms other states' environments. One important tenet of international law pertaining to the distribution of transboundary waters is the need to take all reasonable precautions to avoid serious harm. It is not a blanket ban on transboundary harm, but rather a duty of due diligence in prevention. This principle was first formally recognized in the Trail Smelter Arbitration[4], which dealt with transboundary air pollution but has since been widely applied to watercourses. It was significant decision since it showed that restrictions on sovereignty could occur only once the transboundary damage reached a certain level of harm, thus rejecting two principles, that of absolute territorial sovereignty i.e. State can dispose of its territory without considering the neighbourly interests and that of absolute territorial integrity which prohibits all external interferences on State territory. In the context of rivers, this rule obliges upstream states to prevent discharges of pollutants, including industrial effluents, sewage, and agricultural runoff, that could adversely affect downstream water quality. Failure to comply may attract international liability and require remediation or compensation.

[4] Trail Smelter, (U.S./Canada), 3 R.I.A.A. 1905 (Arbitral Tribunal 1938/1941).

EQUITABLE AND REASONABLE UTILIZATION-

All riparian states of a shared watercourse have the right to use its waters in a fair and balanced way, taking other states' requirements into account. This idea is known as equitable and reasonable utilization. The UN Watercourses Convention of 1997 and the Helsinki Rules of 1966 both uphold this idea. Among the elements influencing equitable use are population's reliance on the watercourse, Each state's social and economic demands, Climate and seasonal changes in river flow, Current and prospective applications for the watercourse and Sustainability and protection of the environment. This principle stops upstream states from controlling shared rivers or taking part in actions that disproportionately hurt communities downstream by balancing conflicting interests.

PRECAUTIONARY PRINCIPLES-

A pillar of modern international environmental law, the precautionary principle emphasizes taking preventive action even when science is unknown. Since upstream activities like industrial discharge, dam construction, or agricultural runoff may cause significant or irreversible environmental impact downstream, it is especially pertinent to transboundary river pollution. By moving the emphasis from reactive to proactive management, the principle makes sure that possible threats to shared water resources are reduced before serious harm is done.

Principle 15 of Rio Declaration, 1992, states that, depending on their capacity, states must implement the precautionary approach widely in order to save the environment, lack of complete scientific confidence should not be a justification for delaying cost-effective actions to stop environmental degradation when there are risks of significant or irreparable harm. This principle prioritizes the preservation of common ecosystems by explicitly enabling states to take preventive action even in cases where scientific proof is lacking. UN Watercourses Convention, 1997, obligate states to take all appropriate measures to prevent significant harm, including measures based on available scientific knowledge. This operationalizes the principle in the context of transboundary watercourses.

In Pulp Mills on the River Uruguay[5], the Court emphasized that Uruguay should have considered precautionary measures before constructing pulp mills on the shared river, including comprehensive EIAs and prior notification to Argentina. This case illustrates the principle's dual role: promoting environmental protection while encouraging procedural compliance such as consultation and impact assessment. In Gabcikovo–Nagymaros Project[6], the ICJ acknowledged that states must evaluate long-term environmental consequences of river management projects, particularly where

[5] Pulp Mills on the River Uruguay (Argentina v. Uruguay), International Court of Justice, Judgment of 20 April 2010, ICJ Reports 2010.
[6] Gabčíkovo–Nagymaros Project (Hungary/Slovakia), International Court of Justice, Judgment of 25 September 1997, ICJ Reports 1997.

the risk of irreversible harm exists.

POLLUTER PAYS PRINCIPLE-

One of the core principles of environmental law is the Polluter Pays Principle, which holds individuals responsible for environmental harm accountable for their financial and corrective actions. Since its inception in the 1972 OECD Declaration, the idea has gained widespread recognition in national laws, international environmental accords, and court rulings. It protects downstream riparian states from having to shoulder the ecological and financial consequences of upstream operations by guaranteeing that states or entities that cause pollution pay for prevention, remediation, and compensation in the context of transboundary rivers. Articles 7 and 26 of UN Watercourses Convention support the allocation of responsibility for preventing harm, mitigating damage, and cooperating in compensation when pollution occurs in shared watercourses. This principle incentivizes pollution control, supports environmental justice and integrates with other principles such as works in conjunction with the No-Harm Rule and Precautionary Principle, creating a holistic approach to shared river governance. In Trail Smelter Arbitration[7], Canada was required to compensate the United States for crop damage caused by sulphur dioxide emissions crossing the border. This is widely regarded as the first practical application of the Polluter Pays Principle in a transboundary context, even though the dispute involved air pollution, the reasoning applies to watercourses as well.

HELSINKI RULES (1996)-

The Helsinki Rules, which were adopted by the International Law Association, were the first thorough attempt to codify the rules governing the usage of shared waterways. It is on the uses of the Waters of International Rivers and an international guideline regulating how rivers and their connected ground-waters that cross national boundaries may be used. In order to ensure that all riparian states can equitably benefit from shared resources, the Rules acknowledge the idea of equitable and reasonable exploitation of watercourses. Additionally, they support the No-Harm Rule, which states that no state shall engage in actions that seriously harm another riparian state. Furthermore, the Helsinki Rules offer rules for the distribution of water resources that take into account environmental variables, population size, and current uses.

Despite not being legally enforceable, the Rules have greatly influenced later treaties, court rulings, and the evolution of customary international law pertaining to international watercourses. While still influential, the Helsinki Rules were later succeeded by the Berlin Rules on Water Resources in 2004 and the Seoul Rules on International Groundwaters in 1986.[8]

---

[7] Trail Smelter, (U.S./Canada), 3 R.I.A.A. 1905 (Arbitral Tribunal 1938/1941).

[8] Dinah Shelton, Common Concern of Humanity, 5 IUSTUM ACQUUM SALUTARE, 33 (2009).

UN CONVENTION ON THE LAW OF THE NON-NAVIGATIONAL USES OF INTERNATIONAL WATERCOURSES (1997)-

The most well-known piece of legislation controlling the usage of transboundary rivers is the UN Watercourses Convention. It requires states to use common waterways fairly and sensibly, making sure that no state's use disproportionately hurts others. Additionally, the Convention codifies the No-Harm Rule, which mandates that states take all necessary steps to prevent major environmental harm to downstream nations and work together to mitigate any harm that does occur. Furthermore, it imposes procedural requirements that encourage openness and collaborative management, including information sharing, notification of planned actions, and environmental impact assessments. The Convention offers a comprehensive framework for the sustainable and collaborative management of shared watercourses by integrating conflict resolution procedures such as negotiation, mediation, arbitration and adjudication.

UNECE CONVENTION ON THE PROTECTION AND USE OF TRANSBOUNDARY WATERCOURSES AND INTERNATIONAL LAKES (1992)-

The UNECE Water Convention, though primarily covering Europe, serves as a model for the management of shared rivers globally. It obliges states to prevent, control, and reduce transboundary impacts from pollution, while promoting joint monitoring programs, water quality assessments, and early notification of potentially harmful projects. The Convention encourages emergency preparedness, requiring states to implement alert systems and mitigation measures in the event of accidental pollution or floods. By fostering institutional cooperation, often through river commissions or joint bodies, the Convention ensures that riparian states manage their shared water resources collaboratively and effectively, integrating both substantive and procedural environmental obligations.

OTHER INTERNATIONAL INSTRUMENTS-

The legal foundation for transboundary river management is supplemented by a number of other international instruments in addition to these treaties. Hazardous wastes that can enter shared waterways and affect people downstream are subject to regulations under the Basel Convention, 1989. The Convention on Biological Diversity, promotes the conservation of shared riverine biodiversity by placing a strong emphasis on the preservation of aquatic habitats.[9] While bilateral treaties, like the Indus Waters Treaty between India and Pakistan, offer specific agreements on water allocation and quality management. Foundational documents like the Stockholm Declaration, 1972[10] and the Rio Declaration, 1992[11] reinforce states' obligations to prevent environmental harm to other nations. When taken as a whole, these tools provide a thorough framework that turns global ideals into binding commitments for the fair and sustainable management of transboundary waterways.

[9] *Biodiversity, Conservation and the Law*, Environmental Policy and Law Paper No. 29, 52, IUCN, (1993).
[10] Principle 21, Stockholm Declaration, 1972.
[11] Principle 2, Rio Declaration, 1992.

INTEGRATED STRATEGIES TO COMBAT TRANSBOUNDARY RIVER POLLUTION AND OVER-FLOODING

Over-flooding and transboundary river pollution are complicated issues that transcend national boundaries and impact several countries at once. Shared by two or more countries, transboundary river systems frequently become focal sites of environmental stress because of unmanaged pollution, excessive growth, and frequent floods. Unilateral initiatives are insufficient since these issues go beyond political lines. These problems endanger livelihoods, agriculture, and human health in addition to deteriorating aquatic habitats. At the national and international levels, an integrated set of legal, technological, and cooperative measures is necessary for effective management.

This section examines a wide range of strategies to reduce pollution and overflooding in shared river systems, from technological advancements and community involvement to basin- level collaboration and international legal tools.

STRENGTHENING INTERNATIONAL LEGAL AND INSTITUTIONAL FRAMEWORKS-

Strengthening current international legal and institutional frameworks is a crucial first step in tackling transboundary river pollution and over-flooding. Important tools for fostering collaboration and sustainable management of shared water resources are conventions like the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes and the UN Convention on the Law of the Non-Navigational Uses of International Watercourses. In addition to ratifying these conventions, countries must incorporate their fundamental tenets, such as the need to prevent serious transboundary harm, the need to cooperate in good faith, and the equitable and reasonable use of water resources into their national water policies and legal frameworks.

Establishing or empowering river basin organizations like the Nile Basin Initiative, the International Commission for the Protection of the Danube River, and the Mekong River Commission is essential to operationalizing these pledges.[12] By enabling cooperative monitoring, information sharing, and early-warning systems, these organizations significantly

[12] Reducing Transboundary Pollution, *available at*:https://encyclopedia.uia.org/strategy/reducing-transboundary-pollution (last visited October 2, 2025).

contribute to increased openness and confidence between riparian governments. Additionally, establishing legally binding regional protocols that specify governmental obligations, liability and compensation procedures, and fair water-sharing agreements would turn cooperative frameworks from voluntary participation into legally binding commitments. By balancing environmental preservation with the developmental requirements of all participating nations, such institutional strengthening guarantees that shared rivers are managed properly and collectively.

PROMOTING INTEGRATED RIVER BASIN MANAGEMENT-

A comprehensive, basin-wide strategy is needed for the effective management of transboundary river pollution and flooding, not a collection of isolated, nation-specific tactics. Crossing political boundaries, Integrated River Basin Management (IRBM) offers a comprehensive framework that acknowledges the river basin as a unified ecological and hydrological entity. It aims to manage water, land, and related resources in a way that balances social, economic, and environmental goals. In order to prevent upstream activities like industrial discharge, deforestation, or dam construction from negatively affecting downstream water quality and flood susceptibility. It approaches the entire river system from its headwaters to its delta as an interconnected whole.

In order to implement IRBM, riparian governments must coordinate planning, monitoring, and execution through the creation of transboundary basin authorities or joint management commissions.[13] To identify pollution hotspots and flood-risk areas, these organizations can establish collaborative data-sharing platforms, set standardized water quality standards, and conduct routine basin assessments. Along with encouraging riverbank restoration, wetland conservation, and sustainable land-use practices that lessen runoff and sedimentation, the strategy also places a strong emphasis on ecosystem-based management. Ultimately, IRBM serves as a bridge between science, policy, and law, promoting cooperative governance, efficient resource utilization, and resilience against climate-induced challenges such as floods and droughts in transboundary river systems.[14]

[13] Management of Water Quality within Transboundary River, *available at:* https://waterandchange.org/wp-content/uploads/2017/04/Heft3_en.pdf (last visited October 2, 2025).

[14] Different Approaches in Transboundary Water Management, *available at:* https://waterandchange.org/wp-content/uploads/2017/04/Heft3_en.pdf (last visited October 2, 2025).

ADOPTING TECHNOLOGICAL AND INFRASTRUCTURAL MEASURES-

Technological advancement and infrastructural development are crucial in addressing transboundary river pollution and flooding. The establishment of modern sewage treatment plants, industrial effluent recycling units, and bio-remediation projects can significantly curb the inflow of contaminants into shared water bodies. In developing nations, such cost-effective and sustainable methods are vital for restoring river ecosystems. For flood management, the construction of multi-purpose reservoirs, embankments, and diversion channels, along with nature-based solutions such as wetland restoration and catchment afforestation, enhances the river basin's natural resilience. Additionally, the adoption of satellite-based hydrological monitoring, GIS mapping, and real-time data sharing between riparian states facilitates early- warning systems and joint disaster preparedness. Together, these measures foster evidence- based policymaking and promote sustainable, cooperative river management across borders.

ECONOMIC AND POLICY INSTRUMENTS-

In order to ensure sustainability and accountability in the management of transboundary river systems, economic and policy procedures are essential. By using the Polluter Pays Principle, the cost of pollution prevention and repair is borne by the towns and industries that cause contamination. To encourage compliance and advance environmentally friendly behaviours, governments might implement environmental levies, green incentives, and clean technology subsidies. Riparian states can create cooperative environmental funds at the international level to support projects related to flood control, pollution prevention, and river restoration. Communities and local stakeholders can get rewards for preserving watersheds and preserving the health of rivers through policies that support payment for ecosystem services (PES). Together, these tools promote sustainable river governance and long-term collaboration between surrounding countries by fusing environmental stewardship with economic accountability.

STRENGTHENING BILATERAL AND REGIONAL COOPERATION-

Strong bilateral and regional collaboration between riparian governments is essential for the effective management of flooding and pollution in transboundary rivers. Establishing joint river commissioners and basin management authority is crucial for promoting communication, data sharing, and coordinated action since shared rivers frequently turn into conflict hotspots when coordination mechanisms are inadequate.

Current accords, like the Ganges Water Sharing Treaty between India and Bangladesh and the Indus Waters Treaty between India and Pakistan, show the possibility of cooperative frameworks; however, they now need to go beyond water distribution to cover pollution prevention, ecosystem preservation, and flood control. By means of common policies, capacity-building initiatives, and disaster response protocols, regional organizations such as SAARC, ASEAN, and the African Union can further promote cooperation. Ultimately, sustained cooperation transforms shared rivers from sources of tension into instruments of collective security, sustainable development, and environmental diplomacy.

COMMUNITY PARTICIPATION AND PUBLIC AWARENESS-

The foundation of sustainable transboundary river management is public knowledge and community involvement. Since local residents frequently suffer the effects of pollution and flooding first, it is both practical and essential that they be involved in monitoring, conservation, and decision-making. By involving communities in citizen science projects, capacity-building programs, and awareness campaigns, environmental governance can become more transparent and encourage a sense of shared responsibility. Additionally, public involvement guarantees that river management plans take into account social realities and local knowledge, which improves the execution of policies. In order to promote environmental literacy, sustainable water use, and cross-border collaboration, non-governmental organizations, educational institutions, and the media are essential. By empowering communities as active stakeholders rather than passive recipients, nations can strengthen grassroots environmental stewardship and ensure long-term protection of shared river ecosystems.

CONCLUSION

Transboundary rivers are essential lifelines that support economies, livelihoods, and ecosystems in several countries. However, there are significant risks that cut across political lines, such as unregulated pollution, unsustainable growth, and frequent flooding, which need for proactive, integrated, and cooperative management. A normative foundation for avoiding environmental harm, guaranteeing responsibility, and encouraging the fair use of shared water resources is provided by international legal principles like the Polluter Pays Principle, the Precautionary Principle, and the No-Harm Rule. Strong legislative frameworks, institutional collaboration, technical advancement, financial tools, and community involvement are all necessary for effective mitigation. While contemporary infrastructure solutions, early-warning systems, and sustainable land-use practices lower pollution and flood hazards, treaties and conventions, as well as river basin organizations, facilitate communication, monitoring, and dispute resolution. Additionally, public awareness programs and the active involvement of local communities enhance compliance

and encourage environmental care.

Ultimately, resolving transboundary river issues requires regional cooperation and shared responsibility in addition to legal and regulatory considerations. Riparian states may protect water quality, stop ecological deterioration, and increase flood resilience by combining legal, technological, economic, and social measures. This will guarantee that these vital freshwater resources are sustainable for both the current and future generations.

REFERENCES

- https://www.unece.org/fileadmin/DAM/env/water/cadialogue/docs/Dushanbe_March 2 011/Tanzi_IntlWatLaw_Eng.pdf.
- https://makhillpublications.co/files/published-files/mak-tss/2021/3-48-59.pdf.
- https://www.eolss.net/sample-chapters/c14/e1-36-02-02.pdf.
- https://www.safewater.org/fact-sheets-1/2017/1/23/transboundary-pollution.
- http://docs.manupatra.in/newsline/articles/Upload/8F351C53-2005-40F2-B574-A9A5DFD2390B.Restricting%20Sovereignty_Nayantara%20Ravichandran_p91-104.pdf.
- https://www.egyankosh.ac.in/bitstream/123456789/81344/1/Unit-8.pdf.
- https://www.mdpi.com/2073-4441/15/14/2630.
- https://www.sciencedirect.com/science/article/pii/S1470160X23014681.
- https://waterandchange.org/wp-content/uploads/2017/04/Heft3_en.pdf.
- https://iwra.org/proceedings/congress/resource/PAP00-5491.pdf.
- https://www.cadri.net/system/files/2021-09/CADRI%20-%20Good%20Practices%20-%20Transboundary%20water_2020.pdf.