

UNITED NATIONS DEVELOPMENT PROGRAMME



**NATURE
FOR**

**WATER
SECURITY**

**NATURE
PLEDGE**

**NATURE FOR DEVELOPMENT
ACTION KITS**

ABOUT THE 'NATURE FOR DEVELOPMENT' ACTION KIT SERIES

This document, 'Nature for Water Security' is one of a series of 'Nature for Development' Action Kits, as part of UNDP's Nature Pledge. This series includes 'Nature for Water Security,' 'Nature for Climate Action,' 'Nature for Food Security,' 'Nature for Prosperity,' 'Nature for Disaster Reduction,' 'Nature for Peace,' and 'Nature for Gender Equality.'

This action kit provides UNDP staff with an overview of the many intertwined relationships between nature and sustainable development. It also provides key facts, figures and talking points, as well as programming entry points needed to make the case for investing in nature to achieve development outcomes. This kit, which also provides the tools and information needed to learn more and take action, aims to:

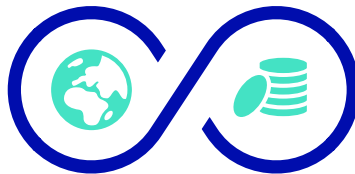
- highlight entry points for implementation of the UNDP Nature Pledge;
- strengthen UNDP policy, advocacy and awareness-raising efforts;
- inform effective national, regional and integrated programming efforts, and support issue-based portfolio approaches in line with national priorities and UNDP's Moonshots;
- support resource mobilization with traditional and non-traditional funding partners;
- strengthen and forge new partnerships with sister UN agencies, other international development partners, national and local stakeholders in government, the private sector, academia, media and other civil society groups; and
- leverage and strengthen internal UNDP capacities and expertise at all levels.

ABOUT UNDP'S NATURE PLEDGE

The Nature Pledge is UNDP's commitment to support more than 140 countries in achieving their ambitious goals under the [Global Biodiversity Framework](#) and nature-dependent Sustainable Development Goals. The Nature Pledge focuses on three system shifts essential to put nature at the heart of sustainable development:



VALUE SHIFT



FINANCE AND ECONOMIC SHIFT



POLICY AND PRACTICE SHIFT

A 'Value Shift' to transform the value we place on nature and drive changes in people's behavior so that we place nature at the heart of development and across sectors including governance, economics, finance, health, and conservation.

An 'Economic and Finance Shift' to support a system where decision makers value natural capital, alongside financial, human and man-made capital.

A 'Policy and Practice Shift' to deliver change at scale on the ground - led by governments, and grounded in partnerships with Indigenous Peoples and local communities.

The Nature Pledge provides a pathway to transform our global systems by meeting vital targets to protect and restore our planet, eradicate poverty, reduce gender and other inequalities, protect human rights, and accelerate overall progress on nature-dependent sustainable development goals.

NATURE FOR WATER SECURITY

There is no replacement or alternative to fresh water. Healthy natural ecosystems underpin the global water cycle that provides fresh water for all life and sustainable development. Water covers 72 percent of the surface of our blue planet, but only 0.03 percent is fresh water that is readily available for use. This is why water security is so essential for life on our planet.

UN-Water [defines water security](#) as “the capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability.” Globally, water security has been undermined by decades of water mismanagement. We now face a systemic crisis that is both local and global. The global water cycle has been pushed out of balance for the first time in human history. Inexorably connected with climate change and biodiversity loss, the global water cycle is [a global common good](#), to be protected in the interests of every human life.

Nature is essential to improving water security, especially through ‘nature-based solutions,’ [defined](#) as “actions to protect, sustainably manage, and restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously benefiting people and nature.” Such actions encompass a variety of approaches, including the protection, restoration and sustainable management of ecosystems essential for maintaining water security. They also include overall integrated watershed management; agricultural best management practices to reduce water demand; and the creation of nature-based drainage and filtration systems to maintain water availability, avoid siltation and reduce pollution, among others. Approaches that mimic natural processes can often be the most resilient approaches to key water management challenges.

One of the most important concepts in managing water is integrated water resources management. In most governments, there is a need to integrate approaches to the limited amount of water available at any given time. This requires cross-sectoral governance of water resources through coordination, open sharing of data and information, broad stakeholder inclusion, and protection of the ecosystems upon which water quantity and water quality depend.

Through the Nature Pledge, UNDP can improve global water security by supporting systemic shifts in how water is valued, financed and managed by governments and communities.

Key ecosystems essential for maintaining water security:



Forests are essential for recharging water supplies and aquifers, and regulating water flow throughout the year.



Wetlands filter water, improve quality, regulate water flow and serve as a buffer for communities in times of droughts and floods.



Mountain ecosystems have complex water storage mechanisms, including snow packs, which ensure reliable seasonal flows.



Grasslands store water during droughts, sustain grazing livelihoods, and recharge rivers and ground water aquifers.

Photo credits top to bottom: UNDP Sumatra Tiger Project; UNDP/Zhao Kai; CIFOR/Mokhammad Edliadi; UNDP Uzbekistan/Abbos Akhadov, Zulfiya Mamadalieva and Elena Turaeva

THE VALUE OF WATER FOR SUSTAINABLE DEVELOPMENT

Water is essential to achieving multiple SDGs. Below is a summary of some of these relationships:

	<p>1 NO POVERTY</p>  <p>Access to water is the <u>single most effective poverty intervention</u></p>		<p>2 ZERO HUNGER</p>  <p>2 billion+ farmers depend on reliable water availability for agriculture</p>		<p>3 GOOD HEALTH AND WELL-BEING</p>  <p>Clean water would <u>prevent 80% of all diseases</u> worldwide</p>
	<p>5 GENDER EQUALITY</p>  <p>Girls in Africa spend an average 6 hours a day collecting water</p>		<p>6 CLEAN WATER AND SANITATION</p>  <p>4.2 billion people lack safe sanitation facilities, creating vast waste</p>		<p>7 AFFORDABLE AND CLEAN ENERGY</p>  <p>Hydropower, supported by forests, provides <u>1/4 of all energy</u> globally</p>
	<p>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</p>  <p>Water supports <u>75% of the global work force</u> and <u>60% of global GDP</u></p>		<p>11 SUSTAINABLE CITIES AND COMMUNITIES</p>  <p>1/3 of major cities depend directly on forests for water</p>		<p>16 PEACE, JUSTICE AND STRONG INSTITUTIONS</p>  <p>Water-related conflicts have <u>increased 10x</u> since 2010</p>

Photo credits top row: UN/Albert González Farran; UNDP Kenya; UN Women/Narendra Shrestha; second row: UN/Ray Witlin; UNDP /Rabo Yahaya; UNPD ; third row: Niels Van Iperen; Gregoire Dubois; UNDP Africa

TRENDS IN NATURE FOR WATER SECURITY

The current global situation regarding water security is grave, with serious consequences for people and the planet. Explore some of the key facts and figures below.

CURRENT TRENDS

4 billion people face at least **1 month** of water insecurity

2.2 billion people currently lack safe drinking water, and **1.1 billion** people lack reliable access to water

21 of the world's **37** aquifers which service more than **2 billion** people, are used unsustainably

25 countries, with **> 1/4** the world's population, face high water stress

2 dozen cities, with **> 200 million** people face 'Day Zero Water'

Demand for water-intensive crops - cotton, soy, beef - is rising sharply

Agriculture is responsible for > 70% of all freshwater withdrawals

The **fashion industry** uses **80 trillion litres** of water annually

1 MV hour of energy requires **45,000 litres** of water

FUTURE TRENDS

By 2030, **demand for water** will exceed supply by **40%**

By 2030, **1/2 of all people** will live in water-scarce areas

By 2030, **1.6 billion** people will lack safe drinking water

By 2030, agriculture use of water will **increase by > 65%**

By 2030, energy demand will **increase by up to 76%**

By 2030, the use of water for fashion will **double**

By 2050, water demand will **increase by 55%**, and **1 in 5** countries will face insecurity

By 2050, **5 billion people** will face a month of water insecurity

By 2050, industry use of water will **increase by 250%** in Asia

KEY MESSAGES ON THE VALUE OF NATURE FOR WATER SECURITY

NATURE-BASED SOLUTIONS FOR WATER SECURITY ARE HIGHLY COST EFFECTIVE

The economic value of ecosystem services, such as water purification and flood prevention, often surpasses the costs associated with their preservation. [One study in Brazil](#), for example, found that the cost of investing in nature for water security was far more cost effective, with more reliable results, than grey infrastructure; and [a study of 4,000 cities](#) found that for half of those cities, source water protection would cost less than US\$2 per person per year. Preserving and restoring the ecosystems essential for water security can also reduce the need for expensive, human-made infrastructure such as dams and water treatment plants.

NATURE-BASED SOLUTIONS FOR WATER HAVE MANY CO-BENEFITS FOR PEOPLE AND PLANET

Accelerating nature-based solutions for water security can provide many benefits for people and the planet. Restoring forests and wetlands to improve water security, for example, can also support biodiversity, help fight climate change, reduce vulnerability to natural disasters, and support local livelihoods and food security for communities. For example, The report ‘The [Economics of Ecosystems and Biodiversity](#)’ found that the return on investment for co-benefits of land restoration averages more than \$20 for every \$1 invested, and [a recent World Bank study](#) estimated the value in co-benefits to be as high as \$30 for every \$1 invested in ecosystem restoration.

WATER INVESTMENTS MUST BE STRATEGIC AND TARGETED

Investment in water access, resilience and sustainability in [low- and middle-income](#) countries will require the reform of inefficient domestic subsidies, engagement with multilateral development banks and development finance institutions, and crowding in private companies, banks, institutional investors and philanthropic donations. Investments in water must maximize synergies with climate change strategies and national programs to achieve inclusive growth – leaving no one behind.

THE GLOBAL WATER CYCLE IS A GLOBAL PUBLIC GOOD

The global water cycle is a global public good: we must recognize that water is intertwined with climate change and the depletion of the planet’s natural capital; it is critical to food security as well as all the Sustainable Development Goals. Water cannot be put back on a sustainable trajectory without justice and equity in every corner of the globe.

INVESTING IN NATURE FOR WATER CAN BE A CATALYST FOR PEACE

Water-related conflict has appeared in the World Economic Forum’s [top 5 global risks](#) for a decade. [Half the world’s population](#), and 60% of the world’s freshwater, depend upon transboundary rivers and lakes, but [only 1/3 of the world’s 310 transboundary basins](#) have cooperative agreements in place. This is critical for the [50 countries across 5 continents](#) that are at risk of conflict over water resources. Investing in transboundary agreements and in nature-based solutions for water security can be catalytic for peace and security by avoiding conflict, promoting sustainable management, and minimizing the [700 million people at risk of water-related displacement by 2030](#).

HEALTHY AND INTACT ECOSYSTEMS ARE ESSENTIAL FOR WATER SECURITY

Healthy, intact ecosystems play an essential role in maintaining water quality, regulating water flows, and sustaining reliable water supplies. Biodiversity loss and degradation disrupt these intricate relationships, leading to compromised ecosystem functions, including reduced availability and quality of water for human use. Recognizing the interconnectedness of ecosystems and water systems is key, as is recognizing the urgency of biodiversity conservation as a fundamental component of sustainable water management. The [Global Land Outlook](#) found that 2 out of 5 hectares of land globally are degraded, with significant impacts to water availability, water quality and ecosystem health.

RESOURCES

This section highlights recent publications, tools, videos, blogs, photo essays and data on the linkages between nature and water security, including from both UNDP and partners.

TECHNICAL PUBLICATIONS AND REPORTS – ESSENTIAL READING

Nature-Based Solutions for Water



This [UN report](#) demonstrates how nature-based solutions offer a vital means of moving beyond business-as-usual

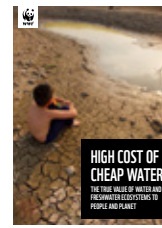
to address many of the world’s water challenges, while simultaneously delivering additional benefits

Beyond the Source



This [245-page report](#) by The Nature Conservancy makes the case for investing in nature-based solutions for urban water security, including protection and restoration of forests, wetlands and other ecosystems

The High Cost of Cheap Water



This [33-page booklet](#) by WWF highlights the risks of overconsumption of water to human health, livelihoods, economies and security, and makes the case for investing in nature for water security and co-benefits.

Turning the Tide: A Call to Collective Action



This [32-page publication](#) by the Global Commission on the Economics of Water, calls for a sea change in how we value, manage

and use water – our most precious global collective good.

Scaling up Nature-Based Solutions to Tackle Water-Related Climate Risks



This [analysis](#) looks at scaling up nature-based solutions in two countries, and includes emerging best practices, and an assessment of key challenges.

Nature-based Solutions for Water Management: A Primer



This [34-page brochure](#) from UNEP and IUCN provides an overview of the types of nature-based solutions and covers key issues related to scaling and finance.

A DEEPER DIVE

Nature-Based Solutions and Water Security



This 500-page [comprehensive book](#), published in 2021, focusing on an “Action Agenda for the 21st Century.” Requires purchase.

Ending Conflicts Over Water



This [128-page document](#) by World Resources Institute explores pathways for reducing water conflicts.

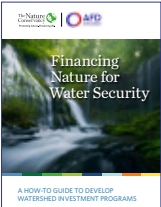


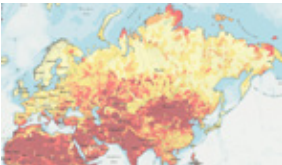


Resilient European Cities



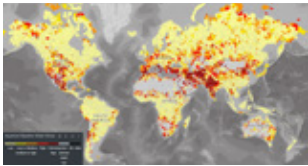
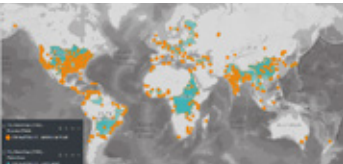
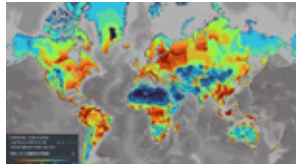
This [118-page guide](#), published by The Nature Conservancy, focuses on nature-based solutions for clean water and resilience.

TOOLS

This section highlights recent publications, tools, videos, blogs, photo essays and data on the linkages between nature and water security, including from both UNDP and partners.

<h3>Financing Nature for Water Security</h3>  <p>This toolkit, produced by The Nature Conservancy, provides a one-stop shop on how to design, implement and finance investments in nature-based solutions that drive long-term water security outcomes</p>	<h3>NBS Benefits Explorer Tool</h3>  <p>This toolkit enables users to identify the range of benefits from nature-based solutions. It is based on the Benefit Accounting of Nature-Based Solutions for Watersheds Guide.</p>	<h3>Handbook for the implementation of Nature-Based Solutions for Water Security</h3>  <p>This 340-page toolkit provides detailed guidance for designing, implementing and financing nature-based water solutions.</p>
<h3>Aqueduct Water Risk Atlas</h3>  <p>This data portal provides spatial information on global water risks and opportunities.</p>	<h3>UN Biodiversity Lab</h3>  <p>This UNDP-led spatial data portal has more than 400 layers on nature and development, including water security</p>	<h3>Urban Blueprint</h3>  <p>This portal, managed by The Nature Conservancy, provides resources related to mapping of ecosystems and water security.</p>

DATA ON NATURE AND WATER SECURITY, CURATED BY UNDP

<h3>Baseline water stress globally</h3>  <p>This layer on UN Biodiversity Lab shows baseline water stress globally</p>	<h3>Important watersheds and water source points</h3>  <p>This layer on UN Biodiversity Lab shows water source points for 543 of the largest cities globally</p>	<h3>Areas of global significance for biodiversity and water</h3>  <p>This layer on UN Biodiversity Lab shows important areas for nature and water.</p>
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STORIES TO INSPIRE AND SHARE

Blogs

- UNDP Blog: Nature for Water, Nature for Food, Nature for Peace. This blog highlights the interconnected challenges of conflict, climate chaos, and a three-dimensional crisis affecting vulnerable populations, emphasizing the crucial role of nature-based solutions. Available at: <https://www.undp.org/blog/nature-water-nature-food-nature-peace>
- UNDP Blog: Recentering nature to solve the global water crisis. This blog discusses the global water crisis and emphasizes the central role of nature-based solutions. It highlights how nature, including wetlands and forests, can play a crucial role in water security by mitigating floods and droughts. Available at: <https://www.undp.org/blog/recentering-nature-solve-global-water-crisis>.
- UNDP Blog: An urgent World Water Day call to action. Despite urgent calls for water security, progress on SDG 6 water goals is “alarmingly off track,” with 2.2 billion people lacking access to safe water. Indigenous peoples and local communities are leading efforts in implementing nature-based solutions to address the water, biodiversity, and climate crises. Available at: <https://www.undp.org/blog/urgent-world-water-day-call-action>.
- UNDP Blog: Urgent Action Needed to protect Wetlands in the face of Climate Change. This blog calls for urgent action to protect wetlands that are vital for water security. Available at: <https://www.undp.org/namibia/stories/urgent-action-needed-protect-wetlands-face-climate-change>.

Photo essays

- Photo essay, The “Flying Rivers” Protecting the Water Cycle. Despite facing challenges like illegal logging and mining, the Wampís Nation’s conservation efforts not only ensure water security but also contribute to mitigating climate change and preserving a legacy for future generations. Available at: <https://stories.undp.org/the-flying-rivers-protecting-the-water-cycle>.
- Photo essay: Water of My Ancestors. Despite persistent injustices, Indigenous peoples often contribute transformative nature-based solutions rooted in traditional ecological knowledge, as exemplified by communities like Chananaw in the Philippines and the Batwa in Uganda, showcasing the crucial role of indigenous-led initiatives in achieving clean water goals outlined in the Sustainable Development Goals. Available at: <https://equatorinitiative.exposure.co/water-of-my-ancestors>.
- Photo essay: How forests and young people are solving Honduras’s water crisis. Honduras is turning to nature-based solutions, emphasizing forest restoration and conservation and involving youth, to address water security issues in the face of rapid urban growth. Available at: <https://www.undp.org/stories/how-forests-and-young-people-are-solving-hondurass-water-crisis>.
- Series of photo stories: Nature-based Solutions for Water Security: A suite of photo stories from The Nature Conservancy, showcasing cases of using nature-based solutions to ensure water security in different regions of the world. Available at: <https://www.nature.org/en-us/what-we-do/our-insights/water-security/>.

Videos

- Video: Fondo de Páramos Tungurahua y Lucha contra la Pobreza, 2019 [Equator Prize](#) winners, showcases how the Fund for the Tungurahua Páramos has mobilized US\$2,188,497 to conserve and restore over 4,000 hectares of the Páramos to enhance water security – 3-minute video available at: <https://vimeo.com/364894990>; case study available at: <https://www.equatorinitiative.org/2019/07/29/fondo-de-paramos-tungurahua-y-lucha-contra-la-pobreza/>.
- Video: 90-minute Nature for Life Hub session on ‘Nature for Water’ with a range of different sessions, available at <https://youtu.be/n-A-lq37N9I>. More content from the past four years of the Nature for Life Hub, including content on nature for water security, is available at www.NatureForLifeHub.org.
- Video: 4-minute introductory video on the role of nature in providing water security, by The Nature Conservancy, available here: <https://vimeo.com/77811268>.

EXAMPLES OF UNDP'S WORK ON NATURE FOR WATER SECURITY

UNDP has a long and deep history of working on water-related projects, including on integrated water resource management, transboundary water management, ecosystem restoration, ecosystem-based adaptation, water governance, water access, water security and water quality, with a portfolio of projects in 140 countries. Perhaps less well known are the many projects within UNDP's ecosystem and biodiversity portfolio that indirectly but substantially support safe and sustainable access to water at a national level – more than 300 nature-related current projects across 143 countries, with a total value of more than USD 3 billion, contain some aspect of water security. Below are four examples.

ENHANCED WATER SECURITY AND COMMUNITY RESILIENCE IN THE ADJACENT CUVELAI AND KUNENE TRANSBOUNDARY RIVER BASINS

The Cuvelai and [Kunene river](#) basins, located between Angola and Namibia, play a crucial role in water resources for both countries. This \$3 million project in Angola aims to enhance water security and livelihoods through improved transboundary water management, by fostering joint management, establishing intergovernmental structures, strengthening ecosystem management capacity, and enhancing nature-dependent livelihoods and community resilience. Learn more at the [project website](#).



INTEGRATED WATER MANAGEMENT PROJECT – PIONEERING APPROACH IN SRI LANKA

Sri Lanka, among the top 10 nations affected by climate change, faces increased floods and droughts, impacting crop yields, food security, and water quality. The 'Climate Resilient Integrated Water Management' project aims to revive ancient irrigation systems in three river basins, addressing water management and safe drinking water. This pioneering first-of-its kind nationwide initiative led by the Government of Sri Lanka and supported by UNDP, sets a precedent for integrated water management, fostering collaboration across diverse stakeholders and influencing future river basin planning. Learn more at the [project website](#).



ADDRESSING WATER SECURITY THROUGH RESTORATION IN THE PREK THNON WATERSHED PROJECT OF CAMBODIA

The Collaborative Management for Watershed and Ecosystem Service Protection and Rehabilitation (CoWES) project in Cambodia addresses land degradation, a threat to food and water security. Focused on the Upper Prek Thnot watershed, it aims to enhance soil conservation, restore community forests, and improve watershed management. Learn more through [UNDP Cambodia's website](#) and a short [video](#).



CONSERVATION AND SUSTAINABLE MANAGEMENT IN LAKE SEVAN BASIN FOR MULTIPLE BENEFITS

The UNDP-GEF project, '[Conservation and Sustainable Management of Land Resources and High Value Ecosystems in Lake Sevan Basin for Multiple Benefits](#)' aims to promote sustainable land management, with the co-benefits of improved soil water storage, decreased soil erosion, improved soil organic matter and improved watershed management, and improved water security for surrounding communities. Lake Sevan is Armenia's largest freshwater body and a vital source of irrigation water. It is also a source of aquaculture and hydropower, with direct impacts on the region's economic potential.



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United Nations Development Programme (UNDP)

UNDP is the leading United Nations organization fighting to end the injustice of poverty, inequality, and climate change. Working with our broad network of experts and partners in 170 countries, we help nations to build integrated, lasting solutions for people and planet. Learn more at undp.org or follow [@UNDP](https://twitter.com/undp).

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