

Freshwater
Strategy 2017-2021

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«Protecting, managing and restoring freshwater in support of human well-being and sustainable development.»



Picture 1 — River in Punakha, Bhutan © UN Photo

— Summary

While facing numerous pressures and degradation, freshwater ecosystems play a central role for the health of economies and societies worldwide. Preserving and protecting the world's freshwater is a key role of the members of the United Nations (UN), in particular through their environmental agency, UN Environment.

Covering a key period where it will be crucial to tackle the world's freshwater issues to deal with threats such as increased pollution, urbanization, rising food and energy production, water-related disasters and displacement of people, this Freshwater Strategy provides actionable guidance for UN Environment to support countries' implementation of sustainable freshwater management practices globally. It is built on several concepts and pillars. Firstly, freshwater is essential to the environment as a whole and underpins all areas in which UN Environment works, including to effective ecosystem-based management (EBM) and ecosystem-based adaptation (EBA). Thus the Freshwater Strategy helps UN Environment deliver on its mandate, programmes of work and medium-term strategies. Secondly, support for the achievement of numerous freshwater-related Sustainable Development Goals (SDGs) in the 2030 Agenda for Sustainable Development falls under UN Environment's mandate, with core targets specific to SDG 6 that include freshwater ecosystems, water quality and pollution, and integrated water resources management (IWRM). Achievement of these targets is essential for realizing the entirety of SDG 6 dedicated to water and sanitation,

in addition to other SDGs closely linked to freshwater such as those on water-related disasters, conflict and climate change, food and energy security and terrestrial and marine ecosystems, and peaceful and inclusive societies, among many others.

More specifically, the strategy describes UN Environment's planned levels of engagement, which include providing global leadership, contributing to topics of immediate and pressing concern, and actively following other closely related processes. In practical terms, the strategy will be operationalized through a combination of ongoing and new initiatives in support of Member States. A range of key work areas are defined with example activities including direct provision of expertise, development and dissemination of tools and techniques, and a range of awareness raising and knowledge sharing efforts. Many activities will be carried out through existing and new partnerships drawn from the United Nations system, and other expert organizations including national government institutions, non-governmental organizations, and the private sector.

The duration of this Freshwater Strategy, 2017-2021, covers a crucial time for kickstarting this implementation¹. The Freshwater Strategy is supported by UN Environment's comparative advantage as a trusted, impartial convening organization, and for its role in knowledge and science-based environmental management and policy. UN Environment's approach to strategic partnering internally and externally contributes to the structure of this strategy.



This document describes UN Environment's five-year Freshwater Strategy from 2017 to 2021. As a living document, it is intended to guide work related to freshwater across UN Environment's divisions, sub-programmes and regional offices, as well as interactions with governments and partners at national, regional and global levels. The Freshwater Strategy supports the implementation of UN Environment's Medium-Term Strategy and Programme of Work adopted by universal United Nations (UN) membership through the UN Environment Assembly. Coming at a critical time for freshwater in general, and the implementation of the Sustainable Development Goals (SDGs) in particular, this strategy aims to unlock the potential of integrated collaboration and spur leadership on freshwater issues globally.

1.1 — The Importance of Freshwater

Freshwater plays a fundamental role in support of the environment, society and the economy. Ecosystems such as wetlands, rivers, aquifers and lakes are indispensable for life on our planet and are vital for directly ensuring a range of benefits and services such as drinking water, water for food and industry including energy, habitats for aquatic life, and natural solutions for water purification and buffering floods and bridging drought periods, among many others. Managed well to address competing demands and ensure their resilience in the face of climate change, disasters and conflict, freshwater ecosystems contribute to mitigating risks, and promoting stability and trust-building measures. As such, they are essential for sustainable development, peace and security, and human well-being. SDG 6, "Ensure availability and sustainable management of water and sanitation for all"², represents one of the core elements supporting sustainable development as addressed in the 2030 Agenda for Sustainable Development, cutting across all of its facets (Figure 1). Beyond SDG 6, numerous inextricable interlinkages exist between water and the other SDGs, both in a reinforcing or a trade-off relationship³. ►

Introduction



Figure 1 — UN Environment Freshwater Strategy and SDG Interlinkages



1.2 — UN Environment's Comparative Advantage

UN Environment is uniquely positioned to contribute to the global freshwater agenda from several perspectives. UN Environment:

- Is the leading authority that sets the global environmental agenda and serves as an authoritative advocate for global environmental stewardship.
- Is a well-established, trusted and impartial convening organization for numerous environmental issues, including sustainable freshwater management. This is supported by UN Environment's global mandate and reputation for science-based knowledge on global environmental management, its capacity for driving productive environmental policy dialogue, and as the home for the management and oversight of numerous global environmental conventions.
- Informs and guides the implementation of international environmental agreements, many of which are also administered by UN Environment, which bears great significance for the sustainability of freshwater resources across the globe. In hosting and administering the Secretariats of major multilateral environmental agreements, including the Convention on Biological Diversity, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, and the Stockholm Convention on Persistent Organic Pollutants, UN Environment has gained a unique insight into: (i) the challenges of implementing global treaties at the national and regional levels; (ii) the importance of identifying synergies and inter-linkages between them; and, (iii) the institutional aspects associated with the governance of these global agreements including technical assistance and capacity building as well as monitoring.
- Works through partnerships with governments and hundreds of other organizations and agencies to implement the global environment agenda.
- Is known for its integrated approach to environmental management, including Ecosystem-based Management (EBM) and Ecosystem-based Adaptation (EBA). Furthermore, UN Environment promotes the application of EBA approaches in conflict-affected and weak governance contexts as a means to promote cooperation between divided groups.

At the United Nations Conference on Sustainable Development in 2012 (Rio+20), the role of UN Environment was strengthened, with Member States asking for the establishment of universal membership by the General Assembly⁶. Member States simultaneously confirmed UN Environment as the programme "that promotes the coherent implementation of the environmental dimension of sustainable development within the United Nations system"⁷.

Building on UN Environment's comparative advantages, this Freshwater Strategy contributes to the realization of its Programmes of Work and Medium-term Strategies⁸, decided by Governments through universal membership in the UN Environment Assembly (UNEA). ●

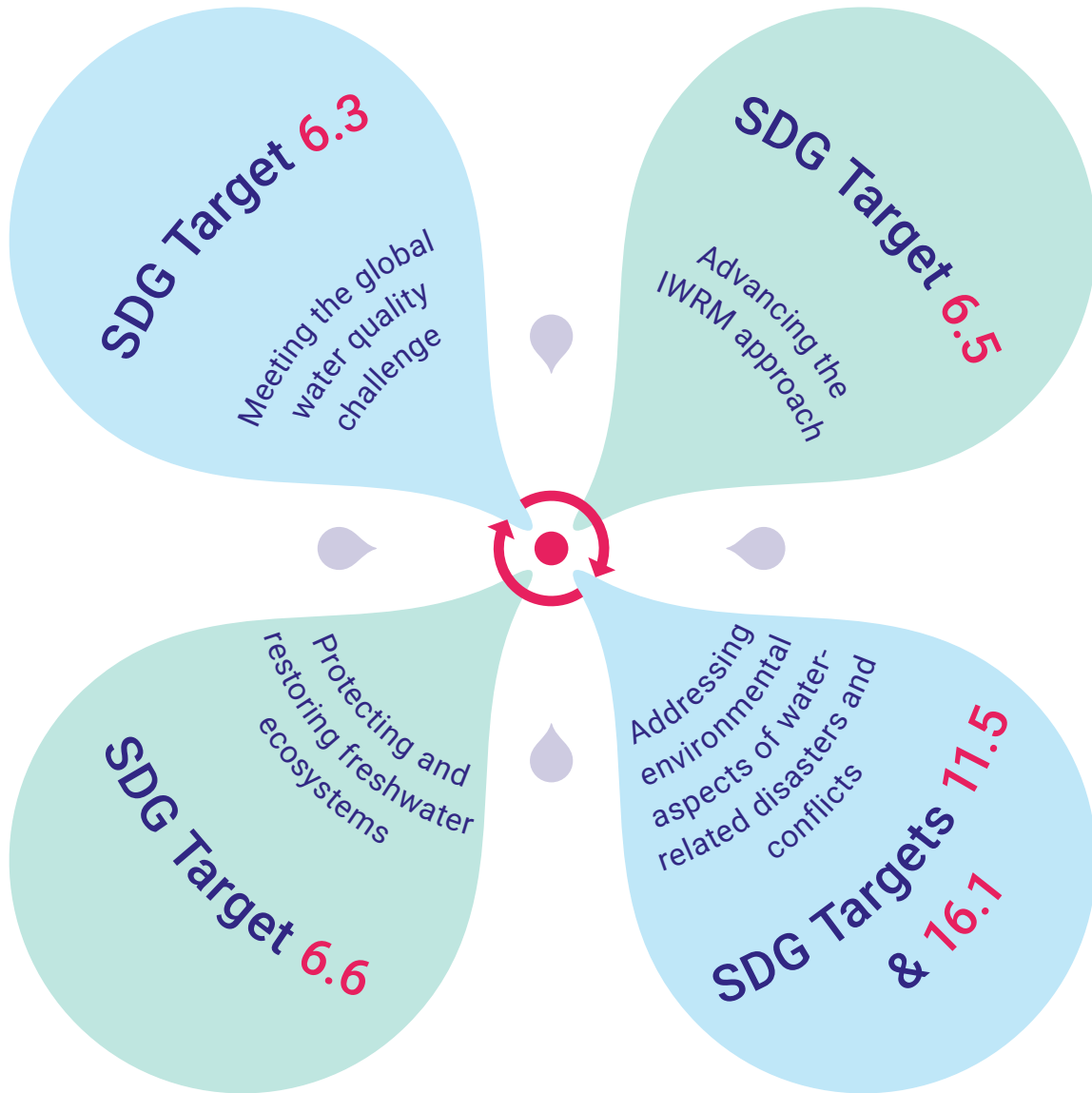


Figure 2 — Core priorities of UN Environment Freshwater Strategy

2.1 — Mandate and objectives

The Freshwater Strategy contributes to UN Environment's mandate as the "leading global environmental authority that sets the global environmental agenda, promotes the coherent implementation of the environmental dimension of sustainable development within the United Nations system and serves as an authoritative advocate for the global environment"⁹.

This mandate is operationalized through the UN Environment Medium-term Strategy 2014-2017, the Medium-term Strategy 2018-2021 (UNEA Resolution 2/20)¹⁰, as well as the 2030 Agenda for Sustainable Development¹¹. Work towards realizing this mandate through the lens of freshwater will be supported by the following objectives and means:

- Deliver value through creating and sustaining a specific sense of purpose for freshwater conservation, protection and use globally, across UN Environment and among its partners.
- Foster collaboration and align efforts of governments, UN agencies, partners, and other stakeholders to deliver specific freshwater management objectives and goals, including through effective convening and communication at all levels.
- Maximize the capacity for effective freshwater management among all stakeholders at local, regional and global levels, including building partner capacity.
- Deliver ongoing, recognized value towards achievement of the Sustainable Development Goals related to freshwater, including monitoring progress.

2.2 — Strategic Priorities and Levels of Engagement

In support of countries, UN Environment operates globally and regionally at the interface of the environment, water and development. Environmental goals and targets, including those related to freshwater, exist in an interlinked system of objectives, stakeholders, governments, societal dynamics, and other factors. The UN Environment Freshwater Strategy is positioned within this interlinked web of factors through a specific logic that maximizes efforts on core focus areas,

and impacts on other relevant areas within the overall scope of water management (see Figure 3). The Freshwater Strategy specifies three levels of engagement where UN Environment will do the following:

Level 1 Engagement: Provide global leadership on topics core to UN Environment's mandate. UN Environment will build on decades of experience and use its mandate from UN Member States to continue to drive the agenda for sustainable freshwater ecosystem management in the context of sustainable development. Along these lines, UN Environment will provide global leadership in four strategic areas (see Figure 2):

- Meeting the global water quality challenge (SDG target 6.3): The importance of reversing surface and groundwater quality degradation in the world's freshwater systems is recognized by governments, businesses and communities and steps are taken to improve ambient freshwater quality and reduce the impact of discharge of untreated wastewater into water bodies;
- Protecting and restoring freshwater ecosystems (SDG target 6.6): Services provided by ecosystems are recognized and valued as part of sustainable development and the benefits are shared equitably;
- Advancing the Integrated Water Resources Management approach (SDG target 6.5): Integrated Water Resources Management (IWRM) underpins the coordinated development and management of water, land and related resources in order to maximise economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems¹²; and
- Promoting resilience and addressing the environmental aspects of water-related disasters and conflict (SDG targets 11.5 and 16.1): The capability to mitigate and adapt to current and future water-related hazards and risks facing ecosystem functions and human communities is strengthened and embedded into existing environmental planning and management systems. ►

UN Environment's Freshwater Strategy

Level 2 Engagement: Contribute to topics of immediate and pressing concern. UN-Environment will leverage its expertise and networks to work with partners at all levels, from global to local, to contribute to the understanding and resolution of pressing freshwater issues:

At the water/development interface, productive uses of water and transboundary water management:

- Promote water use efficiency in agriculture and industries
- Advocate that environmental flow requirements are quantified and included when considering sustainable water withdrawals
- Support transboundary basin-wide approaches to environmental assessment and management

At the environment/development interface, source-to-sea linkages and natural infrastructure:

- Provide advice on the reduction of marine pollution from land-based sources
- Support a focus on deltas as hot-spot interfaces between rivers and the sea
- Promote the use of nature based solutions (natural infrastructure) to water related problems (such as flood protection, waste water purification, water storage)

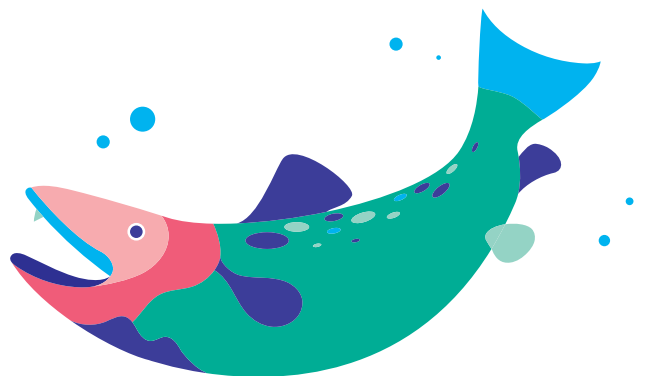
At the water/environment interface, water influenced by a changing climate, aquatic biodiversity, and land-water interactions:

- Promote ecosystem approaches to understand climate change impacts on the hydrological cycle
- Support the understanding of the importance of healthy aquatic ecosystems for biodiversity and ecosystem services
- Support integrated assessments of land use and water resources, including changes, drivers and response options

Level 3 Engagement: Actively follow other closely related processes. UN Environment, as a global organization, has a mandate to help countries develop, implement and report on a number of the "environmental" freshwater indicators in SDG 6. Beyond that, as many of the other SDGs relate closely to freshwater, UN Environment will continue to provide input to freshwater aspects as they relate to other areas of sustainable development, such as food and energy production.

UN Environment will actively follow these and other issues related to regional and global agendas related to water, environment and sustainable development. At this level of engagement, UN Environment will keep informed and abreast of developments in these areas, through contribution to expert groups and other processes, providing an environmental perspective / input as needed to those who are leading these processes.

Figure 3 illustrates how these priorities and levels of engagement intersect with each other and form the rationale for UN Environment's priority areas of work. ●



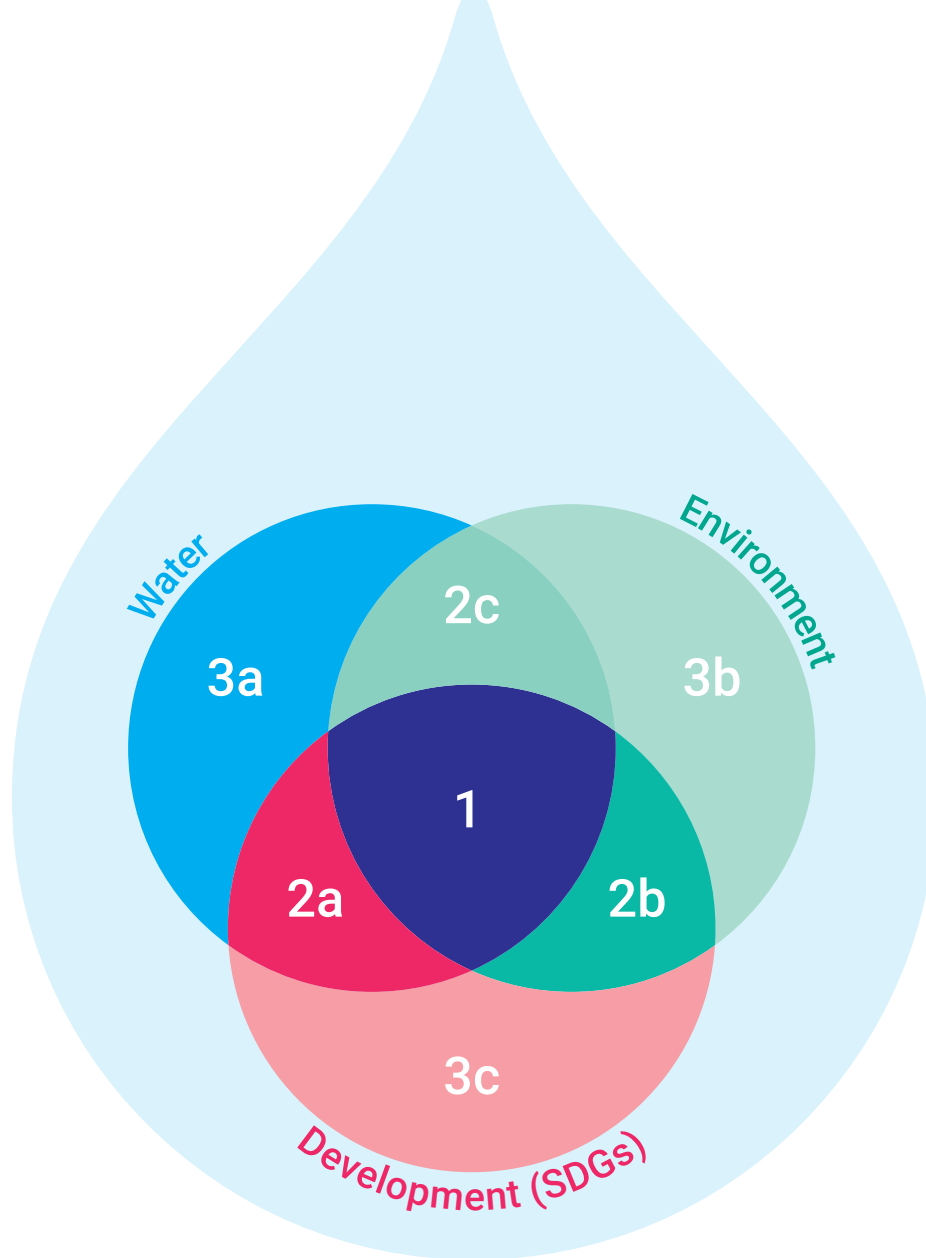


Figure 3 — UN Environment Core Areas of Work in the Freshwater Strategy 2017-2021

UN Environment leads on:

1

- Water quality, pollution
- Integrated water resources management
- Water-related ecosystems
- Water-related disasters

UN Environment actively follows issues related to:

3

- The global and regional water agendas **3a**
- The global and regional environment agendas **3b**
- The global and regional development agendas **3c**

UN Environment contributions to:

2

- Productive uses of water, transboundary cooperation **2a**
- Sources-to-sea linkages, natural water infrastructure **2b**
- Water and climate change adaptation, aquatic biodiversity, land and water inter-linkages **2c**

3

Implementing the Freshwater Strategy

UN Environment will draw on its experiences and comparative advantage (see section 1.2), to implement the strategy. Examples of previous and current freshwater-related activities implemented by UN Environment are described in boxes throughout this section. UN Environment will continue to:

Box 3.1.

Use of Market-Based Incentives in Watershed Management; Driving the Green Economy Through Involving Communities and the Private Sector (UNEP, 2016)

This publication, through a number of watershed-level case studies focusing on the private sector and communities, expands UN Environment's approach to freshwater management, from a focus on regulations to the development of complementary models for the protection and rehabilitation of watersheds through community participation schemes, public private partnerships and private investment structures. In addition, it advocates for the employment of proven market-based incentives to promote the adoption of sustainable land-use and watershed management practices, in order to strengthen the participation of local communities and the private sector, reverse ecosystem degradation and safeguard critical ecosystem services.

- Foster integration and partnerships: Over the years UN Environment has built on its expertise and experience to develop a well-respected integrated approach to global environmental management. UN Environment treats environmental issues as multi-dimensional, requiring a range of perspectives and expertise. Through its structure of Thematic Sub-Programs, Divisions focused on areas including science, policy, and law, and through its Strategic Regional Presence, UN Environment has taken on the challenge of ensuring that global environmental issues are addressed through this integrated approach. The world's environmental challenges, and specifically in freshwater, can only be addressed through productive partnerships that manage, mitigate and ultimately leverage a wide range of perspectives (see Box 3.1 for an example of a reflection on a wide range of these partnerships, including with local communities and the private sector). Because of this, UN Environment has become well known for its partnership approach. This approach to partnering ensures that governments have access to the right knowledge and expertise to

solve their environmental challenges. This partnering strategy will drive the integrated approach externally, through collaboration with external agencies, organizations and communities, governments, and increased engagement with the private sector. For further information, see Annex.

- Implement **strategic projects** that empower governments, regional bodies and the private sector to successfully manage, conserve and protect freshwater resources. UN Environment has a track record of delivering strategic projects at the policy and implementation level. Strategic and demonstrative projects are differentiated from pilot projects in that they tangibly show what to do, and how to do it, and they can be replicated at various scales.
- Draw on its experience and position as a global convener of numerous conventions, networks and assessments to support country implementation of global goals on the environmental dimensions of freshwater, including providing support for monitoring, analysis and reporting at the global level on the UN Environment-led water-related targets of the SDGs (see Box 3.2).

Box 3.2

Sustainable Development Goal Support

Following Rio+20 in 2012 and leading up to the 2015 Sustainable Development Summit, UN Environment successfully used its convening power to contribute to and help ensure a consultative process around a potential SDG on water, as well as options for future follow-up and review processes. UN Environment collaborated with other UN-Water agencies and partners in support of a series of technical meetings, country workshops, and open online dialogues, as well as preparation of technical guidance. The outcome of these efforts was a holistic, dedicated SDG (SDG 6) on water and sanitation covering the entire water cycle (inclusive of water resources management, wastewater pollution, and water quality) and consensus on a related and interconnected monitoring and reporting mechanism. As part of the GEMI (Integrated Monitoring of Water and Sanitation Related SDG targets¹³) initiative under UN-Water, UN Environment has responsibility for assisting countries with achieving SDG 6 targets related to water quality (6.3.2), IWRM (6.5.1) and healthy freshwater ecosystems (6.6.1). Additionally, UN Environment has a responsibility to assist countries in delivering SDG target 6.3.

- Use freshwater to build trust and promote peace amongst users, especially in conflict situations.
- Develop and disseminate **science-based tools and communication products**: these include publications on freshwater management that are immediately applicable and actionable for decision-making and action on policies and activities. The publications will integrate the core SDG target areas, and the interlinked SDGs, contributing to global, regional and local policy development and freshwater management activities. Additionally, UN Environment will use its expertise to lead on the development and use of science-based data monitoring and access tools (see Box 3.3). This component of the strategy draws on UN Environment’s unique and well-known knowledge and science-focused capabilities.

As introduced in Section 2, UN Environment, through its Freshwater Strategy, is engaged in a large number of issues related to freshwater with different levels of engagement. The rest of this section provides more information on the strategic areas where UN Environment will provide leadership, contribute to, or actively follow.

Box 3.3

Global Environmental Outlook

UN Environment is well known for its science-based publications in the Global Environment Outlook (GEO) series. These comprehensive publications, covering numerous aspects of global environmental issues in great detail, are used in decision-making, dialogue at all levels of environmental management and leadership, and as resources on specific projects of all scales. The freshwater components of these publications provide a key example of the interdependent nature of environment issues. GEO-6, to be produced during the timeline of this Freshwater Strategy, will include a focus area on freshwater within its report on the state and trends, including responses, of the Global Environment.

3.1 — Examples of Priority Freshwater Areas in which UN Environment will Provide Leadership

UN Environment will aim to provide leadership on the following water-related topics in its work, based on its mandate, Programmes of Work and Medium-term Strategies.

Meeting the global water quality challenge (SDG target 6.3)

A major area of focus for UN Environment in the time period of this Freshwater Strategy will be issues related to water quality, including:

- **Ambient water quality monitoring.** This will be supported through the science-based network GEMS/Water, which is hosted by UN Environment (see Box 3.4). UN Environment is also the custodian agency for monitoring SDG 6.3.2 on ambient water quality, and will support countries to monitor their ambient water quality, and develop their capacity to do so. ▶

Box 3.4

GEMS/Water:

The work of GEMS/Water consists of three major elements: coordinating water quality data flows from a world-wide network, maintaining the global water quality database (through GEMStat), as well as enabling countries to deliver authoritative data through capacity development and trainings. The Water National and Collaborating Focal Points (NFPs and CFPs) are partner institutions in the countries that deliver water quality data to the GEMS/Water Data Centre. Furthermore GEMS works with Regional Hubs and partners on the design of water quality monitoring schemes, capacity development and assessments as well as providing services to inform policy making and water management. For more information see <http://web.unep.org/gemswater/>



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- **Supporting countries to develop ambient water quality standards and guidelines.** This will include the continuation of work under the “International Water Quality Guidelines for Ecosystems”, led by UN Environment at the request of the United Nations Environment Assembly. The work will interface with activities in support of the water quality aspects of SDG Target 6.5 on water-related ecosystems.
- **Addressing current and emerging freshwater pollutants.** The Global Wastewater Initiative¹⁴ is one of the three global multi-stakeholder partnerships of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA), convened by UN Environment¹⁵. The Initiative encourages investments in the field of sustainable wastewater management and intends to bring a paradigm shift in world water politics to prevent further pollution and damage and highlight the fact that wastewater is a valuable resource for future water security. Also under the GPA the Global Partnership on Nutrient Management (GPNM) supports advocacy and investment in best practices to minimize polluting nutrient losses (reactive forms of nitrogen and phosphorus) to the environment from agriculture, wastewater and other point and non-point sources.
- **Ecosystem solutions for improving ambient surface and groundwater quality.** This is the topic of UN Environment co-led World Water Development Report to be published in 2018. This is an example of UN Environment’s partnering approach, with the UN Educational, Scientific and Cultural Organization (UNESCO) and other members and partners of UN-Water, as well as the production of practical science-based publications.
- **Report on the global state of water quality and threats to water quality.** Following the 2016 UN Environment publication, “A Snapshot of the World’s Water Quality¹⁶,” work will continue towards a World Water Quality Assessment, drawing on strong existing science partnerships.

Protecting and restoring freshwater ecosystems (SDG target 6.6) This area of focus will include:

- **Monitoring and restoring the state of freshwater ecosystems worldwide.** Drawing from its experience in restoring and rehabilitating freshwater ecosystems (see example in Box 3.5), UN Environment is the custodian agency for globally monitoring SDG indicator 6.6.1 on freshwater ecosystem extent and health. As such, it will

continue to work closely with the International Water Management Institute (IWMI), the Ramsar Convention, the International Union for Conservation of Nature (IUCN), the European Space Agency (ESA), the Convention on Biological Diversity (CBD), and others, to support countries in monitoring their freshwater ecosystems.

Box 3.5

Rehabilitation of Mali’s Lake Faguibine System.

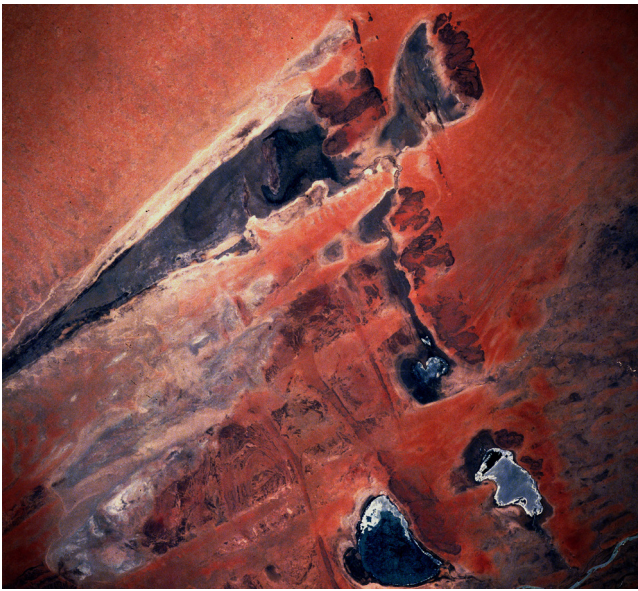
From 2008 – 2015, together with the Government of Norway and national partners including the Niger River Basin Authority, this project aimed at rehabilitating Lake Faguibine, which dried up in the mid-1970s at the beginning of a prolonged drought lasting from the 1970s to the 1990s, with far-reaching implications for the livelihoods of more than 200,000 people living in its basin. The rehabilitation efforts aimed to restore the services delivered by the lake’s ecosystems, including forestry and a restored fishery which provides 5,000 tons of fish annually – leading to greater food security through agriculture, improved local business conditions for fishermen and food for migratory waterbirds, among many other benefits.

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- **Valuation of ecosystem services.** UN Environment hosts The Economics of Ecosystems and Biodiversity (TEEB) global initiative¹⁷. Its principal objective is to mainstream the values of biodiversity and ecosystem services into decision-making at all levels. UN Environment is also the global administrator for the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)¹⁸. This platform strengthens the science-policy interface for biodiversity and ecosystem services. As administrator, UN Environment coordinates with the other UN agencies that are directly engaged: FAO, UNDP, UNESCO. Freshwater management is a key component of the IPBES activities. An example of a strategic project valuing ecosystems services in Kenya is provided in Box 3.6.

Box 3.6

Leadership and launch of “The Economics of Ecosystem Services of the Tana River Basin” study.

This study focused on the interdependence of hydrology, ecology, economics, and stakeholder involvement in the Tana ecosystem in Kenya. The study, developed in collaboration with a global and local consortium of institutions, provides a policy brief, fact sheet, and environmental report, all of which can be used and adapted locally, regionally and globally in different ways for freshwater management and policy-making, for example when considering the construction of hydropower projects.



Picture 2 — Satellite image of the 5 lakes in the southern Sahara desert, 1991 © NASA

Box 3.7

The Role and Contribution of Montane Forests and Related Ecosystem Services to the Kenyan Economy, also known as the “Kenya Water Towers” study¹⁹.

A study produced by UN Environment, *The Role and Contribution of Montane Forests and Related Ecosystem Services to the Kenyan Economy*, analysed the economic cost of deforestation in Kenya’s five high-elevation forests – called ‘water towers’ as these forests store water during the rainy season and release it slowly, thus ensuring water flow during dry periods. The study showed that the five ‘water towers’ provide more than 75 per cent of the country’s renewable surface water resources annually, by feeding more than 15,800 million cubic metres of filtered rainwater to rivers and lakes each year. It subsequently demonstrated that the related economic cost of deforestation exceeds national gains from forestry and logging by more than four-to-one.

- Other valuation studies carried out in the framework of UN Environment’s work on forests and climate change (REDD+) demonstrated the close linkages between forests and water. An example of a landmark project valuing ecosystem services in Kenya, which came to be known as the “Kenya Water Towers” study, is provided in Box 3.7.
- **Other freshwater-related ecosystem restoration.** UN Environment ensures key ecosystem services, such as water retention and nutrient cycling, can be delivered by designing and implementing tools and methodologies that maintain, protect and restore ecosystem function, at multiple scales and across sectors. From helping to protect forests in Uganda to restoring Mali’s Lake Faguibine (Box 3.5), UN Environment uses its expertise as a science-based organization to help national

governments and regions determine which ecosystem services to prioritise, and develop effective intervention strategies to sustainably manage or restore ecosystems. In particular, forest restoration offers a considerable opportunity, as shown in a UN Environment study outlined in Box 3.8 below.

Box 3.8

“Dead Planet, Living Planet – Biodiversity and Ecosystem Restoration for Sustainable Development”²⁰.

Forests play a key role in global water supply. At present 75% of globally usable freshwater supplies come from forested catchments, therefore water is critically linked to forests in much of the developing world. Forests are also crucial for flow regulation and in hindering flash-floods from water originating in mountains or in extreme rainfall events. This is crucial in terms of providing predictable water supply to crop areas, such as through retention of water in wetlands and forests buffering both droughts and floods. Forests also have a key function in climate regulation through influencing weather and rainfall, as well as in capturing rain- and mist water, such as in cloud forests and in filtering water. The opportunities for forest restoration are considerable, since the extent of forest degradation in the tropics has been estimated as 350-850 million ha, depending on the level of degradation. Indeed, The Global Partnership on Forest Landscape Restoration (GPFLR) estimates that over 1 billion hectares of previously forested lands are currently suitable for broad scale or mosaic restoration, approximately 6% of the earth’s total land area.

Advancing the Integrated Water Resources Management approach (SDG target 6.5): Integrated approaches to ecosystem management, including IWRM, continue to be a core part of UN Environment’s Work, including:

- **Monitoring the implementation of IWRM globally.** UN Environment is the custodian agency for SDG indicator 6.5.1 on IWRM. This work builds on previous assessments in 2008 and 2012, mandated by the UN Commission on Sustainable Development. UN Environment will work with other organisations and networks such as the Global Water Partnership and UNDP Cap-Net to assist countries in reporting on, and analysing, the degree of implementation of IWRM.
- **Guidance and strategic activities to demonstrate and support integrated freshwater management, including the effectiveness of conservation efforts and protected areas.** For example, UN Environment will seek to implement strategic projects such as one recently ►

Implementing the Freshwater Strategy

implemented in the Democratic Republic of Congo, where catchment-based IWRM improved urban water supply and rural livelihoods in a post-conflict setting (see Box 3.11, in next section on “water-related disaster and conflict”). Another example for IWRM is given from the Darfur region (see Box 3.9).

Box 3.9

Brokering dialogue and supporting livelihoods in Darfur through IWRM at catchment level

In Darfur, Sudan, the establishment of a Catchment Management Forum allowed for exchange of views and building relationships between water users and technical decision makers in government. Community visioning processes helped build consensus and collaboration between contending pastoralists and sedentary agriculturalist groups. Key field interventions included supporting communities in building and managing rainwater harvesting structures to promote livelihood and food security. Development of local hydrological monitoring networks helped create a scientific information base for knowledge based water decision-making.

- **Development of water information and decision support systems:** UN Environment works with partners to develop cutting-edge tools and techniques that are used by countries to better manage water resources. An example of this is the initiative funded by the GEF, being implemented by the UNEP-DHI Partnership Center on Water and Environment (UNEP-DHI) and piloted in Chao Phraya, Lake Victoria and the Volta River Basin, before being globally disseminated and made freely available.
- **Establishing cross-sector coordination mechanisms for improved water management and development:** UN Environment’s comparative advantage means that it is often called upon to assist countries with sensitive environmental data gathering and information sharing processes. Examples of this include the collaboration with the African Ministers’ Council on Water (AMCOW) and UNEP-DHI to develop and launch the pan-African “Water Sector and Sanitation Monitoring and Reporting System”. This system is being used by countries to track regional water and sanitation commitments based on 78 indicators in more than 40 countries.
- **Capacity development:** Issue sensitization and knowledge sharing are at the core of UN Environment’s long-term

and ongoing capacity development support to Member States. While more traditional classroom training will always have its place, the growth in Information Communications Technology (ICT) has created new opportunities to engage. Examples include open online courses, on-the-job training, capacity-building in projects, curricula development, specialized webinars, and the use of online serious games, among others.

- Establishing context specific institutions for community participation in managing water at the lowest appropriate levels, including in conflict-affected situations.
- The IWRM approach also includes transboundary water management and cooperation, covered in more detail in the section on Priority 2 level of engagement.

Box 3.10

Adapting to Climate Change Induced Water Stress in the Nile River Basin.

In a comprehensive study of the Nile Basin, UN Environment facilitated an examination of how future river flows are expected to change across the entire basin. The study combined hydrological data with down-scaled climate models. The resulting basin model allows water managers to evaluate the likely success of different management strategies. The system is designed to run on the Nile Basin Initiative’s systems. The methodology can be replicated in different basins, and the specific outputs can be used by country governments and regional bodies working on freshwater issues.

Addressing water-related disasters and conflict (SDG targets 11.5 & 16.1): The majority of all natural disasters are water-related and their frequency and amplitude are being exacerbated by climate change²¹. Most impacts from climate change are in fact through changes to the hydrological cycle. The degradation of ecosystems – including freshwater ecosystems – is also widely understood as a major driver of disaster and conflict risk and a key component of disaster and conflict vulnerability. At the same time as they are being impacted by the effects of climate change, conflict and disasters, healthy freshwater ecosystems thus also contribute to resilience, adaptation and mitigation efforts.

UN Environment, in collaboration with the UN Framework Convention on Climate Change (UNFCCC) and its related bodies such as the Climate Technology Centre and Network (CTCN) and the Global Climate Fund (GCF), will address this topic through:



Picture 3 — Chale Swamp Lake, Tanzania © UN Photo

- Understanding and promoting solutions to mitigate the impacts of floods, including erosion and runoff (such as from solid waste, toxic substances, nutrients, pesticides, fertilizer), their impact on water quality, urban flooding, and damages on natural and man-made infrastructure including freshwater habitats and ecosystem services.
- Understanding the impacts and promoting mitigation solutions to drought, including impacts on food production and irrigation, biodiversity, dilution of polluted freshwater, damages on natural and man-made infrastructure including freshwater habitats and ecosystem services.
- Water balance studies and shifts in hydrological regime. Understanding and projecting climate change impacts on aquatic ecosystems require a coupling of down-scaled climate change models with up-scaled hydrological models. For example, under the guidance of UN Environment and in collaboration with the Nile Basin Initiative and the UK Met Office, a basin-wide modelling study in the Nile river basin was undertaken to analyse the impacts of climate change on floods and droughts (Box 3.10).
- Efforts to halt and reverse deforestation and forest degradation not only reduce carbon emissions, but also protect water supplies. Forested watersheds and wetlands supply 75% of the world's accessible freshwater, particularly in the world's largest cities: around one-third of them obtain a significant proportion of their drinking water directly from forested protected areas.
- Through REDD+ and other initiatives, UN Environment works to understand and promote the linkages between forests and water²².
- Addressing climate change adaptation through improved water resources management
- Addressing climate change impacts on ambient water quality, such as increased erosion and pollution due to flooding.
- Helping countries and international partners to integrate water-related measures for risk reduction and recovery in key policies and frameworks

Note: Additional interfaces exist for managing environmental disasters, including through the Post Conflict and Disaster Management Branch and the UN Environment and OCHA Joint Environment Unit. The items listed above supplement and complement these mechanisms.

Box 3.11

Catchment-based IWRM improves urban water supply and rural livelihoods in post-conflict Democratic Republic of Congo (DRC)
Working with local communities and partners, UN Environment pioneered the first practical experience in IWRM in the Democratic Republic of the Congo (DRC) from 2013 - 2016. Given the weak governance capacity in post-conflict DRC, the initiative focused on a community-based approach towards promoting agroforestry, river source protection and food security while fostering working relationships with government institutions and national policy-making processes to promote sustainability, scale up and improvement of local livelihoods. Implemented in the Lukaya River basin – one of the main watersheds supplying drinking water to the DRC capital Kinshasa – the project enhanced the performance of a major water treatment plant providing 400,000 people with drinking water through environmental rehabilitation interventions.

Implementing the Freshwater Strategy

3.2 — Examples of Priority Freshwater Areas to which UN Environment will contribute

Beyond the core areas above, UN Environment will aim to actively contribute to the following water-related areas, based on its global mandate. This is related in particular to the central role of water in ecosystem-based adaptation (EBA), ecosystem-based management (EBM), and Integrated Landscape Management (ILM) – key areas of UN Environment’s work.

Productive uses of water, resource efficiency and sustainable withdrawals (SDG target 6.4, SDG 12)

While not directly under the “custodianship” of UN Environment, it is clear that sustainable water withdrawals play a key role in ensuring the health of freshwater ecosystems. While increasing water efficiency and reducing water withdrawals, enough water must be available to ensure adequate environmental flows. In support of integrated monitoring of SDG 6 targets under UN-Water, UN Environment will work with the Food and Agricultural Organization (FAO) and other partners to strive to decouple ecosystem and productive water use needs; promote the understanding of virtual water and water trading within and between countries; conduct water footprint analyses; better water use efficiency and understanding of the trade-offs and connections between water being used for food, energy and ecosystems, for example.

Transboundary water management

The world’s 286 transboundary river basins, covering half of the Earth’s land surface and accounting for around 60% of global freshwater resources, impact upon every region and most countries in the world: 148 Member States of the UN share water across their borders, and 21 countries lie entirely within transboundary water basins²³.

Encouraging and supporting countries to collaborate in the management of these water resources is a key priority of UN Environment, and an important component of the IWRM concept (SDG target 6.5). In addition, UN Environment is contributing to other efforts to understand and study transboundary water cooperation, such as through assessments (see Box 3.12), the strengthening of basin organizations (Box 3.13) and the development of tools for the management of floods and drought in transboundary river basins.

Box 3.12

Transboundary Waters Assessment Programme

In a project funded by the Global Environment Facility (GEF), UN Environment and partners developed a set of indicators and data sets for assessing the state of aquatic environments in transboundary rivers. The assessment of 286 transboundary river basins enabled the identification of basins at risk from a range of issues. This work has established the status of freshwater bodies as a starting point for interventions aimed at reversing declines. It is also of significant value as a knowledge platform for the UN Convention on the Law of Non-Navigational Uses of International Watercourses (the UN Watercourses Convention), ratified in August 2014. As a demonstrative project, the methodology can be used in continuing science-based research, assessment and decision-making.

Source-to-sea linkages

UN Environment hosts the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA)²⁴. GPA focuses its efforts on three source categories: marine litter, wastewater and nutrient pollution. The GPA has established three global multi-stakeholder partnerships to lend advocacy, policy and technical advisory support to address each issue.

Aquatic biodiversity

UN Environment is the convenor of the Convention on Biological Diversity (CBD)²⁵. With the Freshwater Strategy as a guide, UN Environment will continue to drive the global dialogue on freshwater in relation to biodiversity, particularly focusing on the final years of the United Nations Decade on Biodiversity (2011-2020), and working towards achieving the Aichi Biodiversity Targets by 2020.

Natural water infrastructure

UN Environment takes special interest in promoting natural “green” water infrastructure and other nature-based solutions, in particular as they support and underpin traditional “grey” infrastructure in the water sector. In supporting this work, which includes making the environmental, social and financial “case” for investing in natural water infrastructure, UN Environment assesses the value of forests, including how natural infrastructure supports sustainable water

management (see Kenyan forest case study in Box 3.7). Such studies often show, for example, that both economic and socio-economic benefits of forest conservation (for example, freshwater management) far outweigh the short-term benefits of deforestation through logging and land development, amongst other activities.

Natural infrastructure has significant potential based on its benefits in reducing the vulnerability and increasing the adaptation capacity and resilience of societies and ecosystems to changes in the water cycle, including the effects of water-related disasters, conflicts and climate change. The 2018 World Water Development Report (WWDR) and World Water Day will focus on Nature-Based Solutions, for which UN Environment will take a lead role.

Land-water interactions

UN Environment collaborates directly with the United Nations Convention to Combat Desertification on all of the environmental issues that fall under its mandate. Freshwater is a key issue under the convention.

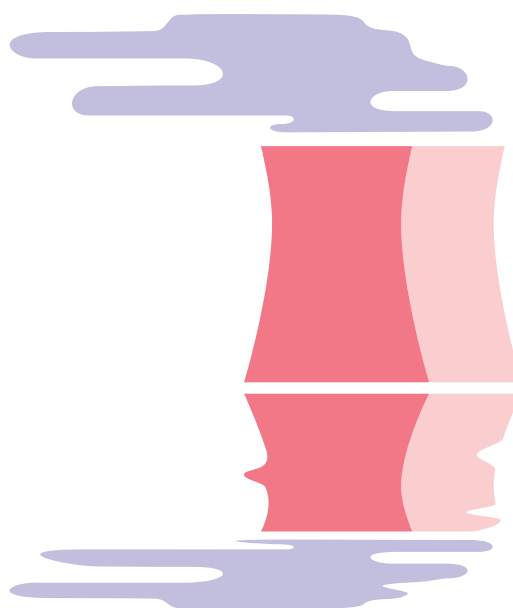
Box 3.13

Reaching out to Basin Organizations for Transboundary Freshwater Governance

Basin organizations are crucial in supporting the implementation and integration of internationally agreed environmental goals and objectives, such as those embedded in multilateral environmental agreements, into national and basin-wide water management schemes. In the past few years, UN Environment and partners such as the International Network of Basin Organizations (INBO) have reached out to basin organizations around the globe and engaged them as key actors in strengthening environmental governance systems at the international level and across the respective basins. International Environment Forums for Basin Organizations bring together water ministers, heads of international organizations and other delegates from participating governments, basin organizations, and many partner institutions to share approaches and experiences to strengthening freshwater governance in their countries and regions, and discuss ways to enhance implementation of basin-level agreements and relevant global conventions, especially in light of the entry into force of the UN Convention on the Law of the Non-Navigational Uses of International Watercourses in August 2014.

3.3 — Examples of Priority Freshwater Areas which UN Environment will Actively Follow

There is a great deal of work being done regionally and globally on freshwater, such as work on drinking water and sanitation access, water for agriculture and energy, and water stress management, for which water resources and freshwater ecosystems are an important underlying factor. UN Environment will continue to actively follow, and engage where possible, with global and regional water, environmental and development agendas, based on its global mandate. This is done in part by engaging actively with the UN's inter-agency coordination mechanism on freshwater and sanitation, UN-Water, and also through coordinating and mainstreaming the freshwater-related work through the various strategic priorities, units, divisions and regional offices of UN Environment itself. ●



4

Theory of Change

The Freshwater Strategy is built in alignment with SDG targets, UN Environment’s overall mandate, and specific goals and issues related to freshwater. The strategy is intended to facilitate positive, measurable and substantive change at global, regional and national levels.

Our theory of change centers on supporting countries to progressively improve the state of their freshwater ecosystems and water resources so that threatened ecosystems become well managed, climate resilient, healthy and able to sustain their services for human needs, the

mitigation of risks, economic development and ecology for present and future generations. The outcome is envisaged to be that SDG freshwater targets directly within UN Environment’s mandate are on track, measured and monitored well, with demonstrated improvements at all levels. This supports countries to not only meet the direct water-related SDG targets but also to achieve many other goals and targets of the Agenda 2030 for sustainable development. See the Theory of Change Process below. ●

Examples of Outputs



- Countries supported to develop ambient water quality standards and guidelines and at least 60 countries reporting regularly through GEMS/Water.
- Current and emerging freshwater pollutants supported under the GPA.
- Ecosystem solutions for improving ambient water quality reported through World Water Development Report 2018.
- Ecosystem health assessments in a changing climate undertaken in more than 40 countries.
- Integrated approaches to ecosystem management, including IWRM, monitored and supported in more than 100 countries.
- Development of data collection, repositories and presentation platforms developed for UN Environment led SDG 6 indicators.
- Policy guidance and strategic activities provided to member states to demonstrate and support effective freshwater management, including the effectiveness of conservation efforts and protected areas.
- Ecosystem impacts and mitigation of human risks related to floods and droughts analysed and demonstrated.
- Global baseline data on SDG indicators 6.3.2, 6.5.1 and 6.6.1 collected, quality controlled and reported.

Intermediary outcomes

Countries are provided capacity building, tools, assessments, data and information in order to mitigate risks and implement water related SDGs through reducing pollution and improving management of water resources and their ecosystems.

Assumptions:

Countries are willing and able to absorb, utilize and leverage the assistance provided.

Partner priorities for making use of capacities and implementing IWRM/EBM in practice continues

Donors continue to support (financial and technical) UN Environment freshwater related work.

Rationale:

Improved implementation of policies for freshwater management, especially at national and regional levels, will have a direct and positive impact in water resources management, ecosystem health and human wellbeing.



<p>Outcomes</p> <p>Improved effectiveness of freshwater resources management through policy guidance supported by demonstrative projects and support in implementation at national, regional and global levels.</p> <p>Paradigm shift in water management at all levels on SDG targets 6.3,6.4,6.5, 6.6,11.5.</p> <p>Measurable and effective actions in all areas related to freshwater SDGs will be positively impacting on ambient water quality, water resources management, ecosystem health and risk mitigation.</p>	<p>Assumptions:</p> <p>Countries are interested in, and have the capacity to engage in implementation-level activities in improved monitoring and management of freshwater and related ecosystems.</p> <p>The level of effort required to shift freshwater management paradigms and mindsets is commensurate with the capacity of UN Environment.</p> <p>Donors engage and are inspired by the renewed paradigm for freshwater related SDG targets and respond with funding. UN agencies and organizations collaborate on mutually aligned activities and objectives through partnerships.</p>	<p>Rationale:</p> <p>A proactive approach to influencing the dialogue and activities in freshwater management will have a direct impact on the tangible components of freshwater-related SDGs.</p>
<p>Impacts</p> <p>Threatened water-related ecosystems are well managed, climate resilient, healthy and able to sustain their services for human needs, economic development and ecology for present and future generations.</p> <p>SDG freshwater targets directly within UN Environment’s mandate are measured, reported and with demonstrated improvements at all levels.</p> <p>Policy dialogue and action at all levels is engaging, sustained, and growing, positively impacting freshwater and related ecosystem management globally.</p>	<p>Assumptions:</p> <p>Countries are committed to implementing Agenda 2030 and water-related targets.</p>	<p>Rationale:</p> <p>Project interventions support an environment conducive for sustaining sustainable management of water resources, mitigating risks, preventing water pollution and maintaining healthy freshwater ecosystems.</p>

An Adaptive Approach: Reviewing and Revising the Freshwater Strategy

5.1 — Monitoring and Revising the Freshwater Strategy

The Freshwater Strategy is intended to be a living document, with revisions possible from both internal review processes and inputs from partners (see Section 5.2). In the mid-term review scheduled for 2019, UN Environment will explore lessons learned, accomplishments, challenges, and the evolving dynamics of freshwater leadership and management globally. UN Environment will revise the strategy to adapt to major changes in environmental conditions and/or environmental leadership globally. The mid-term review is intended to act as a milestone for the strategy, and as an opportunity to evaluate progress and tell the story of freshwater management globally. A proactive communication approach will be included as an output of the mid-term review.

5.2 — Strategic Partnerships

In the spirit of SDG 17 to strengthen the means of implementation and revitalise the Global Partnership for Sustainable Development, UN Environment will actively seek partners to provide input and assist in the implementation of its Freshwater Strategy.

UN Environment will build upon existing partnerships, such as those from the UN system which serve as Members, and outside NGOs, private sector and academic organizations which collaborate as Partners, of UN-Water²⁶, and also seek to develop new ones from the United Nations system, other global, regional or national organizations, research / academia, non-governmental organizations and the private sector.

The private sector ranges from multi-nationals, small and medium enterprises, to small scale local operators and the informal sector. Collectively the private sector is a major water user, consumer and polluter worldwide. At the same time, in most countries, the private sector is the major employer, educator, innovator and income generator, both for governments in the form of corporate taxes as well as for individuals. Partnering with the private sector is essential to address many of the world's freshwater related problems, to lift people and countries out of poverty and to achieve sustainable development. UN Environment could consider several forms of engagement and partnerships with the private sector, such as:

- The private sector as a recipient of UN Environment policy and technical advice, capacity development and interventions.
- The private sector as a financing partner for UN Environment.
- Private sector actors as 'project implementation' partners contributing with human, technical and other in-kind resources.
- Partnering with the private sector to access new and innovative technology and as a driver of demand for environmentally friendly and sustainable products and solutions.
- Partnering with major companies to create 'blue and green' jobs and build local business – adding value by sustaining the supply chain.
- UN Environment can become an attractive partner for the private sector by strengthening legal and institutional arrangements that ensure stable and fair conditions for market actors, create markets related to ecosystem services, and help minimize business risks related to access, allocation and pollution of water resources.
- Done right, the private sector can also be an excellent partner for communications, advocacy, outreach, and as a learning resource for best practices.

5.3 — Communication of the Freshwater Strategy

Communication of success stories, lessons learned, and challenges encountered along the journey of strategy implementation is considered a critical success factor for the Freshwater Strategy.

Specifically, UN Environment is tasking itself with developing and implementing a proactive publication approach embedded within the strategy. Already mandated with the monitoring of SDG targets 6.3, 6.5 and 6.6, UN Environment will strengthen its monitoring by communicating the monitoring findings through a range of media and fora.



Picture 4 — National Tapajos Forest, Brazil © UN Photo

— **Annex: Examples of partnerships**

The nature of partnerships will vary depending on UN Environment’s level of engagement. In the four strategic areas where UN Environment will provide leadership, UN Environment has the mandate, capacity and expert knowledge to attract appropriate and effective partners from the United Nations system, other global, regional or national organizations, the private sector and non-governmental organizations. To be successful, each partner needs to be clear about the mutual benefits of the partnership and how the resources will be generated and used. Partners should also be seen as equals in the process and where possible bring their own resources and not be viewed as implementing agencies. In the areas that UN Environment will contribute to and actively follow, UN Environment will support partners by, for example, providing expertise, tools, access to networks, and resources where possible.

UN Environment is actively engaged in a range of existing networks and partnership arrangements, for example with those within the United Nations system and other outside organizations through UN-Water, such as the Food and Agriculture Organization of the United Nations (FAO), the United Nations Development Programme (UNDP), UNESCO (including the World Water Assessment Programme), the United Nations Human Settlements Programme (UN-Habitat), the United Nations Children’s Fund (UNICEF), the World Health Organization (WHO), the CEO Water Mandate under the United Nations Global Compact, and others.

Global organizations with which UN Environment is engaged include the Women for Water Partnership, the Global Water Partnership (GWP), the International Network of Basin Organizations (INBO), the International Water Management Institute (IWMI), the research programme on water, land and ecosystems of the Consultative Group on International Agricultural Research (CGIAR), the International Lake Environment Committee (ILEC), the International Union for Conservation of Nature (IUCN) and the World Wildlife Fund (WWF).

Other partners include regional intergovernmental entities, the African Ministers’ Council on Water (AMCOW), the League of Arab States and specialized centres such as the Water Centre for the Humid Tropics of Latin America and the Caribbean (CATHALAC) in Latin America, along with the private sector and multilateral and bilateral development partners.

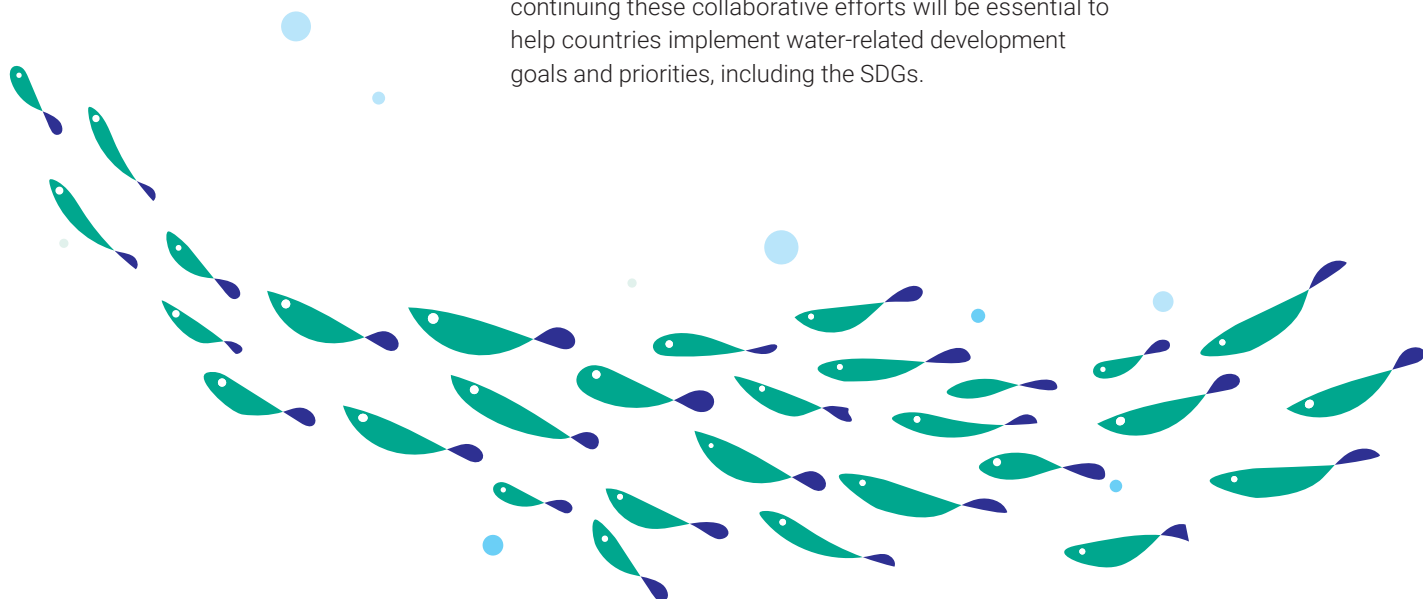
New mechanisms for building partnerships will be explored, including access to tools such as Environment Live. A strategic partnership approach also needs to consider the demands, planning horizons and institutional procedures associated with the replication of promising pilot or demonstration activities, taking into consideration specific conditions and circumstances and, where appropriate, using South-South or triangular cooperation mechanisms. A closer relationship during the piloting phase should help to build ownership and confidence in the approach for roll-out funding support and help to minimize delays in moving from trial to full implementation. ●

— Acknowledgements

The management of freshwater resources is inextricably linked to all the areas in which UN Environment works: climate change adaptation, mitigation of disasters and conflicts, the management of ecosystems including those in the sea and on land, environmental governance, chemicals and waste, resource efficiency and keeping the environment under review all depend on the sound understanding and management of freshwater resources. Freshwater connects and underpins, or has the power to undermine, them all, just as it is impacted by many of these other areas. Understanding the interlinkages and balancing the tradeoffs between different areas of sustainable development is a tradeoff that this strategy hopes to help countries address.

Because of its interconnected nature, the production of this document was truly a collaborative effort that mirrors the interlinked nature of freshwater issues and the need to address them cross-sectorally. This strategy was produced as a product of the UN Environment Interdivisional Water Group (IDWG), consisting of members working at all geographic levels and engaged in work spanning from policy development to scientific research and on-the-ground implementation. The strategy development process involved several months of dialogue and inputs from a large number of stakeholders from within and external to UN Environment. Our sincere thanks go to all who provided input to its creation.

Finally, many external partners, both from UN-Water Members inside the UN family as well as UN-Water Partners external to the UN system which include the private sector, donors and NGOs, also provided feedback and guidance to this strategy. We are grateful for this feedback, and continuing these collaborative efforts will be essential to help countries implement water-related development goals and priorities, including the SDGs.



— Endnotes

- 1 Countries will be responsible for voluntarily reporting on progress towards SDG implementation, or follow-up and review, of the SDGs at the annual High-level Political Forum or HLPF. SDG 6 will be a priority at the 2018 HLPF, which falls within the scope of the Freshwater Strategy. For more information, see <https://sustainabledevelopment.un.org/hlpf>
- 2 For more information on SDG 6, including targets, indicators, methodologies, and custodian agencies, please see <http://www.unwater.org/sdgs/en/>
- 3 A UN-Water Analytical Brief outlines the target-level links between water and other SDGs. UN-Water Analytical Brief (2016), Water and sanitation interlinkages across the 2030 Agenda for Sustainable Development.
- 4 Approximately 60% of the ecosystem services examined during the Millennium Ecosystem Assessment are being degraded or used unsustainably, including fresh water, capture fisheries and water purification. Millennium Ecosystem Assessment (2005) Millennium Ecosystem Assessment, Concepts of Ecosystem Value and Valuation Approaches. Island Press, Washington DC.
- 5 https://www.ipcc.ch/publications_and_data/ar4/wg2/en/ch3.html
- 6 General Assembly resolution 67/213 of 21 December 2012 expanded the membership of UN Environment's Governing Council (see http://www.un.org/ga/search/view_doc.asp?symbol=a/res/67/213). The General Assembly later changed the name of the Governing Council to the United Nations Environment Assembly (UNEA). (See General Assembly resolution 67/251 of 13 March 2013)
- 7 Rio+20 Outcome Document, "The Future We Want," available at <https://goo.gl/FD8sr>
- 8 UN Environment's Programme of Work (PoW) 2016–2017 and the Medium-Term Strategy (MTS) 2018–2021 commit to integrated approaches, ecosystem-based management and improving water quality with the idea that functional and resilient ecosystems are able to provide ecosystem services sustainably and equitably for human well-being.
- 9 <http://web.unep.org/about/who-we-are/overview>
- 10 UN Environment Medium-term Strategy 2014-2017, http://www.unep.org/pdf/MTS_2014-2017_Final.pdf
- 11 "Transforming our World: the 2030 Agenda for Sustainable Development. <https://sustainabledevelopment.un.org/post2015/transformingourworld>
- 12 <http://www.gwp.org/the-challenge/what-is-iwrm/>
- 13 See www.unwater.org/gemi
- 14 <http://web.unep.org/gpa/>
- 15 <http://web.unep.org/gpa/>
- 16 A Snapshot of the World's Water Quality: Towards a Global Assessment (UNEP, 2016). Available at <https://goo.gl/6iE8r5>
- 17 <http://www.teebweb.org>
- 18 <http://www.ipbes.net>
- 19 http://www.unep.org/pdf/Montane_Forests.pdf
- 20 Nellemann, C., E. Corcoran (eds). 2010. Dead Planet, Living Planet – Biodiversity and Ecosystem Restoration for Sustainable Development. A Rapid Response Assessment. United Nations Environment Programme, GRID-Arendal.
- 21 Economic losses due to water-related hazards have risen greatly in the past decade. Since 1992, floods, droughts and storms have affected 4.2 billion people (95% of all people affected by all disasters) and caused US\$1.3 trillion of damage (63% of all damage). See UNESCAP/UNISDR (United Nations Economic and Social Commission for Asia and the Pacific/United Nations Office for Disaster Risk Reduction), 2012. Reducing Vulnerability and Exposure to Disasters. The Asia-Pacific Disaster Report 2012. Bangkok, UNESCAP/UNISDR.
- 22 See <http://www.unredd.net/about/what-is-redd-plus.html>
- 23 <http://www.unwater.org/topics/transboundary-waters/en/>
- 24 <http://web.unep.org/gpa/>
- 25 <https://www.cbd.int>
- 26 For a full list of Members and Partners of UN-Water, see www.unwater.org/about/members-and-partners/en/

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