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The Sovereignty of Upstream States over Water Resources and the Realization of Sustainable Development for Downstream States: With Emphasis on Iran's Geopolitical Water Disputes (2015–2025)

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Abstract

The principle of the permanent sovereignty of states over natural resources, including water resources, has become one of the foundations of international law since the 1950s, and has been emphasized in numerous international instruments, such as Article 2(1) of the Charter of Economic Rights and Duties of States (1974).

In its classical interpretation, this principle pertains to the absolute and exclusive authority of states to exploit natural resources within their territorial domain, such that no foreign state may claim precedence or intervene in this exploitation. However, in cases where unilateral exploitation of shared water resources results in the violation of the principles of sustainable development, causes transboundary harm, or threatens international peace and security, the right of sovereignty is accordingly restricted, and the obligations of states are elevated beyond customary duties to the level of peremptory norms or erga omnes obligations.

This article, focusing on the conflict between the exercise of upstream states' sovereignty over water resources and the necessity of observing the principle of sustainable development in relation to downstream states, seeks to revisit conceptual developments in international water law. Within this framework, international instruments and judicial precedents of the International Court of Justice are examined.

The article further analyzes the concept of "water security" as an emerging doctrine, along with notions such as "water aggression" and "anticipatory self-defense." In the final section, Iran's recent water and legal challenges with its neighbors over the Helmand and Harirud rivers and Turkey's Anatolia Project, are critically assessed.

Keywords: Transboundary Waters, Territorial Sovereignty, Water Security, Sustainable Development, Water Aggression.

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1. Introduction

The 21st century marks "the origin of escalating disputes over freshwater scarcity," where environmental issues "lead to interference in domestic affairs and international conflicts" (Alemar,2010:3). Today, climate change, global freshwater shortages, and new patterns of freshwater exploitation have transcended concepts such as the "common heritage of mankind," "intergenerational justice," and "global environmental sustainable development," raising questions about "international water peace and security" and "violations of human rights, including the right to life."

Since the early 1990s, pivotal instruments like Agenda 21 (United Nations Conference on Environment and Development,1992), the Rio Declaration, and subsequently the United Nations Sustainable Development Goals (SDGs), have positioned sustainable development as a guiding principle in international policymaking and public law. These frameworks now embody quasi-peremptory obligations under international law (United Nations, 2015).

In classical jurisprudence, state sovereignty over natural resources, including water, has been enshrined as a principle of international law since 1952 through repeated United Nations General Assembly resolutions, treaties, and declarations—most notably Paragraph 1 of Article 2 of the Charter of Economic Rights and Duties of States. This principle, in its traditional interpretation, affirms states' absolute, permanent, and exclusive right to exploit domestic natural resources and conduct economic activities within their territorial jurisdiction, free from external interference or precedence.

However, a critical question arises: Under international law, does this right remain absolute and unrestricted if such exploitation jeopardizes the sustainable development of downstream or neighboring states, exacerbates regional or global climate change, causes pollution or water scarcity in downstream states, or violates fundamental rights such as the "right to water" and agricultural sustainability?

Emerging scenarios—such as Ethiopia's Renaissance Dam on the Nile's headwaters and Egypt's military threats following the dam's filling—illustrate how sovereignty over freshwater resources intersects with "international peace and security," fundamental rights like the "right to water" and "right to life," and obligations extending beyond "sustainable development." Similarly, Iran's challenges with Afghanistan's Harirud River

and Turkey's Anatolia Project (e.g., dams on the Tigris-Euphrates basin) exemplify these tensions.

Legal conflicts between upstream states' rights to exploit water resources and downstream states' sustainable development are increasingly framed by customary obligations and soft law in international law. Today, these issues are articulated through the doctrine of international water security, which incorporates concepts such as "water aggression," "legitimate defense," and the "legality of the use of force." This article analyzes the sovereignty of upstream states over water resources and the realization of sustainable development for downstream states through the lens of the water security doctrine.

2. Research Methodology

The present study is descriptive-analytical in nature and employs a library-documentary method for data collection. The research begins by describing the key concepts and framing the problem based on well-known international legal documents concerning sovereignty over water resources and sustainable development. It then proceeds to analyze the issue in accordance with international legal doctrines as reflected in the jurisprudence of the International Court of Justice (ICJ) and international treaty texts. The goal is to derive the research conclusion, namely the doctrine of water security, and to demonstrate the elevation of international peremptory obligations (jus cogens) beyond customary obligations and soft law.

Specifically, although the upstream state's international obligations regarding the utilization of water resources are currently recognized in international law as customary obligations, this study argues that these obligations must transcend customary status. In many cases, to preserve international peace and security, they fall under Article 1(1) (Purposes) of the United Nations Charter and other UN Charter principles related to peace and security, thereby constituting a peremptory obligation (erga omnes) that is binding on all states.

The nature of this research is qualitative and fundamental (basic) in scope. It views the upstream state as legally constrained by human rights considerations and water security concerns, which impose limitations to ensure the sustainable development of downstream states.

3. Theoretical Discussions

3-1. Evolution of International Water Law: From Absolute Territorial Sovereignty to Cooperative Management

The "modern idea of sovereignty" was born alongside the "new phenomenon of the territorial state" in the latter half of the sixteenth century (Giddens,2001:78), and it is closely associated with sovereignty within the concept of territorial domain, assuming its exclusivity and absolutism. However, as noted in the 1987 Brundtland Report, "traditional forms of national sovereignty are increasingly challenged by ecological realities and economic interdependence" (United Nations Brundtland Report,1987:258).

The exploitation of transboundary surface waters has presented states with issues that the traditional approach—based on the principle of territorial jurisdiction and the idea of territoriality—cannot adequately resolve. The classical concept of absolute sovereignty of states has begun to be limited and curtailed by the states themselves. In organizations such as the European Union and the International Criminal Court, the traditional notion of state sovereignty differs and is evolving.

Today, a state's actions within its territorial boundaries must not cause harm to another state (Trail Smelter Arbitration (United States v. Canada),1941). Principle 21 of the Stockholm Declaration states: "The right to sovereignty and utilization of resources by states within their jurisdiction or control is subject to the condition that it does not cause damage to the environment of other countries or areas under their national jurisdiction" (Stockholm Declaration,1972, Principle 21). Principle 2 of the 1992 Rio Declaration reiterates this, having been signed by 150 countries.

The evolution of international water law can be analyzed through three major historical-legal phases:

3-1-1. Absolute Territorial Sovereignty

The first phase of international water law was governed by the prevailing rule of "absolute territorial sovereignty," under which states had the full and exclusive right to control and exploit water resources within their territory, even if such exploitation resulted in the interruption or reduction of water flow to downstream states. A prominent example of this perspective is reflected in the "Harmon Doctrine," articulated in 1895 by the legal advisor to the U.S. Department of State during a dispute between the United States and Mexico over the Rio Grande River. According to this doctrine, the United States not only considered itself under no obligation to consult or

compensate the downstream state but also regarded its sovereignty over water use as unconditional (McCaffrey,2019:131).

3-1-2. Limited or Restricted Sovereignty

By the mid-twentieth century, influenced by environmental transformations, the deepening of international cooperation, and the rise of disputes over shared resources, the principle of state sovereignty over natural resources—especially water—became conditional upon respecting transboundary obligations and the rights of other states. Oppenheim stated: "Altering the flow of shared waters under the control of one of the riparian states is not permissible. It is a rule of international law that no state may change the natural condition of its territory in a way that causes injury to a neighboring state" (Oppenheim,1955:474).

The Permanent Court of International Justice (PCIJ) in 1929, in the case concerning the territorial jurisdiction of the Oder Commission, affirmed this perspective by stating: "States have a legal and common right over the resources of shared rivers that is not limited merely to the right of passage. The fundamental characteristic of this right is the convergence of the interests of all parties regarding the utilization of the Oder River and the prohibition of discriminatory privileges by any of the riparian states against others" (Soboka Bulto,2009:300).

In the 1956 arbitration between Spain and France concerning Lake Lanoux, the tribunal held: "The court believes that the upstream state, according to the principle of good faith, is obliged to demonstrate that it genuinely seeks a compromise between the interests of the other riparian state and its own interests" (Lake Lanoux Arbitration,1957). This case establishes that a state is not the sole judge of its waters and that sovereignty acts only as a presumption; a state cannot use its territory without considering the consequences of such use on other states. Similarly, a state is expected to tolerate a certain degree of intervention by other states (Cassese,2005:245).

3-1-3. Cooperative Management and Sustainable Development

The third phase in the evolution of international water law conceptualizes state sovereignty within the framework of obligations to cooperate, use water resources fairly and reasonably, and ensure sustainable development. This approach was initially referenced in international judicial decisions such as the Meuse River case (1937), the Trail Smelter Arbitration (1941), and the Danube River case (1997). It was later emphasized in global declarations like the Stockholm Declaration (1972) and the Rio Declaration

(1992), incorporated into international and regional treaties, and affirmed in recent International Court of Justice (ICJ) rulings such as the Oder River case (2010), the Silala case (2021), and in European Court of Human Rights decisions including Cordella (2019) and KlimaSeniorinnen v. Switzerland (2024) as an established legal approach.

Cooperative management centered on sustainable development is reflected in bilateral, multilateral, and regional international treaties such as the 1960 Indus Waters Treaty between India and Pakistan, the Mekong River Commission (MRC) in Southeast Asia, European shared water management conventions, the African Ministers' Council on Water, the 1966 Helsinki Rules, the 1992 European Water Convention on the use and protection of transboundary watercourses and international lakes, the 1997 UN Convention on the Non-Navigational Uses of International Watercourses, the 1999 Rhine River Protection Convention, the 2004 Berlin Rules, among others. These instruments emphasize equitable and reasonable utilization and the guarantee of sustainable development in the management of shared water resources.

The 1997 UN Watercourses Convention mandates that states prioritize collective considerations and mutual benefits over absolute territorial interests in the use of shared waters (Article 5) and use international watercourses in a reasonable and equitable manner. Article 7 of the same convention obliges states to prevent causing "significant harm" to other basin states. This principle, alongside requirements for environmental impact assessments and prior notification (Articles 12–15), marks a transition in international law from absolute sovereignty to sovereignty accompanied by responsibility (Convention on the Law of the Non-Navigational Uses of International Watercourses,1997).

Article 12 of the 2004 Berlin Rules presents a comprehensive set of customary international law norms applicable to the management of shared waters, stating: "Basin states shall give due regard to the obligation not to cause significant harm to other basin states and shall manage the waters of an international river basin in an equitable and reasonable manner." The rules provide nine criteria for equitable and reasonable management, emphasizing that these criteria are not exhaustive (The Berlin Rules on Water Resources,2004).

Today, the principle of absolute territorial sovereignty, famously known as the Harmon Doctrine, is regarded in international law and ICJ jurisprudence

as a primitive and uncivilized legal principle. No international judicial decision or arbitration has been found that does not refer to principles such as reasonable, equitable, and non-harmful use, precaution, and cooperation.

3-2. Sustainable Development as a Customary International Obligation

In international law, international obligations are categorized based on criteria such as their origin, scope, beneficiaries, and degree of binding force. These categories include treaty obligations, customary obligations, erga omnes obligations, and peremptory (jus cogens) obligations.

International legal scholars consider the existence of a customary international norm to require two essential elements: widespread and consistent state practice (general state practice) over time, and a belief by states that such practice is legally obligatory (opinio juris). This customary obligation is binding on all states unless a state persistently objects to it.

Sustainable development, increasingly recognized as a fundamental principle in international law, is evolving into such a customary obligation, reflecting broad state practice and opinio juris, especially in the context of transboundary environmental and water resource management.

Customary obligations can also constitute erga omnes obligations. Erga omnes obligations are duties owed to the entire international community and are not limited to the parties of a treaty or a specific dispute. In other words, all states have a legal interest in their enforcement.

In the Barcelona Traction case (Belgium v. Spain,1970), the International Court of Justice (ICJ) stated: "There exist obligations towards which all states have a legal interest. These are erga omnes obligations, including the prohibition of aggression, slavery, genocide, and racial discrimination" (ICJ Reports,1970:33). The source of erga omnes obligations lies in fundamental principles of international law, which may be either customary or treaty-based.

In contemporary international law, obligations related to sustainable development have acquired customary status, a trend clearly observable in ICJ jurisprudence. In its advisory opinion on the construction of the wall by Israel in the Occupied Palestinian Territory, the ICJ emphasized states' fundamental obligations to the international community, including the right of peoples to self-determination, which it classified as an erga omnes obligation. The Court noted that Israel's actions impeded the exercise of this right by the Palestinian people, constituting an internationally wrongful act to which any state may object.

Although the term "sustainable development" was not explicitly mentioned in this opinion, the Court's analysis recognized the interconnection between the right to self-determination, social justice, and access to natural resources such as water and land. This nexus provides a basis for considering sustainable development as part of the obligations arising from fundamental principles of international law. Thus, implicitly, sustainable development is treated as a transnational concept linked to global public interests (International Court of Justice, Legal Consequences of the Construction of a Wall in the Occupied Palestinian Territory, Advisory Opinion, ICJ Reports 2004, paras. 149–155).

In the Gabcíkovo–Nagymaros case (1997), the International Court of Justice (ICJ) explicitly introduced the concept of "sustainable development" into its legal discourse for the first time. The dispute between Hungary and Slovakia over the construction of a dam on the Danube River brought into conflict economic interests (the right to development) with environmental obligations (protection of the river and its ecosystems). The Court emphasized that states cannot disregard environmental principles under the pretext of economic development. Instead, a balance must be struck between development and environmental protection, grounded in intergenerational justice and common human interests.

Paragraph 140 of the judgment states: "The need for economic development must be balanced with considerations of environmental protection both for the present and for future generations."

The Court also underscored the necessity of state cooperation, prior environmental impact assessments, and adherence to precautionary principles—core components of sustainable development. The Gabcíkovo–Nagymaros judgment is regarded as the ICJ's first explicit recognition of the emergence of customary international law surrounding sustainable development, positioning it as an interpretative and structural principle of public international law (International Court of Justice, Gabcíkovo–Nagymaros Project (Hungary/Slovakia), Judgment, ICJ Reports 1997, paras. 140–147).

Earlier, in the Trail Smelter case (United States v. Canada,1941), the International Arbitral Tribunal famously stated: "No state has the right to use its territory in such a manner as to cause serious injury to the territory of another state." This rule later became established as the well-known No

Harm Principle or Sic utere tuo ut alienum non laedas in international environmental law.

Although the concept of "sustainable development" had not yet entered legal discourse at the time of the ruling—the term sustainable development was first introduced in the 1987 Brundtland Report—the Trail Smelter case is recognized as the legal foundation for one of the key pillars of sustainable development: the principle of no harm. Today, this principle serves as one of the interpretative bases for the International Court of Justice (ICJ) in its environmental rulings, such as the Pulp Mills and Gabcíkovo–Nagymaros cases (United States v. Canada (Trail Smelter Arbitration), Reports of International Arbitral Awards, Vol. III,1941:1905–1982).

In the Corfu Channel case (United Kingdom v. Albania, 1949), the International Court of Justice (ICJ) reaffirmed the principle of non-harmful use of territory. A significant point emphasized by the Court concerns the obligations of states. The ICJ highlighted duties based on well-established general principles such as fundamental humanitarian considerations during peace and war, the principle of freedom of navigation, and each state's obligation not to use its territory for purposes that conflict with the rights of other states (Corfu Channel case (UK v. Albania),1949, I.C.J. Reports 4: 22).

In the International Court of Justice's recent jurisprudence over the past two decades, this approach has been pursued with greater rigor. In the Pulp Mills on the River Uruguay case (Argentina v. Uruguay,2010), the ICJ emphasized the necessity of conducting Environmental Impact Assessments (EIA) prior to initiating projects with transboundary effects, recognizing this as part of states' customary obligations to protect natural resources. Although the term "sustainable development" was not explicitly mentioned, the Court's interpretation clearly indicated that economic development must not cause significant harm to the environment or infringe upon the rights of neighboring states (International Court of Justice, Pulp Mills on the River Uruguay (Argentina v. Uruguay), Judgment of 20 April 2010, ICJ Reports 2010, paras. 193–205).

In its advisory opinion on the Chagos Archipelago (2019), the International Court of Justice (ICJ) once again emphasized the fundamental obligations of states towards the international community as a whole. This opinion not only highlighted the importance of erga omnes obligations but also provided a basis for analyzing the status of sustainable development, historical

justice, and the right to self-determination. Although the term "sustainable development" is not explicitly mentioned in the text, related normative concepts are clearly present.

The opinion concerned the legality of the United Kingdom's actions in separating the Chagos Archipelago from the territory of Mauritius during the colonial period. This separation, which occurred in 1965 shortly before Mauritius's independence, was carried out without the free and genuine consent of the people of Mauritius. The Court explicitly stated that this act violated the principle of self-determination and that the continued presence of the United Kingdom in the territory is illegal under international law. The Court emphasized that the artificial partition of territories to preserve geopolitical or military interests (in this case, the establishment of a U.S. military base on Diego Garcia) cannot have legal legitimacy. Therefore, the right to self-determination, as a fundamental norm of international law, is directly linked to the possibility of realizing sustainable development (International Court of Justice, Legal Consequences of the Separation of the Chagos Archipelago from Mauritius in 1965 (Advisory Opinion), ICJ Reports 2019).

The ICJ further held that the process of decolonization of Mauritius has not been lawfully completed and that the United Kingdom is obliged to end its administration of the Chagos Archipelago promptly. The Court described the UK's continued administration as an internationally wrongful act entailing state responsibility. Moreover, the ICJ called upon all United Nations member states to cooperate with the UN to complete the decolonization process, emphasizing that the right to self-determination is a universal obligation that cannot be reduced to a bilateral matter.

From the synthesis of these rulings, it can be concluded that principles such as the no-harm rule (Trail Smelter), due diligence (Corfu Channel), cooperation and balancing of interests (Gabcíkovo–Nagymaros), and territorial and historical justice (Chagos) have all become part of the theoretical and practical infrastructure of sustainable development in international law today. Sustainable development in these rulings is understood not merely as environmental protection but also in relation to human rights, historical justice, territorial sovereignty, and the interests of future generations. The jurisprudence of the courts and arbitral bodies has played a major role in customary formation of these concepts and linking

them to international obligations, especially by recognizing them as erga omnes obligations or fundamental norms.

The International Court of Justice (ICJ), as the highest judicial organ of the United Nations, has had a very significant role in guiding, inspiring, and shaping the jurisprudence of other international judicial and quasi-judicial bodies. This influence is notable both in the legal content (principles, rules, and their interpretation) and in the structure of legal reasoning. These connections have led to procedural convergence and greater coherence within the international legal system.

The European Court of Human Rights (ECHR), in Cordella and Others v. Italy (2019), examined issues related to the right to a healthy environment, the right to private and family life, and positive state obligations. The judgment is a prominent example of jurisprudence that conceptually and practically links sustainable development principles with general international law, particularly the ICJ's jurisprudence. The Court held that if environmental pollution reaches a level seriously affecting private and family life or health, it may fall within Article 8 of the European Convention on Human Rights (European Court of Human Rights, Cordella and Others v. Italy, nos. 54414/13 and 54264/15, Judgment of 24 January 2019).

This ruling recognized industrial pollution not only as an environmental issue but also as a human rights violation. The Cordella judgment represents an advanced interaction between human rights and environmental law and their intersection with sustainable development principles, clarifying the responsibilities of Council of Europe member states in addressing or responding to environmental crises. Conceptually, this ruling aligns with ICJ jurisprudence in cases such as due diligence (Corfu Channel, Pulp Mills), sustainable development and environmental impact assessment (Gabcíkovo–Nagymaros), and the need to balance economic development with fundamental human rights. This demonstrates the convergence of human rights, environmental law, and sustainable development in international judicial practice.

Similarly, the recent ECHR ruling in KlimaSeniorinnen v. Switzerland (2024), concerning climate change, human rights, and sustainable development, marks a milestone in linking state responsibility for the climate crisis with their obligations under the European Convention on Human Rights. The Court found Switzerland failed to fulfill its positive obligations to reduce greenhouse gas emissions and effectively protect

individuals' private and family life. It emphasized that environmental obligations regarding climate change fall within the framework of human rights and sustainable development (European Court of Human Rights, KlimaSeniorinnen v. Switzerland, App. No. 53600/20, Judgment of 9 April 2024).

This was the first time an international judicial body explicitly recognized that the climate crisis can threaten fundamental rights. The ruling's significance lies in sustainable development, emphasizing that environmental sustainability is an integral part of human rights protection. It acknowledges that states must be accountable for long-term environmental threats, even if gradual. This judgment provides a legal basis for international claims in climate justice and intergenerational equity.

Sustainable development has also been reflected in international legal instruments influenced by international judicial practice, appearing in treaties such as European and African regional water management conventions (e.g., AMCOW), the 1966 Helsinki Rules, the 1992 European Water Convention on the use and protection of transboundary watercourses and international lakes, the 1997 UN Convention on the Non-Navigational Uses of International Watercourses, the 1999 Rhine River Protection Convention, the 2004 Berlin Rules, among others, where it is emphasized as an objective and purpose.

Thus, as observed, sustainable development is now recognized as a fundamental and binding principle in international law that has progressed beyond a mere theoretical or political framework to become a legally binding obligation. Analysis of the jurisprudence of the ICJ and other international courts such as the ECHR and the International Tribunal for the Law of the Sea shows that sustainable development has the characteristics of a customary obligation, including:

1. Continuous state practice accompanied by opinio juris: Cases and rulings such as Trail Smelter, Gabcíkovo–Nagymaros, and Cordella v. Italy are prominent examples of legal practice confirming the obligation to sustainable development and related principles;
2. Erga omnes obligations: Fundamental principles such as the no-harm rule, precaution, international cooperation, and intergenerational justice within the framework of sustainable development are obligations owed to the entire international community, with violations having broad legal and moral consequences;

3. Intersection of human rights, environment, and sustainable development: Jurisprudence of courts like the ECHR in cases such as Cordella demonstrates that sustainable development is established not only in environmental law but also within the framework of human rights and the right to a healthy life.

Therefore, sustainable development can be considered a customary international obligation with erga omnes legal weight to which all members of the international legal system are bound, reinforcing the convergence of environmental law, human rights law, and sustainable development.

Table (1): International and National Decisions Relevant to Sustainable Development and Intergenerational Justice (1941–2024)

No.	Case / Advisory Opinion Title	Forum	Year	Key Legal Principle	Significance for Sustainable Development and Intergenerational Justice
1	Trail Smelter (United States v. Canada)	International Arbitral Tribunal	1941	No Harm Rule	First recognition of state responsibility for transboundary environmental harm; foundational for environmental state liability.
2	Corfu Channel (United Kingdom v. Albania)	International Court of Justice (ICJ)	1949	Due Diligence and Notification	States are obliged to prevent risks originating from their territory; forms basis for Environmental Impact Assessment (EIA).
3	Legality of the Threat or Use of Nuclear Weapons (Advisory Opinion)	ICJ	1996	Intergenerational justice; value of environment for future generations	Emphasized the environment as a vital resource for future generations; legitimized the concept of intergenerational justice.
4	Gabcíkovo–Nagymaros (Hungary v. Slovakia)	ICJ	1997	Sustainable development; balancing economic development and environmental protection	First explicit reference by ICJ to sustainable development as a legal balancing framework between conflicting interests.
5	Land Reclamation (Malaysia v. Singapore)	International Tribunal for the Law of the Sea (ITLOS)	2003	Precautionary Principle; Prior EIA	Obligation for states to conduct EIAs and cooperate before environmentally risky projects; strengthened the preventive principle.
6	Aerial Herbicide Spraying (Ecuador v. Colombia – settled)	ICJ	2008	Precautionary Principle and Transboundary Responsibility	Although not adjudicated, significant in reinforcing the application of the precautionary principle in transboundary environmental actions.
7	Pulp Mills (Argentina v. Uruguay)	ICJ	2010	EIA as a customary obligation	Affirmed the necessity of EIAs to prevent harm; sustainable development implicitly recognized in the judgment.
8	Indus Waters Kishenganga Arbitration	Permanent Court of Arbitration	2013	Equitable and reasonable utilization of shared resources; sustainable	Identified mutual obligations in the use of international water resources within the framework

	(Pakistan v. India)	(PCA)		development	of sustainable development.
9	Chagos Advisory Opinion	ICJ	2019	Permanent sovereignty over natural resources; indirect link to future generations	Called for decolonization and affirmed the colonizing state's responsibility to protect natural resources for the benefit of future generations.
10	Cordella and Others v. Italy	European Court of Human Rights (ECHR)	2019	State responsibility for industrial pollution and environmental protection	Recognized a healthy environment as part of the right to life and health; emphasized preventive duties toward present and future generations.
11	Urgenda v. Netherlands	Supreme Court of the Netherlands	2019	State obligation to reduce GHG emissions under human rights law	First binding national ruling based on climate justice and the state's duties to future generations; strengthened climate-related sustainable development.
12	Friends of the Irish Environment v. Ireland	Supreme Court of Ireland	2020	Necessity of robust climate planning by states	Emphasized states' legal duties in climate governance; policy relevance for intergenerational justice.
13	Neubauer v. Germany	Federal Constitutional Court of Germany	2021	Intergenerational justice; long-term climate obligations	Landmark ruling that established intergenerational justice as a binding constitutional obligation; a key step toward its customary recognition.
14	Milieudefensie v. Shell	District Court of The Hague	2021	Corporate climate responsibility; mandatory GHG reduction	First binding ruling against a private corporation in the context of sustainable development; marked the emergence of non-state duties for intergenerational justice.
15	KlimaSeniorinnen v. Switzerland	European Court of Human Rights (ECHR)	2024	Climate justice; human rights violations due to climate inaction	First international ruling finding that climate inaction violates the right to life and health; explicitly affirmed intergenerational justice in human rights law.

3-3. Advancement of Sustainable Development as a Peremptory Obligation (Jus Cogens)

Sustainable development, particularly in the context of exploiting shared natural resources such as transboundary waters, has gained increasing prominence in international law over recent decades. Initially, this principle was primarily reflected in political documents and development programs, but gradually, through widespread acceptance in international treaties, judicial practice, and legal doctrine, it evolved into a customary rule and subsequently a universal (erga omnes) obligation. However, in cases where violations of sustainable development threaten international peace and security or fundamental human rights (such as the right to life, food security,

and safe water), it may elevate to the status of a peremptory norm (jus cogens).

According to Article 1(1) of the United Nations Charter, the primary purpose of the organization is the maintenance of international peace and security. Pursuant to Article 2(3), states are obliged to settle their disputes peacefully and refrain from actions threatening peace and international justice. Article 39 grants the Security Council authority to take necessary measures against threats to peace, breaches of peace, or acts of aggression. Within this framework, unfair and unilateral exploitation of water resources by upstream states that leads to regional tensions, military threats, or collapse of trust among states constitutes a threat to peace.

A prominent example is the dispute among Egypt, Sudan, and Ethiopia over the Grand Ethiopian Renaissance Dam (GERD), where unilateral dam construction by the upstream state (Ethiopia) and military threats from the downstream state (Egypt) led to a regional crisis. The UN Security Council, in its presidential statement of 15 September 2021, called for a binding agreement and resolution of disputes under the African Union's supervision (UNDOC, 2021, NO S/PRST/2021/18). This official stance clearly indicates that disputes over water resources, especially in the absence of sustainable development criteria, can threaten international peace and security and fall within the Security Council's jurisdiction.

Therefore, in contexts like the GERD crisis—where unfair water use may cause hunger, environmental displacement, and border conflicts—the obligation to sustainable development possesses all characteristics of a jus cogens norm. At this level, national interests or flawed analogies such as equating water with oil (as Turkey has done regarding the Tigris and Euphrates headwaters) cannot justify breaching this obligation. Instead, the collective responsibility of states to protect vital resources and ensure intergenerational justice forms the basis of an emerging doctrine in international law, which may be termed the "new water security doctrine."

As Thomas Homer-Dixon notes in Environment, Scarcity, and Violence, scarcity of resources such as water, forests, and arable land, alongside climate change effects like global warming, has impacted international security. Unlike the traditional concept of collective security, which primarily addressed aggression, the concept of human security has emerged, encompassing protection from serious contemporary threats such as hunger, disease, oppression, and sudden harmful consequences of modern life,

thereby expanding global security from state security to the security of humans and ecosystems (Dixon,1999:271).

Thus, the concept of national and international security transcends military security and state territorial sovereignty to include environmental security, widespread pollution, and water security, which may threaten the survival of humanity and nations. Climate change and freshwater scarcity are no longer merely environmental issues but concerns of peace and security requiring prevention of potential crises. At regional and transregional levels, intervention under international law pursuant to Article 39 of the UN Charter becomes necessary. Accordingly, the Security Council may, under Article 25 of the Charter, impose binding obligations—either general rules or specific commitments—on all or some member states.

3-4. The "New Water Security" Doctrine and Its Implications for International Law

Scientific data indicate the finiteness of natural resources such as oil and the environmental damage caused by their overexploitation (current or future harm). It is estimated that within less than twenty-five years, two-thirds of the world's population will live in water-stressed countries. By 2020, water consumption was expected to increase by 40%, with an additional 17% water required to meet the needs of a growing population's food production (UNEP, 2004:163). This serves as a warning that water will become a security issue for global society, necessitating stricter legal regulation.

The UN Security Council's formal involvement in the GERD dispute via the presidential statement on 15 September 2021 (S/PRST/2021/18) marked a turning point, elevating shared waters from a mere technical-exploitative issue to one of "international peace and security." From this moment, a new legal discourse emerged, which can be called the "new water security doctrine." Its main pillars are:

1. **Water Aggression:** Any unilateral action by an upstream state that significantly reduces or cuts off water flow, causes intentional pollution, or asserts full control over a vital international river, thereby threatening the life, health, or economy of a downstream state, may constitute a "threat to peace" under Article 39 of the UN Charter. A symbolic example is the filling of the GERD reservoir without a binding agreement, which Egypt and Sudan regard as an existential threat, officially addressed by the Security Council.

2. **Legitimate Defense and Preemptive Action:** If the water threat is gradual (e.g., dam completion over several years), the element of "immediacy" in self-defense changes: the downstream state may argue that to avert a certain future danger, it is compelled to take deterrent or even preemptive measures, as diplomacy would be too late once the dam is completed. This interpretation aligns with the collective security logic of the Security Council, implying that water, like a strategic weapon, can be used as a coercive tool.
3. **Legitimacy of Military Threats:** Conditional on official statements by Egypt about "any necessary measures" and the European Union's support for a binding agreement to "protect Egypt's water security," the international community considers limited military threats—subject to sufficient negotiation and mediation efforts—not absolutely prohibited.
4. **Opposition to the Harmon Doctrine (Absolute Territorial Sovereignty):** The Taliban's current dam construction on the Harirud headwaters and rejection of Iran's water rights revive the obsolete Harmon Doctrine. The verbal tension between Tehran and Kabul in January 2025, which escalated to threats of "using all means" to protect water rights, shows that the new water security doctrine is a suitable replacement for claims of absolute sovereignty and could become the standard for defining "water aggression" in international forums.
5. **Human Rights Implications and Jus Cogens Status:** According to the 2004 Berlin Rules, poisoning or cutting off vital water supplies is prohibited even in armed conflicts. If such acts are deliberately committed against civilian populations in peacetime, they may constitute violations of the right to life and elevate the customary obligation of sustainable development to the level of a peremptory norm (jus cogens), which all states are entitled to object to and act collectively against.

The new water security doctrine introduces concepts such as "water aggression" and "preemptive legitimate defense" into international water law, demonstrating that wherever unilateral exploitation of shared water threatens sustainable development and fundamental human rights, not only customary but also peremptory obligations are violated. In such cases, the Security Council may intervene, and the harmed state may resort to legitimate self-defense within a limited legal framework and following diplomatic efforts.

4. Analysis

4-1. Iran's Water Geopolitical Challenges in the Last Decade (2015–2025)

Between 2015 and 2025, Iran has faced increasing geopolitical water challenges resulting from a combination of climatic factors, human pressures, regional instability, and the hydro-political policies of neighboring countries, particularly Afghanistan and Turkey. During this period, transboundary water resources have become tools for geopolitical bargaining, threats to human security, and instruments of power by upstream states, challenging the classical doctrine of territorial sovereignty.

On the eastern front, Afghanistan has pursued extensive dam-building policies on the Harirud and Helmand rivers unilaterally, without effective Iranian participation or binding technical and legal agreements. These policies, especially with the resurgence of the Taliban, have acquired more pronounced security and geopolitical dimensions. Reduced water inflow to Iran's eastern provinces, particularly Khorasan Razavi and Sistan and Baluchestan, has had serious impacts on food security, environmental migration, and population sustainability. The absence of an effective dispute resolution mechanism and coherent international oversight has led to the practical disregard of the principles of "equitable and reasonable utilization" and the obligation of "no significant harm."

On the western front, Turkey has exercised unprecedented control over the headwaters of the Tigris and Euphrates through massive dam projects under the Southeastern Anatolia Project (GAP). These actions have not only shifted the regional hydropolitical balance in Turkey's favor but have also had indirect effects on Iran's border provinces (especially Kurdistan, Kermanshah, and Ilam) in the form of reduced surface water flows, exacerbated agricultural crises, and noticeable climate challenges.The following sections analyze Iran's interactions with its neighbors.

4-1-1.The Helmand River Challenge (Iran–Afghanistan)

Description of the Challenge: The Helmand River, originating from the Hindu Kush mountains in Afghanistan and flowing over 1,100 kilometers into Iran, is the main source of drinking, agricultural, and environmental water in the Sistan region (Sistan and Baluchistan Province). According to the 1973 treaty between Iran and Afghanistan, a fixed water allocation is designated for Iran. Afghanistan committed to delivering 820 million cubic meters annually at the Milak border station (Treaty between Iran and Afghanistan concerning the Helmand River, signed in Kabul on 13 March

1973). However, in recent years, especially after the commissioning of the Kamal Khan Dam in Afghanistan in 2020, the inflow to Iran has decreased and at times nearly ceased (Salman,2016). This has caused severe drought, destruction of the Hamoun wetlands, widespread dust storms, livelihood crises, and forced migration in Sistan (Iranian Department of Environment, Report on the Status of Hamoun Wetlands and Consequences of Helmand River Flow Reduction,2022).

Legal Analysis: From a legal perspective, the 1973 treaty constitutes a binding international commitment that, besides specifying Iran's water share, also defines delivery methods, measurement stations, and the joint water commission mechanism [Ministry of Energy of Iran, 2018]. Afghanistan's unilateral reduction of water volume violates treaty obligations and conflicts with international law principles such as good faith in treaty execution (Vienna Convention on the Law of Treaties, 1969, Article 26), the no significant harm rule (McCaffrey,2019:407–415), and equitable and reasonable utilization of shared resources (McCaffrey,2019:390–400). Although Afghanistan has not ratified the 1997 UN Convention on the Law of the Non-Navigational Uses of International Watercourses, the convention codifies these customary principles. Afghanistan justifies its water release restrictions citing increased domestic needs, drought, and sovereign rights over natural resources (Wouters & Ziganshina,2010). However, absolute sovereignty over water resources is not accepted in international water law, which requires balancing equitable use and harm prevention in international waterways (McCaffrey,2019:395–400).

Status of Resolution: Despite correspondence, negotiations, diplomatic visits, and the formation of a joint commission, no binding solution has been achieved. In recent years, Iran has repeatedly pursued the matter through protest notes and treaty enforcement requests, but Afghanistan's responses have often been vague or noncommittal. Border tensions have occasionally escalated. Although the 1973 treaty provides for dispute referral to arbitration or other peaceful settlement methods, no formal legal recourse, such as approaching the International Court of Justice (ICJ), has yet been undertaken.

4-1-2.The Harirud River Challenge (Iran–Afghanistan)

Description of the Challenge: As noted, Afghanistan, Iran, and Turkmenistan are located in the dry to semi-arid region of Western Asia.

These three countries share the international basin of the Harirud River, which originates in Afghanistan. Turkmenistan is the successor to agreements between Iran and the former Soviet Union regarding the Pul-e-Khatun Dam on the Harirud, later known as the Friendship Dam. Based on prior agreements, Iran and Turkmenistan began joint construction of the dam without notifying Afghanistan. In 1996, Afghanistan protested these actions, stating it was constructing the Salma Dam on the same river. Iran requested that Afghanistan allow the flow at the Iran-Afghanistan border to remain at pre-Salma levels. Nevertheless, the dam was completed and inaugurated in April 2004 in the presence of the presidents of Iran and Turkmenistan. Because the river's headwaters lie in Afghanistan, that country exercises the greatest control over the Harirud basin (Shahbazbegian and Mousavi Shafaei,2015:10). Afghanistan, facing severe water scarcity in its mountainous and arid areas, intends to manage and regulate water internally through dams such as Salma. The dam's construction has caused tensions among the three countries. The importance of this issue is heightened by Iran and Turkmenistan's dependence on the Friendship Dam, located downstream of Salma in Turkmenistan and built with Iranian cooperation. Since Salma Dam is upstream and near the Harirud's source, any water retention or reduction of river flow threatens the water rights of both Iran and Turkmenistan (Thomas & Ahmad,2013).

Legal Analysis: In the absence of a formal agreement among the three states, the legal regime governing use of the Harirud's waters is subject to customary international law on shared watercourses. According to principles established in the 1997 UN Convention on the Law of the Non-Navigational Uses of International Watercourses, including equitable and reasonable utilization, the obligation not to cause significant harm to downstream states, prior notification and consultation regarding infrastructural projects, and cooperation and data exchange, the upstream state (Afghanistan) cannot unilaterally undertake actions causing serious harm to downstream states (Iran and Turkmenistan). However, Afghanistan's position has largely been based on absolute territorial sovereignty over its internal resources, treating the Harirud as a domestic river. Under international practice, any river crossing the territory of more than one state is considered an international watercourse subject to specific rules of shared use. Therefore, Afghanistan's unilateral diversion or full control of the river without agreement may constitute a breach of customary international obligations. Additionally,

Iran's exclusion from decision-making regarding the Salma Dam violates the principles of cooperation and prior notification.

Since the Harirud is an international watercourse, it must comply with the international watercourse regime. Charles Rousseau defines an international river as "any large flowing watercourse that is navigable and crosses the territories of multiple countries (consecutive rivers) or separates them (adjacent rivers)" (Rashad Gohar,2018:5). Historically, river use was linked to navigability; for example, Article 33 of the 1919 Treaty of Versailles defined international rivers as navigable rivers connecting more than one country to the open sea. However, the 1921 Barcelona Agreement, considered the constitutional law governing international rivers, altered the customary definition by emphasizing economic significance over navigability and multiple territorial crossings. Ultimately, a river crossing two or more countries, separating them, and having economic importance is considered international (UN Convention on the Law of the Non-Navigational Uses of International Watercourses,1997:93).

Afghanistan's implicit acceptance of absolute territorial sovereignty over the Harirud leads it to regard the river as domestic and to exploit it by digging canals for diversion and constructing dams for water storage. Meanwhile, downstream Turkmenistan and Iran face climate change-related water scarcity risks, causing crises in their bilateral relations with Afghanistan.

Status of Resolution: Informal negotiations and environmental concerns have been raised by Iran, but no binding legal mechanism or agreement has yet been established.

4-1-3. Analysis of the Helmand and Harirud River Challenges within the Framework of the Water Security Doctrine

The reduction of water inflow from the Helmand River to Iran has caused environmental crises (drying of the Hamoun wetlands), livelihood crises (destruction of agriculture), and health issues (dust storms and water scarcity) in the Sistan region.

Regarding the Harirud River, Afghanistan, as the upstream country, seeks to increase its water storage and utilization capacity, particularly through the construction of the Salma Dam. Such actions by upstream states can be viewed as tools of geopolitical power projection. These measures threaten the water security of downstream countries, Iran and Turkmenistan, and disrupt the regional power balance. Additionally, the supply of water to

Mashhad via the Friendship Dam is fully endangered due to Afghanistan's control over the Harirud and the construction of the Salma Dam.

The conditions of the Helmand River and the imminent situation of the Harirud align with indicators of human water insecurity, as the lives and health of populations dependent on these rivers are directly threatened (human security dimension). Moreover, internal migrations, social tensions, potential local uprisings, and pressure on limited security resources elevate the Helmand water issue from a purely environmental problem to a national security challenge for Iran. In such circumstances, the right to water is intertwined with the right to life and development, and any disruption may have geopolitical consequences (national security dimension).

The continuation of the crisis may lead to border conflicts, increased political distrust, or even the use of water as a diplomatic pressure tool. In water security literature, this situation is termed "negative security," where water becomes a source of hostility rather than cooperation (Zeitoun & Mirumachi,2008) (regional security dimension).

While Afghanistan justifies unilateral actions such as the operation of the Kamal Khan Dam based on permanent sovereignty over natural resources, the water security doctrine emphasizes that the security of one country should not come at the expense of the insecurity of its neighbors. Sovereignty must be balanced with the principles of water solidarity and intergenerational justice, prioritizing human and environmental considerations (right to water, right to a healthy environment) over mere ownership claims.

The Harirud River challenge should be regarded not only as a legal issue but also as a security and humanitarian crisis. Under the water security doctrine, Iran can utilize frameworks of international humanitarian, human rights, and environmental law to pursue peaceful and effective dispute resolution mechanisms, provided it strengthens water diplomacy and gains third-party support. From a water security perspective, Afghanistan's continued non-cooperation may constitute a "threat to peace" justifying legitimate military threat. The Taliban's current dam construction on the Harirud headwaters and rejection of Iran's water rights revive the obsolete Harmon Doctrine. The new water security doctrine offers a suitable alternative to absolute sovereignty claims and may become the standard for identifying "water aggression" in international forums.

4-1-4. The Aras River and Northwestern Border Rivers Challenge (Iran–Turkey–Armenia–Azerbaijan)

Description of the Challenge: The Aras River, one of the most significant border rivers in northwestern Iran, originates in Turkey and flows through the borders of Armenia, Azerbaijan, and Iran before emptying into the Caspian Sea. As a vital water artery, the Aras plays a key role in supplying agricultural, drinking, and energy water to the provinces of Ardabil, East Azerbaijan, and West Azerbaijan. In recent years, Iran has faced multiple challenges regarding the utilization of Aras waters. On one hand, Turkey's infrastructural projects and construction of upstream dams on tributaries feeding the Aras (such as the Qarasou and Zanganeh rivers) have significantly reduced the river's flow. On the other hand, Azerbaijan and Armenia have independently constructed dams, conducted industrial exploitation, and transferred water from the Aras's tributaries without effective coordination with Iran. Additionally, environmental pollution caused by industrial and agricultural wastewater discharge by Armenia and Azerbaijan into the Aras has led to a water quality crisis in Iran's border areas.

Legal Analysis: The Aras River is considered an international river shared by multiple states. In the absence of a comprehensive quadripartite legal regime, interactions among the riparian states are governed by customary rules and bilateral agreements. From the perspective of international water law, unilateral actions by these states conflict with the following principles: equitable and reasonable utilization; the obligation not to cause significant harm to downstream countries; the duty of prior notification and consultation regarding infrastructural projects with transboundary effects; and the protection of shared ecosystems, as reflected in international environmental treaties such as the Ramsar Convention.

Furthermore, based on bilateral treaties between Iran and the former Soviet Union—which still serve as the customary legal basis for relations with the Republic of Azerbaijan—the parties are committed to equitable water sharing, cooperation in the construction and operation of joint facilities, and prevention of river pollution. Violations of these principles place Iran in a position to invoke International Court of Justice jurisprudence to consider the actions of the concerned countries as breaches of international law.

Status of Dispute Resolution: In recent years, Iran has officially corresponded through its Ministry of Energy and Department of Environment with neighboring countries to establish a joint management

regime for the Aras River and to address environmental pollution. Joint commission meetings with Azerbaijan and Armenia have been held, but no binding executive mechanism or multilateral treaty has been formulated. Turkey has not responded effectively to Iran's concerns regarding upstream resources and continues its dam construction projects citing territorial sovereignty.

Given this ongoing situation, Iran may pursue diplomatic tools and international institutions, including UN Water and the United Nations Environment Programme (UNEP), to facilitate the establishment of a binding multilateral regime for the sustainable management of the Aras River.

4-1-5. Challenge of the GAP Project and the Tigris and Euphrates Rivers (Iran–Turkey–Iraq–Syria)

Description of the Challenge: The Tigris and Euphrates rivers are among the largest and most important international rivers in the Middle East. The Tigris River is approximately 1,840 kilometers long with a basin area of 221,000 square kilometers, originating from the Taurus Mountains in southeastern Turkey and flowing through Turkey, Syria, Iraq, and Iran. The Euphrates River, the longest river in southwestern Asia, is estimated to be between 2,700 and 3,000 kilometers long. Its main tributaries in Turkey are the Karasu and Murat rivers, while in Syria, the Khabur and Balikh tributaries join it, both originating in Turkey. In fact, 88% of the Euphrates' water originates in Turkey.

Over the past two decades, Turkey has significantly increased control over upstream water resources through the massive Southeastern Anatolia Project (GAP), which includes the construction of over 20 dams and hydroelectric power plants on the Euphrates and Tigris rivers. This project has drastically reduced downstream water flow, causing declines in water quality, damage to agriculture, and destruction of riverine ecosystems in Iraq and Syria. Iran has also been severely affected through the sub-basins and environmental connections, especially in Khuzestan and the Hoor al-Azim wetlands.

Turkey has sought to leverage its newfound water power to increase its regional and international geopolitical weight.

Legal Analysis: Although the Tigris and Euphrates rivers are shared among several countries, no comprehensive and binding treaty has been established among Turkey, Iraq, Syria, and Iran. Therefore, legal interactions are mainly based on customary international law and some limited bilateral agreements.

The fundamental principles of international water law applicable here include:

- **Equitable and reasonable utilization:** States must consider the interests of other countries in the use of shared water resources.
- **No significant harm:** Any use causing significant damage to downstream states is prohibited.
- **Cooperation and notification:** Upstream states are obligated to notify and cooperate before implementing projects with transboundary impacts.

However, Turkey continues the GAP project citing territorial sovereignty and national development rights, disregarding downstream countries' concerns. This approach has intensified tensions and caused humanitarian, environmental, and security crises in the region. Conversely, Iraq and Syria, invoking treaties, international conventions, and humanitarian considerations, have demanded the cessation or modification of Turkey's projects and the protection of their water rights. Iran, concerned about the Hoor al-Azim and border wetlands, has expressed environmental concerns and demanded respect for its water rights.

Status of Dispute Resolution: Despite years of multilateral negotiations and involvement of regional and international organizations, fundamental disputes remain unresolved. The UN Security Council has emphasized the importance of sustainable management of transboundary water resources and regional security in some statements, but no binding action has been taken. Iran, as a country affected by the transboundary waters of the Tigris and Euphrates, seeks to strengthen regional cooperation, establish joint management institutions, and utilize international bodies to reduce tensions and guarantee its water rights. Additionally, both Afghanistan and Turkey, as Islamic countries, are expected to adhere to Islamic legal principles and obligations, including the principle of la darar (no harm), which can guide water diplomacy.

Table (2): Status of Iran and Neighboring Countries Regarding Shared Water Resources

No.	River / Water Source	Neighboring Country(ies)	Start of Dispute	Main Issue of Dispute	Status of Resolution / Mechanism
1	Helmand (Hirmand)	Afghanistan	Since 1872	Iran's water rights from Helmand; reduced flow	1973 Treaty; dispute persists; negotiations ongoing
2	Harirud	Afghanistan	1990s (Solar Hijri)	Construction of Doosti Dam (joint project); Iran's need for stable water for Mashhad	Bilateral agreement; technical cooperation ongoing

3	Aras	Armenia, Azerbaijan	Since 1921 (Soviet era)	Water allocation, joint dams, defining river boundary	1921 Treaty; active joint commission
4	Sari-su and Qareh-su	Turkey	1950s	Iran's water share from Sari-su (1.8 m^3/s)	1955 Protocol; relatively stable implementation
5	Tigris and Euphrates	Turkey, Iraq	1990s to present	Reduced inflow to Arvandroud; Ilisu Dam's impact on Hawizeh Marshes	No tripartite agreement; dispute remains unresolved
6	Arvandroud (Shatt al-Arab)	Iraq	Since 1930	Delimiting the thalweg line, waterway ownership, navigation	1975 Algiers Agreement; intermittent tensions
7	Western border rivers (e.g., Gamasiab)	Iraq	1970s (Solar Hijri)	Water use, canal digging, need for joint management	1975 Agreement; joint technical commission active
8	Atrak (Attrak)	Turkmenistan	Since 1940s	Flood control, impact of dam construction, agricultural use	Bilateral agreements; technical cooperation ongoing

4-2. Resolution of Global Water Challenges (2015–2025): Models for Iran and Its Neighbors

In the past decade, several significant geopolitical challenges related to shared water resources among states have been successfully resolved through legal and diplomatic mechanisms. These cases can serve as useful models to enhance Iran's water diplomacy with its neighbors.

Ganges River – India and Bangladesh (2015): Decades of tension over dry-season water allocation led to dissatisfaction in Bangladesh regarding India's upstream use. Relying on the principles of equitable and reasonable utilization and cooperation enshrined in bilateral treaties and the 1997 UN Watercourses Convention, the two countries signed an agreement in 2015. Under the Joint Rivers Commission, sessions were held to review water quotas and flow reporting. India committed to strengthening real-time hydrological monitoring and data exchange, reducing upstream withdrawals, and enhancing scientific cooperation. These measures have somewhat eased tensions, though concerns remain about the long-term impacts of India's water projects on downstream flows (World Bank Water Global Practice, 2016).

Syr Darya Basin – Kazakhstan, Uzbekistan, Kyrgyzstan (2017): Facing water shortages and disputes over irrigation and hydropower, the three Central Asian states reformed the Interstate Commission for Water Coordination (ICWC) framework, implementing principles of equitable allocation and no significant harm. Supported by UNDP and the World

Bank, these agreements advanced regional cooperation (UNECE Water Series No. 8,2017).

Lake Chad Basin – Niger, Nigeria, Chad, Cameroon (2018): Severe drying of Lake Chad caused environmental migration and border unrest. Regional states strengthened cooperation via the Lake Chad Basin Commission (LCBC) and, with UNEP and FAO support, developed and implemented a joint ecological restoration program (REDD+) (UNEP, 2019).

Mekong River – China, Thailand, Laos, Cambodia, Vietnam (2015–2023): China's upstream dam construction reduced flows and caused downstream tensions. Within the Mekong River Commission (MRC), prior notification, environmental impact assessments, data exchange, and flood warning systems were institutionalized, increasing cooperation. Although geopolitical competition persists and China has not formally joined binding multilateral regimes, informal cooperation such as hydrological data sharing during flood seasons offers hope for future progress (MRC Annual Report, 2023).

Common factors in these successes include adherence to international water law principles (equitable use, no harm, prior consultation), establishment of regional institutions, and engagement of neutral bodies such as UNEP, FAO, and the World Bank. Compared to Iran's challenges with neighbors, the absence of joint institutions like the MRC or ICWC for Iran's border rivers, weak data exchange, and non-ratification of key treaties such as the 1997 UN Watercourses Convention are evident gaps.

Iran should consider establishing a Border Water Cooperation Organization with its eastern and western neighbors, utilize the Organization of Islamic Cooperation (OIC) for mediation, and develop basin-wide cooperation frameworks to improve water diplomacy and resource management.

4-3. Utilizing Islamic Law (la darar (no harm) rule) in Regulating Relations between Iran and its Neighbors

In the increasing challenges related to Iran's shared water resources with neighboring countries—especially regarding upstream dam construction, unilateral exploitation, and environmental pollution—reliance on international legal principles and Islamic jurisprudential foundations can provide a basis for dispute resolution. In this context, the principle of "no significant harm" in international environmental law and the Islamic legal

maxim la darar (no harm) possess complementary and synergistic capacities that can be invoked in legal diplomacy.

The "no significant harm" principle is a fundamental norm in international environmental law, obligating states to refrain from actions causing substantial harm to other states in the use of shared natural resources. This principle is codified in Article 7 of the 1997 UN Convention on the Law of the Non-Navigational Uses of International Watercourses and affirmed by international judicial practice, including the Trail Smelter case (1941) where the tribunal ruled that no state may permit activities within its territory causing significant damage to another state, and the Gabcikovo-Nagymaros case (1997) emphasizing notification, environmental impact assessment, and harm prevention.

Above international legal principles for Iran and its neighbors stands their shared religion. The Islamic maxim la darar wa la dirar fi al-Islam, rooted in Prophetic tradition and recognized in both Shia and Sunni jurisprudence, is a fundamental Islamic legal rule prohibiting harm to others—even if the original right or possession is lawful. This maxim applies not only to individual relations but also to public and political acts (Najafi,1368:366; Ibn Qudamah, Al-Mughni:421). Shia jurists such as Sheikh Ansari and Imam Khomeini have regarded this maxim as the basis for limiting property rights and applied it to cases like qanat digging, shared water use, and prevention of natural resource pollution (Sheikh Morteza Ansari, Al-Makasib:127; Ruhollah Mousavi Khomeini, Tahrir al-Wasilah, vol. 1:480). From a jurisprudential perspective, causing any unusual or significant harm—even within lawful ownership—is condemned and prohibited.

The alignment of these two principles—the no-harm rule in international law and la darar in Islamic jurisprudence—demonstrates the convergence of these legal systems in prohibiting harm to others and the necessity of fairness and balance in exploiting shared resources. This convergence is especially significant in Iran's relations with Muslim neighbors such as Turkey, Afghanistan, Iraq, and Azerbaijan, as it allows strengthening bilateral or multilateral dialogues by referencing shared Islamic foundations alongside international legal principles.

For example, Turkey's extensive dam projects under the GAP initiative, which have reduced flows in the Tigris and Euphrates rivers and directly affected Iraq and indirectly Iran, violate the no-harm principle and, from the Islamic jurisprudential perspective, contradict la darar because they cause

significant harm to millions downstream. Similarly, pollution of the Aras River by industries in Armenia and Azerbaijan threatens the health of people in northwestern Iran; invoking both principles can support claims for international responsibility and reparations. Unfair water use by Afghanistan on the Helmand River, violating the 1973 treaty and ignoring the environmental needs of the Hamoun wetlands, clearly constitutes harm to fellow Muslims and can be pursued under la darar and Islamic brotherhood principles.

Given the above, it is recommended that Iran's diplomatic and legal institutions, in addressing water challenges, reinforce their argumentative framework by relying both on the customary and treaty-based principle of no significant harm and the Islamic jurisprudential maxim la darar, especially in dealings with Islamic countries. This dual approach can enhance not only legal persuasion of counterparts but also garner public, media, and international institutional support. Institutionalizing these principles in bilateral or multilateral legal instruments will significantly contribute to establishing a sustainable legal regime for managing shared water resources.

5. Conclusion

Today, sovereignty over natural resources, including water resources, as a principle of international law, has moved away from its classical interpretation—which entailed an absolute, permanent, and exclusive right of states to exploit resources within their territorial jurisdiction—and has become limited by the obligation not to cause harm to other states. Regarding freshwater resources and international watercourses, these limitations have become established norms based on customary international law.

The jurisprudence of the International Court of Justice (ICJ) and other international tribunals such as the European Court of Human Rights and the International Tribunal for the Law of the Sea—through cases like Trail Smelter, Gabcíkovo–Nagymaros, the Meuse River and Pulp Mills cases, Cordella, and KlimaSeniorinnen v. Switzerland—have repeatedly emphasized the customary obligation to sustainable development. They have underscored fundamental principles such as the no-harm rule, the precautionary principle, international cooperation, and intergenerational justice, to which all members of the international community are responsible

and committed. Violations of these principles carry extensive legal and moral consequences.

These principles have been reflected in international declarations such as Principle 21 of the 1972 Stockholm Declaration and Principle 2 of the 1992 Rio Declaration, as well as in regional and global treaties including the 1997 UN Convention on the Law of the Non-Navigational Uses of International Watercourses, the Helsinki Rules, and the Berlin Rules. According to these norms, states may not use their territory in ways that cause damage to other territories and must utilize transboundary water resources equitably and reasonably with regard to all riparian states. Although this obligation is recognized as a customary international obligation, in cases where violations of sustainable development threaten international peace and security or fundamental human rights (such as the right to life, food security, and safe water), it may rise to the level of a peremptory norm (jus cogens).

A prominent example is the dispute among Egypt, Sudan, and Ethiopia over the Grand Ethiopian Renaissance Dam (GERD), where unilateral dam construction by the upstream state (Ethiopia) and military threats from the downstream state (Egypt) have led to a regional crisis. In such contexts, unfair water use may cause hunger, environmental displacement, and border conflicts, and the obligation to sustainable development acquires all the characteristics of a jus cogens norm. At this level, national interests or flawed analogies—such as equating water to oil (as Turkey has done regarding the Tigris and Euphrates headwaters)—can no longer justify breaching this obligation. Rather, the collective responsibility of states to protect vital resources and ensure intergenerational justice forms the basis of an emerging doctrine in international law, which can be called the "new water security doctrine."

5-1. Proposal for Establishing an International Water Organization (UNWATER)

Accordingly, there is a need for an international water organization emphasizing coordination with the judicial organ of the United Nations—the International Court of Justice. This global organization, similar to the International Maritime Organization (IMO) or the World Intellectual Property Organization (WIPO), should:

- First, have regulatory authority;
- Second, have a mission encompassing technical management and technical arbitration in disputes;

- Finally, take initiative in negotiation, mediation, and legal dispute resolution related to freshwater resources.

The interaction of this body with existing structures such as the United Nations Environment Programme (UNEP), UN-Water, and the International Court of Justice should be designed based on functional differentiation, judicial coordination, and institutional efficiency.

Currently, UN-Water lacks binding executive and judicial powers. Therefore, strengthening it as an "International Water Organization" with independent legal and technical authority appears necessary. Such an organization could operate on three levels:

1. **Technical and Managerial Level:** Developing common standards for environmental impact assessment, sustainable management of surface and groundwater, responding to climate change challenges, and fostering technical cooperation frameworks among states;
2. **Legal and Obligatory Level:** Establishing mechanisms to clarify and ensure states' customary and treaty obligations, focusing on principles such as equitable and reasonable utilization, no significant harm, prior notification, and ecosystem protection;
3. **Judicial and Dispute Resolution Level:** Establishing an arbitration body or specialized water tribunal under the organization's supervision, coordinated with the International Court of Justice, to address disputes arising from unilateral exploitation, pollution, treaty violations, and assessment of climate-related obligations concerning shared water resources.

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7. Conflict of Interest

The authors declare that there is no conflict of interest, and that all standards of research ethics have been fully observed, including the avoidance of plagiarism, duplicate publication or simultaneous submission of the same manuscript, fabrication or falsification of data, fabrication or misrepresentation of sources, obtaining informed consent from research participants, and any other forms of academic misconduct.

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