

WHITE PAPER

Interactions between the Global Biodiversity Framework and the Human Right to a Healthy Environment, and implications for water governance



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1. Introduction and Overview

At the halfway point of the 2030 Agenda for Sustainable Development (A/RES/70/1), the world is increasingly off track, putting the “Leave no one behind” principle at significant risk of being achieved. Meeting Sustainable Development Goal (SDG) 6 “ensuring access to water and sanitation for all” (A/RES/70/1) is one of the globe’s biggest challenges and is also an indispensable requirement to achieving global sustainable development. “Over half (107) countries are not on track to have sustainably managed water resources by 2030, which is vital for balancing competing water demands from across society and the economy.” (United Nations, New York, 2023)

Recognition of the negative implications for human rights (A/HRC/RES/52/14) from the failure to meet SDG 6, coupled with the triple planetary crisis – rapid climate change, the loss of biodiversity, and pollution- has led to changes in the international environmental governance landscape. The Universal recognition of the right to a healthy environment (A/RES/76/300), and the adoption of the Kunming-Montreal Global Biodiversity Framework (CBD/COP/DEC/15/4) (hereinafter the GBF), are part of the United Nations (UN) system course correction efforts to accelerate action across sectors and society toward the realization of the 2030 SDG’s. Both should be considered increasingly critical for water governance, as biodiversity has benefits that go beyond wellbeing and livelihoods, and includes water quality regulation and a sense of place (IPBES 2019).

The purpose of this paper is to begin exploring the implications of strengthening nature-related actions for implementing the overall 2030 Agenda for Sustainable Development, as well as specifically the SDG’s based around the water sector. This paper also seeks to lay the groundwork for identifying opportunities for water governance that can support the implementation of global goals, while underlining their importance and furthering the understanding of their connections.

1.1 The Water sector in the context of a biodiversity and nature crisis

There are multiple ways of defining water, whether as a compound, a resource, a social, cultural, and economic good (E/C.12/2002/11), a service, a living being, and ultimately, a right (AG/Res. 64/292). Given its encompassing nature, it is difficult to define the boundaries of the water sector as well. In many ways, this understanding has expanded in recent years as water challenges grow. There has

been a shift from predominantly technical, often fragmented, interpretations to more inclusive and interconnected understandings, built on the wider participation of water users and rights holders. To comprehend the water sector in the context of biodiversity, it is important to acknowledge these complexities and the multidimensional nature of water resources.

The water cycle is an endless process that connects water in many forms across multiple regions. Freshwater ecosystems host a significant diversity of life and, through their ecological functions, provide ecosystem services that billions of people rely upon. Moreover, freshwater systems connect terrestrial ecosystems through groundwater basins and river catchments, to coastal and marine ecosystems. Hence activities on land, mediated by surface and groundwater systems, affect marine ecosystems.

The 2030 Agenda (A/RES/70/1) reflected this in the adoption of target 6.6: “By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes” to support the achievement of SDG 6, and other targets for drinking water, sanitation, water quality, water use efficiency and integrated water resources management (IWRM).

The exploitation of water resources for agricultural, industrial, and domestic consumption has generally taken place without regard to the connections to ecosystems and the services they provide (Secretariat of the Convention on Biological Diversity 2020). Similarly, coastal areas, wetlands, and other areas near river courses, have been particularly subject to conversion or development without regard for the impacts on freshwater ecosystem processes. As a result, the current rate of wetland loss is three times that of forest loss: since 1970, an estimated 30 percent of natural freshwater ecosystems has disappeared, and since 1700, 87 percent of inland wetlands have been lost (Ramsar Convention on Wetlands 2018). Adequate water provision for all is essential, and wetlands play a key role in water security (Convention on Wetlands 2021). Adoption of the GBF, which recognizes the dependence of biodiversity and water security, acknowledges the threat that continuous biodiversity losses pose to nature and human well-being (CBD/COP/DEC/15/4). Business-as-usual trajectories and global scenarios project further significant negative impacts on biodiversity at all levels, exacerbated by climate change. These potential impacts apply to terrestrial, inland water, and marine ecosystems (IPBES 2019). An estimated 1.7 billion people presently live under conditions of regional water stress (IPBES 2019), and this is expected to double by 2050 (Schlosser, C. A. et al 2014).

Thus, the GBF seeks to respond to the ample evidence that, despite ongoing efforts, biodiversity is deteriorating worldwide at rates unprecedented in human history. Although commitments to water and freshwater ecosystems have been, to some degree, upgraded, much more is needed across multiple dimensions of water resource management and services. Upgrades that use a disaster risk approach, include transboundary cooperation as well as climate change adaptation measures, incorporating a gendered and human rights perspective. These will significantly benefit biodiversity and begin to reverse the dangerous trends of loss.

1.2 Stakeholders, processes, and relevance of the water sector

Freshwater resources are of major environmental, economic, and social importance. Distribution varies widely among and within countries. Beyond physical availability, the quantity, and quality of freshwater can be affected by public supply irrigation, industrial processes, pollution from agriculture, industry and household use, changes in biodiversity, and shifting climate and weather conditions. Infrastructure development, whether instream or external to a water body, can also affect the ecological integrity of rivers, lakes, aquifers and wetlands. Further, if a significant share of a country's water comes from transboundary water sources, tensions between countries can also arise, however water can also be a source of cooperation (Organization of American States 2018). In arid regions, demand for freshwater resources may, at times, only be met by going beyond sustainable use.

Projections show that under a business-as-usual scenario, by 2050, 3.9 billion people – in total, over 40 percent of the world's population – are likely to live in river basins under severe water stress. Water demand is projected to increase by 55 percent globally by 2050 (OECD 2012), and efforts to support these demands may come at substantial cost to freshwater ecological functionality and integrity if impacts are not considered and addressed.

To reach global water goals, addressing complexities and a wide range of issues, including interests, uses, drivers and impacts is required. Water decision-making is influenced by, and affects many people in any given region, both up and downstream. Mapping out and including the full range of water related stakeholders and their interests in decisions is often an important steppingstone to effective engagement processes (OECD 2015b).

The Declaration of Principles adopted at the 1992 Rio Summit, United Nations Conference on Environment and Development (A/CONF.151/26, Vol. I) in principle 10, states:

“Environmental issues are best handled with participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.”

The focus of this principle is one of the fundamental dimensions of water governance, making it directly applicable to water decision-making (United Nations Development Program 2013). “All concerned citizens” in this context would be water related stakeholders and could be interpreted to encompass regulators, local government employees, industry representatives, landowners, farmers, and members of the public, as well as members of the scientific community, and others who may contribute to a systemic understanding of the complexities involved. It could also be expanded to include those with interests in terrestrial and freshwater ecosystems, or in biodiversity conservation.

The Organization of Economic Cooperation and Development (OECD) approach for the implementation of effective, efficient, and inclusive water policies (OECD 2015), endorsed by 44 member and non-member governments, and over 140 stakeholders, calls to:

“Clearly allocate and distinguish roles and responsibilities for water policymaking, policy implementation, operational management and regulation, and foster co-ordination across these responsible authorities.” (principle 1)

“Encourage policy coherence through effective cross-sectoral coordination, especially between policies for water and the environment, health, energy, agriculture, industry, spatial planning and land use.” (principle 3)

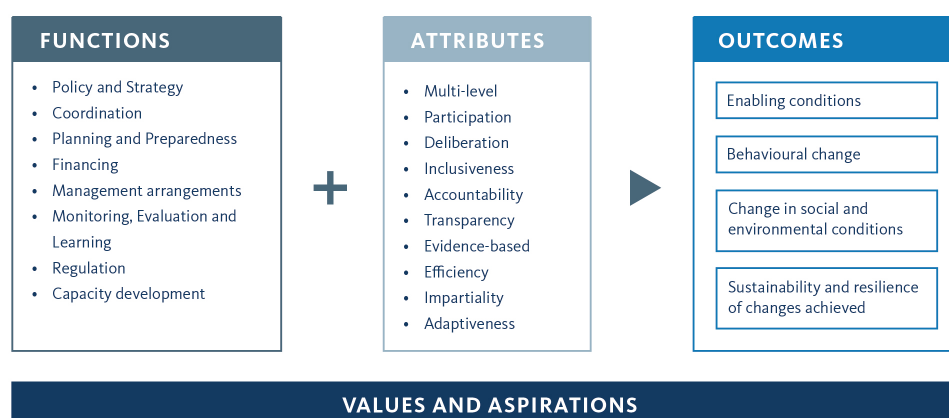
“Promote stakeholder engagement for informed and outcome-oriented contributions to water policy design and implementation.” (principle 10)

Stakeholder engagement in the water sector is a principle of good governance (OECD 2015b) and is linked to the rights-based approach.

1.3 Governance and the Rights-based approach

Global demands, the nature of water and the sector, call for a systemic approach that mitigates the impact of existing pressures and responds to new ones through improved water governance. While there is limited clarity around the practical meanings of “water governance” and how best to consistently improve it, it offers a framework for determining who gets what water, when, and how, and who has the right to water and related services and their benefits (Allan 2001). The most often used definition of water governance is the range of political, administrative, economic, and social systems that exist to manage water resources and services. Further, it is essential to manage water resources sustainably and provide access to water services for domestic or productive purposes. (Global Water Partnership 2003). Other approaches focus on the use of principles and elements of good governance (CONAGUA 2015 and OECD 2015), but precise definitions are elusive.

A proposed framework for understanding water governance that includes a combination of functions, attributes, and outcomes (Jimenez et al 2020), which are implemented in steps.



Source: Jimenez et al 2020

Since 1986, states have recognized the duty to create national and international conditions favorable to the realization of the right to development, as well as the commitment to cooperate with one another to achieve this goal (A/RES/41/128). The goals and targets surrounding access to water for all are considered enabling conditions for development (A/RES/77/212). However, the multidimensional nature of the water sector, the various interests in water-related decision-making, and the role of power and politics create a complex dynamic, evidenced in four fundamental dimensions of water governance: 1. Social, 2. Economic, 3. Political

and, 4. Environmental (United Nations Development Program 2013). Such dimensions contribute to the complexity of creating suitable enabling conditions, as well as in achieving the right to development.

These dynamics, and the above image, describe elements of the water governance framework, adopted by the Stockholm International Water Institute (SIWI), which intersect amongst each other and are intrinsically connected to the rights-based approach to development (United Nations, Sustainable Development Group 2003 and 2019). Under the rights-based approach, plans, policies, and processes of development are anchored in a system of rights and corresponding [obligations established by international law](#). These include all civil, cultural, economic, political and social rights, the right to development, the right to a healthy environment and the right to water.

The rights-based approach requires human rights principles of universality, indivisibility, equality and non-discrimination, participation, and accountability (A/CONF.157/24 (Part I), chap. III.) to guide the development of the capacities of both ‘duty-bearers’ to meet their obligations, and ‘rights-holders’ to claim their rights. These principles must be treated globally, in a fair and equal manner, which can make addressing the complex trade-offs necessary in implementing water governance, a significant challenge. Due to the absence of criteria for how these principles are applied, a key question emerges regarding how decisions surrounding these tradeoffs are made in fairness and equality. This becomes more relevant as the role of the environmental dimension of water governance is being further recognized in the implementation of principles such as, *in dubio pro aqua*, *in dubio pro natura*¹, ecological integrity, and of the rights-based approach.

¹ These two principles (*in dubio pro aqua*, *in dubio pro natura*) are translated as “when in doubt, in favour of water” and “when in doubt, in favor of nature”, and refer to the principle that when there is any doubt in a dispute about the level of environmental harm, the doubt should be resolved in favour of nature or water ecosystem.

2. Human Rights, Water and Biodiversity Nexus

Human rights are a common standard of values and aspirations that serve as the foundation of freedom, justice and peace, entitlements for all people and nations without discrimination (United Nations, General Assembly 1948). The first legal instrument that established universal protection of human rights was the United Nations Declaration of Human Rights. (United Nations, General Assembly 1948). Together with the International Covenant for Civil and Political Rights, and the International Covenant for Economic, Social and Cultural Rights, this makes up the International Bill of Rights, which provides the principles and building blocks of current and future human rights conventions, treaties, and other legal instruments. They also include the three most established regional human rights systems, the African Charter on Human and Peoples' Rights (Organization of African Unity 1981), the European Convention on Human Rights (Council of Europe 1950) and the Pact of San Jose (Organization of American States 1969) and the additional protocol on economic, social and cultural rights, known as the Protocol of San Salvador (Organization of American States 1988).

These basic human rights instruments, apart from the protocol of San Salvador, do not expressly address the human rights, water, and biodiversity nexus. The evolution of rights related to these realms has occurred separately, which has somewhat undermined the ability to protect, respect, and fulfil rights related to this nexus. However, this is, to some degree, being rectified through the enforcement mechanisms of the regional systems, and through jurisprudence at the national and international levels.

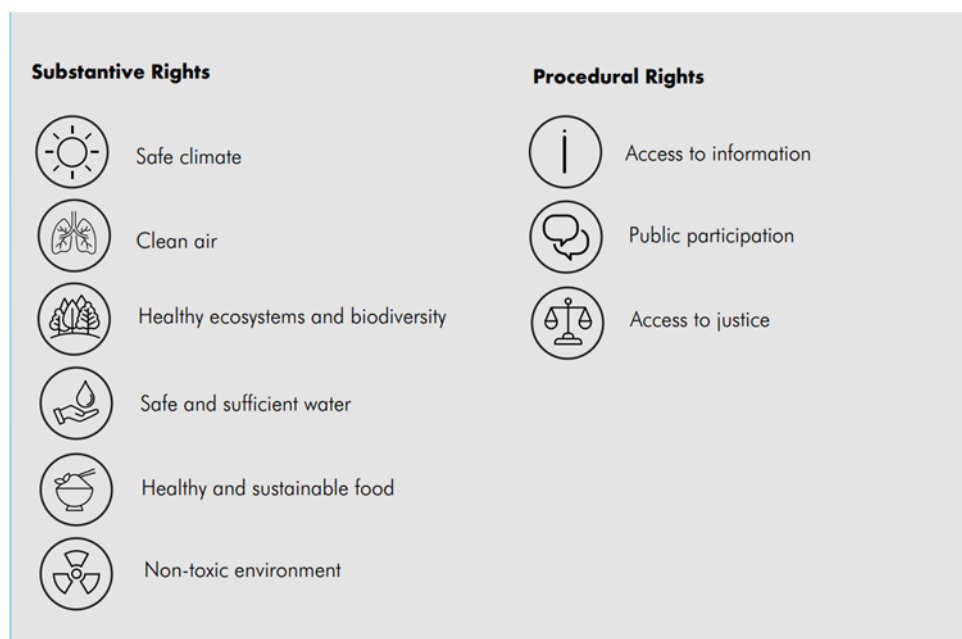
2.1 Human right to a healthy environment

The connection between the environment and the fulfillment of human rights was first recognized in Principle 1 of the Stockholm Declaration, which established that “Man has the fundamental right to freedom, equality, and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being.” (A/CONF.48/14/Rev.1)

The right to a healthy environment is generally understood to include substantive and procedural elements. While the right to a healthy environment as a human right was only universally recognized in August 2022 (A/RES/76/300), it has had unique longstanding recognition in both the Inter-American Human Rights

System, as a matter of national law with constitutional standing, and within human rights instruments such as the Protocol of San Salvador to the American Convention (Organization of American States 1988). Under other regional human rights systems, the right to a healthy environment is interpreted as the right to physical integrity, privacy, and intimacy of the home (López Ostra vs. Spain, [1990]) protection of the family (League of Arab States 1994), or as adequate standard of living (ASEAN 2012). Today, this right builds on developments in the Inter-American System, and includes the meeting of certain conditions governed by the availability, accessibility, sustainability, quality, and adaptability of environmental components, such as the quality and sufficiency of water sources, biodiversity, and forest resources (Organization of American States 2015). Therefore, access to safe water, adequate sanitation, and clean air, can be considered as substantive elements of the right to a healthy environment (United Nations Development Programme (2023)).

The elements of the right to a healthy environment



Source: (United Nations Development Programme (2023))

2.2 Human right to water

In 2010, the UN General Assembly adopted water and sanitation as a human right that is essential for all human beings (AG/Res. 64/292). The right to water is indispensable for a life with dignity. It includes everyone's right to have sufficient,

safe, acceptable, physically accessible, and affordable water for their personal and domestic use (E/C.12/2002/11). Universal access to sanitation is, “not only fundamental for human dignity and privacy, but is one of the principal mechanisms for protecting the quality” of water resources (E/C.12/2002/11).

The right to water refers to water of acceptable quality and quantity “for personal and domestic uses”—in effect, emphasizing ‘affordable’ water supply and sanitation.

Availability, quality/safety, and accessibility serve as the normative criteria against which fulfillment of the right to water is measured. More specifically, these criteria also include physical and economic accessibility, as well as non-discrimination, in accessing water and the right to obtain relevant information. The right to water not only includes the right to service, but other rights, including participation, justice, and access to information. Although water is required for different purposes, the normative criteria, and the requirement of a minimum daily vital intake (between 50 and 100 litres of water per person per day), prioritize allocation for personal and domestic uses. The connection between the right to a healthy environment and the right to water requires further exploring, particularly regarding sources, ecosystems, and other approaches.



Traditional net fishing at sunrise, Ubon Ratchathani, Thailand. Source: Shutterstock

Criteria governing meeting of conditions based on substantive elements

<p>Right to a Clean, Healthy, and Sustainable Environment (A/RES/76/300) Source: (Organization of American States 2015)</p>	<p>Human Right to Water and Sanitation (AG/Res. 64/292) Everyone has the right to have sufficient, safe, acceptable, physically accessible, and affordable water for their personal and domestic use. Source: (General Comment 15)</p>
<p>Availability: States must ensure the availability or existence of sufficient resources so that all persons, according to their specific characteristics, can benefit from a healthy environment and have access to basic public services. Environmental conditions depend on the state of various factors such as: a) air, b) water, c) soil, d) forest resources, e) biodiversity, f) energy resources, g) atmospheric conditions, and h) waste production, among others. As for public basic services, they are comprised of the essential services provided by the State (whether delivered directly by the State itself or by third parties) to ensure that persons live in acceptable conditions. Although there is no exhaustive list of these services, the Inter-American Commission on Human Rights has recognized on various occasions that services such as piped water supply, sewage, cleaning, electricity, and gas may be viewed as basic services</p>	<p>Sufficient. The water supply for each person must be sufficient and continuous for personal and domestic uses. These uses ordinarily include drinking, personal sanitation, washing of clothes, food preparation, and personal and household hygiene. According to the World Health Organization (WHO), between 50 and 100 litres of water per person per day are needed to ensure that most basic needs are met.</p>
<p>Accessibility: States and Parties must guarantee that all persons, without any discrimination whatsoever, can gain access to a healthy environment and to basic public services. Accessibility has four dimensions: a) physical accessibility, which means that all sectors of the population can have physical access to a healthy environment and basic public services. To achieve this, it is necessary, on the one hand, for the environment in which persons carry out their lives to be healthy and that they not be required to leave their homes, schools, or workplaces to find favorable environmental conditions; on the other hand, the coverage of basic public services must be widely extended; b) economic accessibility, which means that the States must dismantle all barriers to access to a healthy environment stemming from the socioeconomic conditions of persons; c) nondiscrimination, which requires that all persons, regardless of their racial, ethnicity, gender, age, socioeconomic status, disability or other characteristic, must be able to gain access to a healthy environment and to basic public services; and d) equal access to information, each person has the possibility of requesting, receiving, and disseminating information about the conditions of the environment and basic</p>	<p>Physically accessible. Everyone has the right to a water and sanitation service that is physically accessible within, or in the immediate vicinity of the household, educational institution, workplace, or health institution. According to WHO, the water source must be within 1,000 metres of the home, and collection time should not exceed 30 minutes.</p>

Sustainability: It may be understood as the result of having the criteria of availability interacting with those of accessibility, for the purpose of making sure that future generations will also enjoy the benefits of a healthy environment and basic public services. Some instruments of international law speak of sustainable development, referring precisely to the fact that the extraction of natural resources must not be done as such to deplete them altogether, but rather must allow for their renewal and the reduction of environmental risks.

Quality: This requirement for States most directly enforces the right to a healthy environment, as the qualifier “healthy” refers to the constituent elements of the environment (such as water, air, or soil, among others). Technical conditions of quality must also be met to make them acceptable, in line with international standards. This means that the quality of the elements of the environment must not become an obstacle to persons to live their lives within their spaces.

Adaptability: Consideration of the various environmental conditions viewed as “healthy” must keep in mind both technical criteria of compliance with environmental standards (which are examined under the criterion of quality), and also the state of those conditions needed to make it possible for various demographic groups to develop in accordance with their own specific characteristics. Adaptability also requires that basic public services provided by States meet the specific needs of the context where they are located.

Acceptable. Water should be of an acceptable colour, odour, and taste for personal or domestic use. [...] All water facilities and services must be **culturally** appropriate and sensitive to **gender, lifecycle, and privacy requirements**.

Safe. The water required for each personal or domestic use must be safe, therefore, free from micro-organisms, chemical substances, and radiological hazards that constitute a threat to a person's health. Measures of drinking-water safety are usually defined by national and/or local standards for drinking-water quality. **The World Health Organization (WHO) Guidelines for drinking-water quality** provide a basis for the development of national standards that, if properly implemented, ensures the safety of drinking-water.

Affordable. Water, water facilities, and services must be affordable for all. The United Nations Development Programme (UNDP) suggests that water costs should not exceed **3 per cent** of household income.

2.3 Role of biodiversity, ecosystems, and other approaches

Nature, through its ecological functions and evolutionary processes, sustains the quality of the air, fresh water, and soils on which humanity depends. Nature is also responsible for the distribution of fresh water, regulation of the climate, pollination, pest control, and can moderate or amplify the impacts of natural hazards on social and economic systems (IPBES 2019). Biodiversity's key role and contributions have been recognized in developmental interventions for decades. Evidence of this can be seen in different approaches ranging from "preservation" to "natural resource management" and "sustainable use" (Manoj Kumar Jhariya et al 2022).

The ecosystem approach is a conceptual framework for resolving ecosystem issues, adopted by the Convention on Biological Diversity (CBD) (United Nations, Environment Program 2000) and compatible with the wise use of wetlands concept of the Ramsar Convention on Wetlands (Convention on Wetlands 2005)(Finlayson, C.M., D'Cruz, R. & Davidson, N.C. 2005). The ecosystem approach is the primary framework for action under the CBD. Based on twelve principles, it is a strategy for the integrated management of land, water, and living resources that promotes conservation and sustainable use in an equitable way. The strategy is needed to reach a balance of the three objectives of the Convention: conservation; sustainable use; and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

Sustainable use under CBD refers to using biodiversity resources in a way, and at a rate, that does not lead to the long-term degradation of the environment. This is a key concept in the context of the current crisis, as scientific findings confirm that nature is currently being used at a faster pace than it can regenerate. Sustainable use is also relevant in the context of the recognized role of local communities and indigenous peoples as duty bearers and rights holders. "Indigenous peoples have the right to the conservation and protection of the environment and the productive capacity of their lands or territories and resources. States shall establish and implement assistance programmes for indigenous peoples for such conservation and protection, without discrimination." (A/RES/61/295 and AG/RES. 2888 (XLVI-O/16))

The fifth edition of the Global Biodiversity Outlook, one of the main scientific assessments of trends to which the GBF seeks to respond, focuses on eight distinct, but closely inter-related aspects of the interface between people and nature, and works to move to sustainably realigning people and nature (Secretariat of the Convention on Biological Diversity 2020). Based on the 'nexus' approach outlined

in the IPBES Global Assessment, the management of freshwater ecosystems is one of these key areas. The sustainable freshwater transition is an integrated approach that focuses on protecting the “water flows required by nature and people, improving water quality, protecting critical habitats, controlling invasive species, safeguarding connectivity, and allowing the recovery of freshwater systems from mountains to coasts.”

This approach recognizes the importance of biodiversity to maintaining the multiple roles of freshwater ecosystems that support human societies and natural processes, including ecosystem connectivity. (Secretariat of the Convention on Biological Diversity 2020). Environmental flows describe the quantities, quality, and patterns of water flows required to sustain freshwater and estuarine ecosystems, and the ecosystem services they provide. These approaches and interventions are compatible with the stakeholder participatory nature that underpins Integrated Water Resources Management (IWRM), and with achieving a balance between maintaining ecosystem integrity, (Sustainability of water resources and ecological systems holistic approach) and socio-economic development. (SIWI 2020)



Misty sunrise over wetlands, Ukraine. Source: Shutterstock

The UN Environment Assembly has determined that Nature Based Solutions (Nbs), are compatible with the ecosystem-based approach, as well as with other management and conservation approaches, and plays an essential role in the overall global effort to achieve the Sustainable Development Goals (UNEP/EA.5/Res.5).

“Nature-based solutions are actions to protect, conserve, restore, sustainably use, and manage natural or modified terrestrial, freshwater, coastal, and marine ecosystems which address social, economic, and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services, resilience and biodiversity benefits.” (UNEP/EA.5/Res.5)

The social and environmental challenges that can be effectively and efficiently addressed by Nbs include: biodiversity loss, climate change, land degradation, desertification, food security, disaster risks, urban development, water availability, poverty eradication, inequality, unemployment, social development, sustainable economic development, human health and a broad range of ecosystem services (UNEP/EA.5/Res.5).

There was little understanding of how to best apply the rights-based approach to water resources management (UNDP-SIWI Water Governance Facility 2012) at the outset, but this has evolved over time. Although there is limited guidance regarding governance as it relates to biodiversity, particularly when viewed in the context of the right to a healthy environment and the right to water, this is beginning to be explored by decision makers and judiciaries in different parts of the world. Still to be explored is the understanding of the cohesive role of the right to a healthy environment, interpreted within the system of environmental conventionality² and international law, and how it may enhance governance regarding biodiversity goals.

² Art.38 (1) (a) of the Statute of the International Court of Justice refers to "international conventions, whether general or particular" as a source of law. This generic use of the term "convention" embraces all international agreements, in the same way as does the generic term "treaty". Black letter law is also regularly referred to as "conventional law", in order to distinguish it from the other sources of international law. The generic term "convention" thus is synonymous with the generic term "treaty"). (UNTC no date). The conventionality control doctrine aims to strengthen the supremacy of human rights treaties over constitutions and domestic law of their state parties (Gonzalez-Dominguez 2018)

3. Global Goals and Principled Approaches

The promotion of the human right to a clean, healthy, sustainable environment, and of the right to water, requires the full implementation of the multilateral environmental agreements under the principles of international environmental law (A/RES/76/300) (Inter-American Court of Human Rights. 2017).

The current state of global goals and the unprecedented rate of biodiversity decline, call for solutions that utilize an integrated approach that can respond to the multiple dimensions of the challenge of ecosystems, such as inland water under multiple pressures with synergistic effects for people.

The overarching principles of the 2030 Agenda which include focuses on integrated, indivisible, and universal, striving not for one, but for all securities, is essential to ensure that all human beings can fulfil their potential in dignity and equality in a healthy environment. The discussed approaches, including principle-based and the values behind them, all have a contribution to make, but effectiveness differs according to the context within which they are applied. They should be compared and analyzed on a case-by-case basis to identify cross cutting and common elements, as well as how to apply them in similar or contrasting local contexts.

A better future rests on all the achievement of all necessary securities, including geopolitical, energy, climate, water, food, and social security. Strategies to embrace transformations, therefore, should be based on the principles of solidarity, equity, and well-being, in harmony with nature. (United Nations, New York, 2023)

3.1 Global Biodiversity Framework (GBF) (Target 2 and Interconnections)

The GBF(CBD/COP/DEC/15/4) sets out an ambitious and broad action plan to bring about transformation, using a whole government and whole society approach to biodiversity, and is in line with the 2030 Agenda for Sustainable Development and the SDGs. The framework recognizes and considers different value systems, the contributions and rights of Indigenous Peoples, and is compatible with relevant multilateral environmental agreements (MEAs) and other initiatives.

Target 2, in reducing threats to biodiversity, seeks to “ensure that by 2030 at least 30 per cent of areas of degraded terrestrial, inland water, and marine, and coastal ecosystems are under effective restoration, in order to enhance biodiversity and ecosystem functions and services, ecological integrity and connectivity” (CBD/COP/DEC/15/4). This target is a direct response to the critical threat to freshwater biodiversity posed by fragmentation of rivers and other water bodies, as well as to the significantly compromised role of nature in regulating water quality, reducing coastal risk, and pollinating crops, especially in regions where the need for such contributions is greatest (Secretariat of the Convention on Biological Diversity 2020).

Under future scenarios of land use and climate change, up to five billion people face higher water pollution and insufficient pollination for nutrition, particularly in Africa and South Asia. Hundreds of millions of people face heightened coastal risk across Africa, Eurasia, and the Americas. Given their higher reliance on biodiversity, the effect of higher water pollution and insufficient pollination for nutrition will be particularly detrimental to Indigenous Peoples and local communities, and the world’s poor and vulnerable. This is an important consideration for implementation of the 2030 Agenda principle, “Leave No One Behind”, which uses the rights-based approach, and considers the right to a healthy environment, as States must take additional measures to protect the rights of those who are most vulnerable, or at particular risk from environmental harm (A/HRC/37/59).

Thus, it can be argued that, to a certain degree, the over consumption of material goods and services that affect biodiversity and biological processes, and implementing approaches that are not consistent with target 2, can also jeopardize the right to have sufficient, safe, acceptable, physically accessible, and affordable water for their personal and domestic use. This also hampers the enabling conditions of the right to a healthy environment.

In terms of identifying interconnections to the substantive elements of the right to a healthy environment and the contribution of inland water, marine, and coastal ecosystems to the hydrological cycle and the right to water, target 2 becomes extremely relevant. The GBF establishes that the implementation of target 2 should follow a human rights-based approach, respecting, protecting, promoting, and fulfilling human rights.

3.2 Human Right to Healthy Environment and the Right to Water (General Comment 15)

The main obligation of States under universal (United Nations, General Assembly 1948) and regional human rights treaties is to protect, respect, and guarantee rights. Economic, social, and cultural rights, such as the right to a healthy environment are not exceptions.

To protect, respect and guarantee human rights, States should ensure a safe, healthy, and sustainable environment. On the basis of the interrelated nature of all human rights, as well as the contribution of the right to a healthy environment to the guarantee and full enjoyment of human rights, States should establish and maintain substantive environmental standards that are both nondiscriminatory and non-retrogressive and that respect and fulfill human rights. (A/HRC/37/59)

Ideally, environmental standards should be set and implemented at levels that prevent all environmental harm from human sources and that progressively ensure a safe, clean, healthy, and sustainable environment including the right to health, food, water, and other economic, social, and cultural rights. This obligation requires States to take all appropriate means, including instilling deliberate, concrete, and targeted measures (A/HRC/37/59 and CCPR/C/21/Rev.1/Add).

Navigating a channel of the Okavango Delta, Botswana. Source: Shutterstock.



The principle of progressive development of human rights (Council of Europe 1950, Organization of American States 1969) calls for States to undertake and adopt measures, both internally and through international cooperation, such as those of an economic and technical nature, to achieve by legislation or through other appropriate means, the full realization of economic, social, and cultural rights (United Nations, Human Rights Committee 2004).

The right to a healthy environment, the right to water, and other related rights in the economic, cultural, and social order (i.e. Right to food, right to property) should include prevention, precaution, mitigation of damages, and cooperation among States that are affected by threats to their populations resulting from environmental degradation and biodiversity decline, including climate change (IUCN 2023).

The procedural elements in these rights (participation, justice, and access to information) are essential to the rights-based approach and to water governance.

Therefore, appropriate protection depends on adequate mechanisms to guarantee the right to a healthy environment and the right to water and sanitation. Adequate implementation of environmental rights also requires that environmental considerations be effectively integrated into socio-economic development processes (Scholtz, W. and Verschuuren, J. 2015). The GBF acknowledges the right to development and the human right to a healthy environment. This approach “enables responsible and sustainable socioeconomic development that, at the same time, contributes to the conservation and sustainable use of biodiversity”. (CBD/COP/DEC/15/4)

4. Implications for the Water Sector and the role of Water Governance

The implications for the water sector are related to the points of convergence between the essential attributes of the rights based approach (to fulfill human rights to a healthy environment and the right to water to identify rights holders and duty bearers and to be guided by human rights principles standards and treaties) (United Nations, Sustainable Development Group 2003 and 2019) embedded in the GBF (CBD/COP/DEC/15/4), and the functions and attributes in the water governance framework (Jimenez et al 2020). There are also synergies between the fundamental dimensions of water governance (United Nations Development Program 2013) and the GBF relationship with the 2030 Agenda for Sustainable Development, both of which must include the three dimensions of sustainable development to create the conditions necessary to fulfil the goals and targets of the Framework.

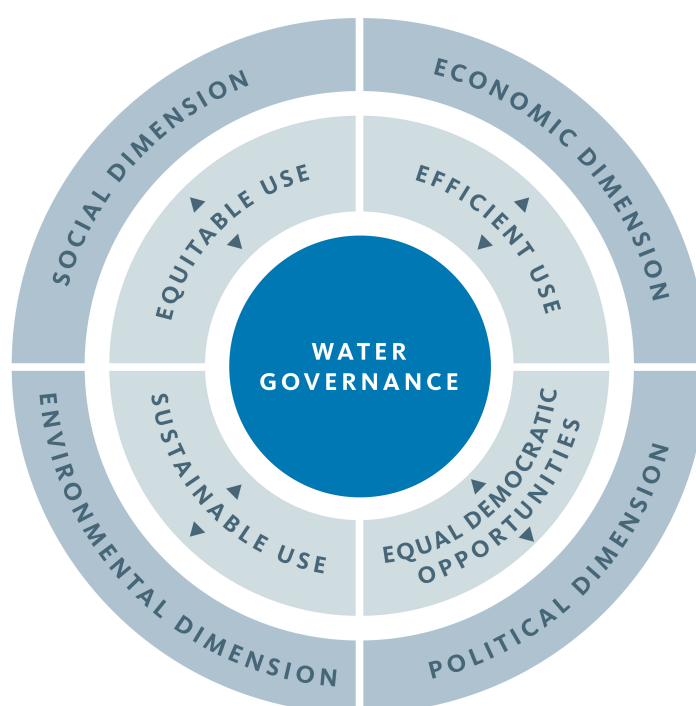
The role of the water governance framework in achieving target 2 of the GBF relates to multiple dimensions of water resources management and can have direct causality on the enabling conditions of substantive elements of the right to a healthy environment and the right to water.

4.1 Multiple dimensions

Water governance can sometimes be confused with the term water management. However, “water governance and water management are interdependent in the sense that effective governance systems are meant to enable practical management tools.” (Tortajada & Joshi 2013: 286) There are multiple dimensions of water resources management including: quantity, quality, disaster risk reduction and related services, transboundary water cooperation, climate change adaptation, water integrity and accountability, gender, and human rights, all of which intersect with water governance. Many elements and principles of water governance can be identified in IWRM. Improvement in water governance rests on achieving a balance between maintaining ecosystem integrity and socio-economic development to ensure both environmental and economic sustainability (SIWI 2020). This requires continuous attention and responding to emerging challenges in water governance, such as: population growth, economic growth, diversity, increasing urbanization, poverty, local, national, and international conflicts, climate change, and other global environmental crises.

The economic, social, and environmental dimensions of water governance (United Nations Development Program 2013) have been deemed necessary to create the conditions necessary to fulfil the goals and targets of the GBF. They all touch upon attributes of human rights and the rights-based approach (United Nations, Sustainable Development Group 2003 and 2019).

Water Governance Dimension	RBA Attributes/Human Rights Synergies
Economic Dimension , highlights efficiency in water allocation and use.	Substantive Rights Elements, to fulfill human rights to a healthy environment and the right to water.
Social dimension , focuses on equity of access to, and use of, water resources. This includes issues such as the equitable distribution of water resources and services among various social and economic groups and its effects on society.	Procedural Rights Elements, to identify rights holders and duty bearers.
Environmental dimension , emphasizes sustainable use of water and related ecosystem services.	Substantive Rights Elements, to fulfill human rights to a healthy environment and the right to water.
Political dimension , focuses on providing stakeholders with equal rights and opportunities to take part in various decision-making processes.	Procedural Rights, to be guided by human rights principles standards and treaties.



The four dimensions of water governance. Source: Tropp,H. from *The United Nations Water Development Report 2: Water, a shared responsibility*.

4.2 Water governance and justice

In recent years there have been important developments in both legal systems and jurisprudence that recognize the importance of ecological functions. The Brasilia Declaration on Water Justice, adopted at the 8th World Water Forum (IUCN 2018), recognizes that “the rights to life, health, and an adequate standard of living are central to all legal systems and are recognized under the International Bill of Rights, and that water and related ecosystems are critical to the realization thereof.”

This ten-principled declaration (See Annex) includes among others, water justice, land use, and the ecological function of property– which outline the duties of water stakeholders to maintain ecological function and integrity of freshwater and related ecosystems. It also includes a principle on procedural water justice:

“Judges should strive to achieve water justice due process by ensuring that persons and groups shall have appropriate and affordable access to information on water resources and services held by public authorities, the opportunity to participate meaningfully in water-related decision-making processes, and effective access to judicial and administrative proceedings, as well as the opportunity to remedy and redress actions taken.” (Brasilia Declaration on Water Justice 2018)

Further, the declaration recognizes that, in order to protect, conserve, and sustainably use water resources and related ecosystems, water laws need to: (a) progress, by being regularly revised and enhanced, and brought up to date, based on the most recent scientific knowledge and ethical considerations, and (b) not regress, by allowing or pursuing actions that have the effect of diminishing the legal protection of water resources and related ecosystems.

These developments can significantly contribute to results regarding water governance, the protection of human rights, and the implementation of the GBF.

4.3 Insights from case law and practice

Jurisprudence and practices from Africa to the Americas offers insights into water governance that best utilizes the rights-based approach and the upgraded commitments from the SDGs in the GBF. In the Americas, the Inter-American Court on Human Rights Advisory opinion OC-23/17, outlines the State duty of prevention regarding the right to a healthy environment. This opinion opened the door for justiciability of environmental rights in the Inter-American system, which was not previously possible. The first contentious case ruled by the Court, the



Litter in the Yamuna River, India. Source: Shutterstock

Lhaka Honhat judgment, states that the obligation of prevention is part of the duty to guarantee rights (art. 1.1 of the ACHR) and applies to "significant" environmental damage, i.e., those that can affect the life or integrity of persons. Further, the Lhaka Honhat judgment also suggests that this obligation implies adopting effective measures to avoid environmental degradation that could harm progressive development of other rights, such as the economic, social, and cultural rights provided for in article 26 of the American Convention on Human Rights (right to a healthy environment, right to water, right to adequate food and right to participate in cultural life). The holding in the Lhaka Honhat judgment is in alignment with the above analysis regarding the right to water.

The following landmark cases are illustrative of issues and emerging trends that transcend the anthropocentric perspective of the rights-based approach regarding water, biodiversity, and the right to a healthy environment.

Landmark Cases: Issues and emerging trends on rights-based approach regarding water, biodiversity, and a healthy environment

Mexico	
Case	Action for Constitutional Relief Through Injunction 410/2013 First Chamber Supreme Court of Justice. October 23 (2013). Possible impact on mangroves protected by Ramsar Convention on Wetlands (Convention on Wetlands 2005), from development of Real Estate Property for tourism in Isla Mujeres, Quintana Roo.
Issues	<p>Human Right to a Healthy Environment.</p> <p>Development regulation.</p> <p>Environmental Impact. Authorization.</p> <p>Hydrological, biological, chemical, ecological, economic, cultural, and social" value of wetlands.</p> <p>Expropriation, modalities of use of private property, protection of wetlands and mangroves. Restrictions on property rights for the conservation of natural Resources.</p> <p>Legitimate constitutional purposes.</p> <p>Fundamental right to equality, understood in its specific dimension of analysis of the law's treatment of one person compared to another.</p> <p>Rights of future generations.</p>
Key elements in holding	<p>The conservation of natural resources; the preservation and restoration of the ecological balance, and the protection of the human right to a healthy environment have legitimate constitutional purposes.</p> <p>Real estate developments that affect coastal ecosystems, as well as works and activities in wetlands and mangroves, require an environmental impact authorization from the Federal Authority.</p> <p>Coastal wetlands have hydrological functions of climate regulation, coastal stabilization, and primary production that maintain marine and terrestrial biodiversity.</p> <p>The right to property should not be confused with the possibilities or modalities of its use, the rationality of the regulation of development, or the relevance of analyzing the purposes of the applicable regulations.</p> <p>Seeking to guarantee the protection of coastal wetlands, understood as the hydrological unit containing mangrove plants, and whose integrity is intimately linked to the hydrological dynamics of the coastal wetland and associated with the ecosystem of the body of water where it is located, is a legitimate constitutional purpose.</p> <p>Although legitimate legal measures can be constitutionally or conventionally limited due to reasons of social interest, the measures in place to protect coastal wetlands and mangroves in the claimed standards are reasonable and proportionate.</p> <p>The right to the environment responds, not only to the social interest or benefit of the individuals who exist in the present, but also to those who will exist in the future through inter-generational equity.</p>

Principles	<p>Ecological function of property³</p> <p>Variant to the principle of equality in the environmental context refers to the commitment to preserve natural resources, in their current version and dynamically, towards the future.</p> <p>Principle of Intergenerational Justice</p>
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Uganda	
Case	<p>Nyakaana v. National Environment Agency and Ors (Constitutional Appeal No. 5 of 2011) [2015] UGSC 14. Supreme Court(2015)</p> <p>Lease from the then Kampala City Council for the purpose of constructing a residential house identified by environmental Inspectors to be in a wetland and subject to restoration order.</p>
Issues	<p>Environmental protection (Wetlands and Mangroves) vis-à-vis individual property rights, and the Constitutionality of certain sections of the National Environment Act.</p> <p>Constitutional mandate for State to protect the environment and guarantee a clean and healthy environment for the citizens, while at the same time to promote sustainable development.</p> <p>Defining wetlands including critical wetlands of ecological and economic importance. Pre-conditions for protection of wetlands: Properly planned and controlled utilization.</p> <p>Constitutional requirement to use the resources for sustainable development. Developing houses in a critical wetland. Authorities' omission to protect the environment and use the natural resource – wetlands – in a sustainable manner.</p>
Key elements in holding	<p>Fundamental rights and freedoms must be given a generous and purposeful interpretation to fully realize the benefits of the rights, as both purpose and effects are important in determining the constitutionality.</p> <p>The right to a clean and healthy environment should be enshrined in the Constitution and protected by the State.</p> <p>Definitions of Wetlands” include: -“Areas permanently or seasonally flooded by water where plants and animals have become adopted.” – “Areas permanently or seasonally flooded by water where plants and animals have become adapted; and include swamps, dambos, areas of marsh, peatland, mountain bogs, banks of rivers, vegetation, areas of impeded drainage, or blackish salt.” – As areas of "ecological and economic importance not only to the City but to the Country and the region as a whole.” Government may limit the use of property for the common good of the people of Uganda.”</p> <p>“Wetlands used for sustainable development should be protected by Constitutional requirements, properly planned, controlled, and utilized., per Individual developers putting up houses in such a critical wetland, unregulated by NEMA, may have grave consequences in future. In that case, the State will have failed to protect the environment and use the natural resource – wetlands – in a sustainable manner.”</p>

³ Building on decision Constitutional Relief Action 410/13 and the Brasilia Declaration on Water Justice, the supreme Court has established in Constitutional Relief Action 54/2021 of February 2022 that Environmental function refers to the duty to maintain the essential ecological functions associated with natural resources and to refrain from activities that may impair those functions; It involves the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of benefits arising from its utilization. The ecological function of the property transcends any use that may be given to the property and the conservation and restoration duties that it entails are mandatory for the owners, occupiers and users of the site.

Principles	<p>“We will not hesitate to hold that “sustainable Development” as a balancing concept between ecology and development, and it has been accepted as part of the customary international law, though its salient features have yet to be finalized by the international law jurists...</p> <p>We are, however, of the view that “The Precautionary Principle” and “The Polluter Pays Principle” are essential features of “Sustainable Development.” The “Precautionary Principle” – in the context of municipal law – means:</p> <ul style="list-style-type: none"> (i) The Environmental measures – by the State Government and the Statutory authorities must anticipate, prevent, and attack the causes of environmental degradation. (ii) Where there are threats of serious and irreversible damage, lack of scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. (iii) The “Onus of proof” is on the actor or the developer/industrialist to show that his action is environmentally benign.” <p>The “Polluter Pays Principle” as interpreted by this Court means that the absolute liability for harm to the environment extends not only to compensate the victims of pollution, but also the cost of restoring the environmental degradation. Remediation of the damaged environment is part of the process of “sustainable Development” and as such, the Polluter is liable to pay the cost to the individual sufferers as well as the cost of reversing the damaged ecology.”</p>
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Argentina	
Case	<p>Majul, Julio Jesús c/ Municipalidad de Pueblo General Belgrano y otros s/ acción de amparo ambiental Supreme Court. Argentina. (2019)</p> <p>Injunction and order the reparation of environmental damage caused by a residential construction project in the Gualeguaychú River and its flooding areas.</p>
Issues	<p>Failure to consider the right to live in a healthy environment.</p> <p>Irreversible environmental damage to the ecosystem of the riparian zone and the wetlands, and the serious impacts on the course of the Gualeguaychú River and its flooding areas, due to earth movements and erected embankments.</p> <p>Role of wetlands in flood control, storm protection and retention of sediments and pollutants.</p>
Key elements in holding	<p>Provincial Constitutional responsibility for management and sustainable use of watersheds and wetland systems (Article 85)</p> <p>Definition of Watershed/Basin as "the unit, in which the hydrological cycle as a whole is understood, linked to a particular territory and environment. It is an integral system, which is reflected in the close interdependence between the various parts of the watercourse, including, among others, wetlands."</p> <p>Wetlands (RAMSAR 1997) play a vital role in surges and flood control, storm protection, aquifer recharge and retention of sediments and pollutants. Wetlands cover only 2.6% of the land faced with a global loss.</p> <p>“The legal paradigm that orders the regulation of water is ecocentric, or systemic, and does not take into account only private or state interests, but also those of the system itself, as established by the General Law of the Environment.”</p>

Principles	<p>State duty (Federal and provincial Jurisdiction) to guarantee the application of the principles of sustainability, precaution (has constitutional hierarchy in the Entre Ríos Province under Article 4 of Law 25675), prevention, rational use, intergenerational equity, progressivity, and responsibility.</p> <p>Judges must consider the principle in dubio pro natura (IUCN 2016) which states that in case of doubt, all proceedings before courts, administrative bodies and other decision-makers must be resolved in such a way as to favor the protection and conservation of the environment, giving preference to the least harmful alternatives, and that no action will be taken when potential adverse effects are disproportionate or excessive with regards to their derived benefits.</p> <p>Brasilia Declaration (IUCN 2018):</p> <p>In particular, the principle in dubio pro aqua is highlighted, consistent with in dubio pro natura, which, in case of uncertainty, establishes that environmental and water disputes must be resolved in the courts, and that the applicable laws be interpreted in the most favorable way to the protection and preservation of water resources and related ecosystems.</p>
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Pakistan	
Case	<p>D. G. Khan Cement Company Ltd. V. Government Of Punjab. C.P.1290-L/201. Supreme Court of Justice. Pakistan, 2021.</p> <p>Notification to a cement company by the Provincial Government of Punjab prohibiting the construction and expansion of cement plants in environmentally vulnerable areas called "Negative Areas."</p>
Issues	<p>Right to life, sustainability, the rights of nature, and dignity of the community, surrounding the project.</p> <p>Effects from climate change, and depletion of groundwater, resulting in consequences for the local people and especially for agriculture.</p> <p>Development of the ponds and storage tanks further restricts the recharge and replenishment rate of the aquifer, which is used to sustain the local habitat including nature, population, subsistent agriculture and helps to regains water supply levels for Katas Raj Temple Pond.</p> <p>Integrated Water Resource Management to provide regulatory frameworks, water licensing, slow action dams, artificial recharge, especially for threatened aquifers.</p> <p>Adoption of integrated water resource management concepts and ensuring rational ground water exploitation by avoiding excessive pumping.</p>

Key elements in holding	<p>Environmental Legal Personhood:</p> <p>“Man and his environment each need to compromise for the better of both, and this peaceful co-existence requires that the law treats environmental objects as holders of legal rights.”</p> <p>“Agriculture is central to human survival and is probably ... most vulnerable to climate change. The hydrological cycle is similarly, likely to be influenced by global warming, necessitating the agriculture and livestock sectors, particularly in rain-fed areas, adapt to climate change. The World Water Forum, laying down the concept of water justice, declared that the State should exercise stewardship over all water resources, and protect them, in conjunction with their associated ecological functions, for the benefit of current and future generations, and the Earth community of life. Because of the close interlinkages between land and water, and the ecological functions of water resources, any person with a right or interest of using water resources or land has a duty to maintain the ecological functions and integrity of water resources and related ecosystems. The precautionary principle should be applied in the resolution of water-related disputes.”</p> <p>“Water justice requires appreciation that there are no easy, simple, or singular solutions to the water crisis, that water problems cannot be resolved through technical solutions alone, but require broader recognition that they are inherently ecological, political, and social issues simultaneously.”</p> <p>“The fragility of the Negative Area also needs to be examined in the larger context of climate change. The environmental issues initially brought to our courts were local geographical issues... But now climate change has a bearing on these issues. One of the serious climate change threats to Pakistan is the rising temperatures, resulting in enhanced heat and water-stressed conditions, particularly in arid and semi-arid regions, which leads to reduced agricultural productivity.”</p>
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Principles	<p>Precautionary Principle</p> <p>In dubio Pro Natura (IUCN 2016)</p> <p>Brasilia Declaration (IUCN 2018):</p> <ul style="list-style-type: none"> -Principle 1 – Water as a Public Interest Good. -Principle 2 – Water Justice, Land Use, and the Ecological Function of Property. -Principle 5 – Water Justice and Precaution. -Principle 6 – In Dubio Pro Aqua. <p>(IUCN 2018)</p> <ul style="list-style-type: none"> -Principle 9 – Water Justice and Environmental Integration.
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5. Opportunities for Water Governance to Support the Implementation of Global Goals: Reflections and Recommendations

Opportunities have been identified for the use of the water governance framework to support implementation of the right to a healthy environment and the GBF. These have included attributes such as participation, inclusiveness, accountability, and adaptiveness as framed and understood locally. The right to a healthy environment and its linkages to the right to water, offers opportunities coupled with the GBF, to support recognition of the role of water within ecological processes and implementation of water-related goals.

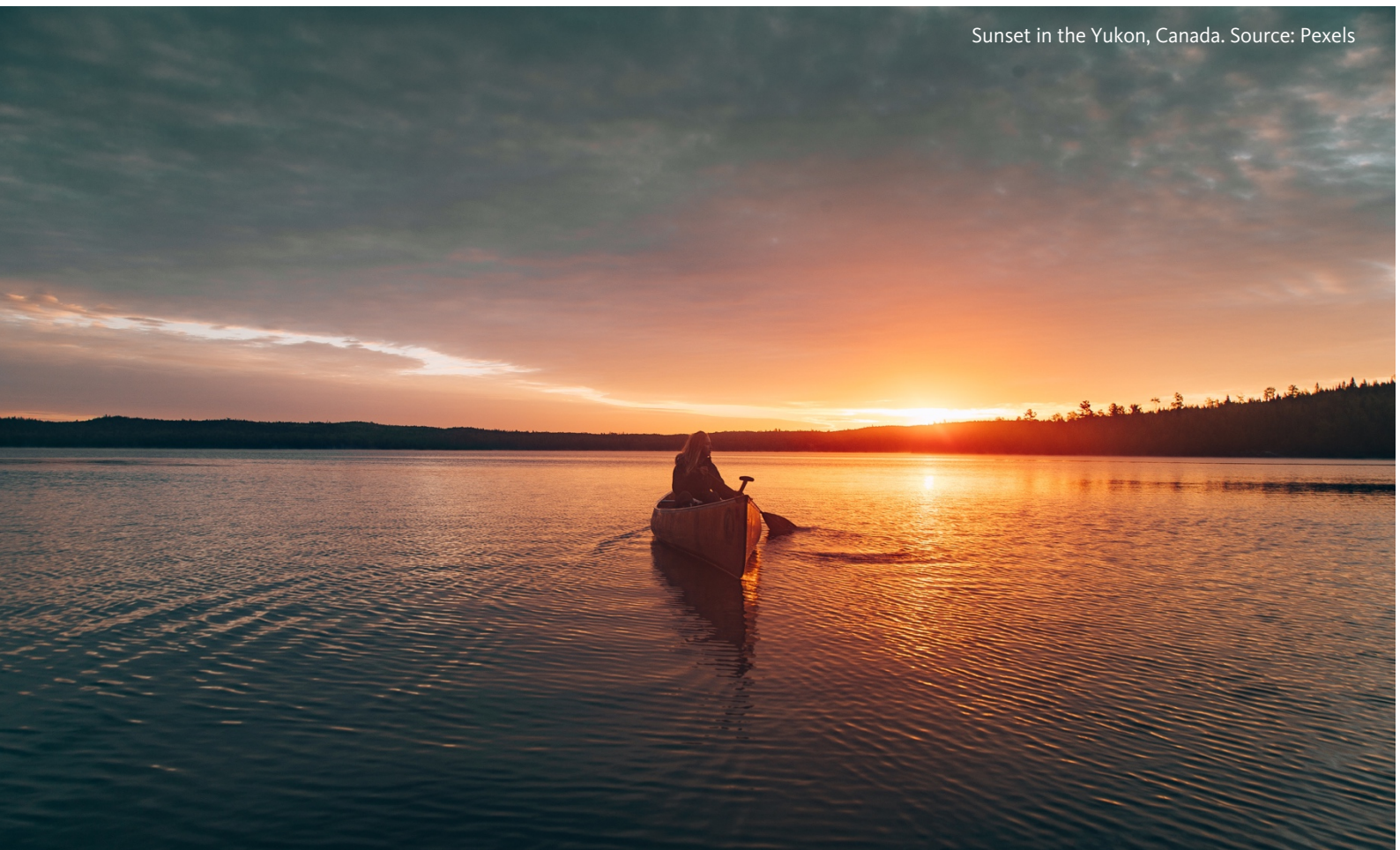
A key opportunity to strengthen nature's actions to achieve the Sustainable Development Goals is to enhance cooperation, implementation, and scale up of nature-based solutions, while ensuring their social and environmental safeguards are in place (CBD/COP/DEC/15/4). Addressing the challenges of key stakeholders in situations of vulnerability in the context of the biodiversity crisis is important, as is applying the ecosystem approach. The environment–water interface can be proactively managed to address water-related challenges through nature-based solutions (nbs). While Nbs is a relatively new concept, the application of natural processes to manage water properly, spans millennia. (UN-Water. 2018). Nature-based solutions are efficient and effective, especially when designed on a context-specific basis, such as for the water sector, at achieving multiple benefits, and when applied in accordance with the best available science, the water governance framework, and when using the rights-based approach (UNEP/EA.5/Res.5). Coordination requires an increased focus on delivering enhanced governance systems and incorporating a wider set of stakeholders that are dependent on ecosystem services.

Another opportunity is through implementation of the Paris Agreement, where States are responsible for preparing Nationally Determined Contributions (NDCs) that detail their responses to climate change on a regular basis. Nature-based approaches, ecosystem approaches, IWRM, basin planning, and other integrative approaches are an important component of many current NDCs, and it is expected that this role will continue within the next set of NDCs prepared for 2025. Many NDCs were prepared prior to either the GBF or the Human Right to a Healthy Environment. Given the prominence of ecosystems as part of adaptation plans within the present NDCs, and an expectation that this will expand in the next iterations, there will likely be substantive intersections with targets in the GBF, including freshwater ecosystems and healthy environments.

Watershed or basin planning and connected institutions such as River Basin Organisations, will potentially be key players in implementing the GBF. Many watershed or basin plans are focused on maximizing objectives and measures that relate to a particular need, such as water allocation or flood management. Other measures and objectives will be included, but they will hold a lower priority, therefore, fewer resources will be allocated for their achievement. Inclusion and application of targets from the GBF, and a stronger consideration of the right to a healthy environment, should prompt a deliberate focus on connections between terrestrial land uses and their impact on freshwater ecosystems. It is recognized that the mandates of these organisations and supporting instruments may need to change.

The UNDP-SIWI Water Governance Facility supports low and middle-income countries. It strives to contribute to the “simultaneous eradication of poverty and significant reduction of inequalities and exclusion.” (SIWI website, accessed December 2023) This is done by providing policy and technical advice and support, developing water governance knowledge, and helping to develop institutional capacity. Generating more practical knowledge tools around the approaches, identifying, comparing, and analyzing cross cutting and common elements, and strengthening actions in this direction are important conclusions of this analysis. These would allow the simultaneous addressing of the conservation of diversity, species, and ecosystems, the capacity of nature to deliver material benefits to human societies, and the less tangible but highly-valued connections with nature, that help to define identities, cultures, and beliefs.

Sunset in the Yukon, Canada. Source: Pexels



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