

Hydro Politics

Newsletter

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Why should we change our water use and water management paradigm?

Water resources are unequally dispersed on the earth and under the pressure of climate change, population growth, migration and contamination. Currently, nearly 2 billion people have difficulty access to clean water and live away from a healthy environment



Our current resources in the world are capable of feeding 12 billion people annually. However, unfortunately, the resources that can be produced in one year worldwide have been depleted earlier and earlier every year since the 1970s. In terms of resource use, scientists explain that we now start consuming the next year's crop just after half of each year. This date is going forward rapidly every year. Nature needs to renew itself in certain periods for regeneration. However, by consuming more than what is produced, we do not give nature the time it needs to regenerate itself.



Human beings's ecological footprint grows every year. The gap between the world's biocapacity and human ecological footprint is widening. Under current production and consumption conditions, a 1.7 times larger world annually would be required for biocapacity to be sufficient for the ecological footprint.

We have been pushing the limits of our natural resources for more consumption for a long time. This includes our water resources.

Approximately 65- 70% of freshwater resources in the world is used for irrigation purposes. Approximately 40% of the world's total food production is produced on irrigated lands. Irrigated agriculture is, on average, at least twice as productive per unit of land as rain-fed agriculture. It allows more intensive production and product diversity.

As the effects of climate change increase, the need for irrigated agriculture and therefore the need for water will also increase. For this reason, more efficient use of water in all sectors is vital. Therefore sustainable water management becomes much more important.

The pressures and uncertainties facing water resources require us to make radical changes in our understanding of water management and water use.

Dursun Yıldız

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Water – at the center of the climate crisis



Climate change is exacerbating both water scarcity and water-related hazards (such as floods and droughts), as rising temperatures disrupt precipitation patterns and the entire water cycle. Water and climate change are inextricably linked. Climate change affects the world's water in complex ways. From unpredictable rainfall patterns to shrinking ice sheets, rising sea levels, floods and droughts – most impacts of climate change come down to water (UN Water). Climate change is exacerbating both water scarcity and water-related hazards (such as floods and droughts), as rising temperatures disrupt precipitation patterns and the entire water cycle (UNICEF).

Get more facts on climate and water below.

Water scarcity

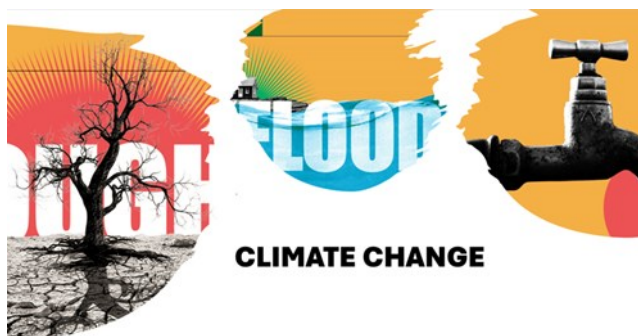
- ◆ About two billion people worldwide don't have access to safe drinking water today (SDG Report 2022), and roughly half of the world's population is experiencing severe water scarcity for at least part of the year (IPCC). These numbers are expected to increase, exacerbated by climate change and population growth (WMO).
- ◆ Only 0.5 per cent of water on Earth is useable and available freshwater – and climate change is dangerously affecting that supply. Over the past twenty years, terrestrial water storage – including soil moisture, snow and ice – has dropped at a rate of 1 cm per year, with major ramifications for water security (WMO).
- ◆ Water supplies stored in glaciers and snow cover are projected to further decline over the course of the century, thus reducing water availability during warm and dry periods in regions supplied by melt water from major mountain ranges, where more than one-sixth of the world's population currently live (IPCC).

- ◆ Sea-level rise is projected to extend salinization of groundwater, decreasing freshwater availability for humans and ecosystems in coastal areas (IPCC).
- ◆ Limiting global warming to 1.5°C compared to 2°C would approximately halve the proportion of the world population expected to suffer water scarcity, although there is considerable variability between regions (IPCC).



- ◆ Water quality is also affected by climate change, as higher water temperatures and more frequent floods and droughts are projected to exacerbate many forms of water pollution – from sediments to pathogens and pesticides (IPCC).
- ◆ Climate change, population growth and increasing water scarcity will put pressure on food supply (IPCC) as most of the freshwater used, about 70 per cent on average, is used for agriculture (it takes between 2000 and 5000 liters of water to produce a person's daily food) (FAO).





Water-related hazards

- ◆ Climate change has made extreme weather events such as floods and droughts more likely and more severe (IPCC).
- ◆ Rising global temperatures increase the moisture the atmosphere can hold, resulting in more storms and heavy rains, but paradoxically also more intense dry spells as more water evaporates from the land and global weather patterns change. (World Bank)
- ◆ Drought and flood risks, and associated societal damages, are projected to further increase with every degree of global warming (IPCC).
- ◆ The frequency of heavy precipitation events will very likely increase over most areas during the 21st century, with more rain-generated floods. At the same time, the proportion of land in extreme drought at any one time is also projected to increase (IPCC).
- ◆ Water-related disasters have dominated the list of disasters over the past 50 years and account for 70 per cent of all deaths related to natural disasters (World Bank).
- ◆ Since 2000, flood-related disasters have risen by 134 per cent compared with the two previous decades. Most of the flood-related deaths and economic losses were recorded in Asia (WMO). The number and duration of droughts also increased by 29 per cent over this same period. Most drought-related deaths occurred in Africa (WMO).

Water solutions

- ◆ Healthy aquatic ecosystems and improved water management can lower greenhouse gas emissions and provide protection against climate hazards (Water and Climate Coalition).
- ◆ Wetlands such as mangroves, seagrasses, marshes and swamps are highly effective carbon sinks that absorb and store CO₂, helping to reduce greenhouse gas emissions (UNEP).
- ◆ Wetlands also serve as a buffer against extreme weather events (UNEP). They provide a natural shield against storm surges and absorb excess water and precipitation. Through the plants and microorganisms that they house, wetlands also provide water storage and purification.
- ◆ Early warning systems for floods, droughts and other water-related hazards provide a more than tenfold return on investment and can significantly reduce disaster risk: a 24-hour warning of a coming storm can cut the ensuing damage by 30 per cent (WMO).
- ◆ Water supply and sanitation systems that can withstand climate change could save the lives of more than 360,000 infants every year (New Climate Economy report).
- ◆ Climate-smart agriculture using drip irrigation and other means of using water more efficiently can help reduce demand on freshwater supplies (UNEP).

Source :<https://www.un.org/en/climatechange/science/climate-issues/water#:~:text=Climate%20change%20is%20exacerbating%20both,climate%20change%20are%20inextricably%20linked.>

Water and Climate Change

Climate change is primarily a water crisis. We feel its impacts through worsening floods, rising sea levels, shrinking ice fields, wildfires and droughts.

However, water can fight climate change. Sustainable water management is central to building the resilience of societies and ecosystems and to reducing carbon emissions. Everyone has a role to play – actions at the individual and household levels are vital. Water and Climate Change

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Water and climate change are inextricably linked. Extreme weather events are making water more scarce, more unpredictable, more polluted or all three. These impacts throughout the water cycle threaten sustainable development, biodiversity, and people's access to water and sanitation.

Flooding and rising sea levels can contaminate land and water resources with saltwater or faecal matter, and cause damage to water and sanitation infrastructure, such as waterpoints, wells, toilets and wastewater treatment facilities.

Glaciers, ice caps and snow fields are rapidly disappearing. Meltwater feeds many of the great river systems. Volatility in the cryosphere can affect the regulation of freshwater resources for vast numbers of people in lowland areas.

Droughts and wildfires are destabilizing communities and triggering civil unrest and migration in many areas. Destruction of vegetation and tree cover exacerbates soil erosion and reduces groundwater recharge, increasing water scarcity and food insecurity.

Growing demand for water increases the need for energy-intensive water pumping, transportation, and treatment, and has contributed to the degradation of critical water-dependent carbon sinks such as peatlands. Water-intensive agriculture for food production, particularly meat, and for growing crops used as biofuels, can further exacerbate water scarcity.

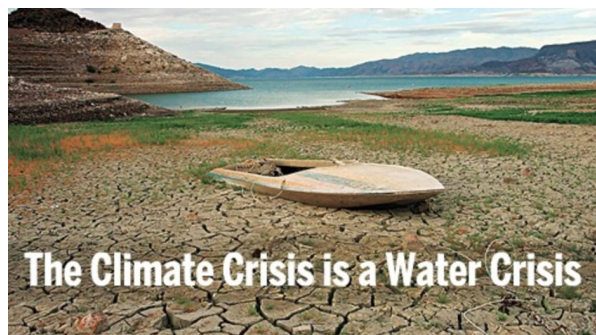
The way forward



Climate policymakers must put water at the heart of action plans. Sustainable water management helps society adapt to climate change by building resilience, protecting health and saving lives. It also mitigates climate change itself by protecting ecosystems and reducing carbon emissions from water and sanitation transportation and treatment.

Politicians must cooperate across national borders to balance the water needs of communities, industry, agriculture and ecosystems.

Innovative financing for water resource management will be needed to help attract investment, create jobs, and support governments in fulfilling their water and climate goals.





Sustainable, affordable and scalable water solutions include:

- **Improving carbon storage.** Peatlands store at least twice as much carbon as all of Earth's forests. Mangrove soils can sequester up to three or four times more carbon than terrestrial soils. Protecting and expanding these types of environments can have a major impact on climate change.
- **Protecting natural buffers.** Coastal mangroves and wetlands are effective and inexpensive natural barriers to flooding, extreme weather events and erosion, as the vegetation helps regulate water flow and binds the soil in flood plains, river banks and coastlines.
- **Harvesting rainwater.** Rainwater capture is particularly useful in regions with uneven rainfall distribution to build resilience to shocks and ensure supplies for dry periods. Techniques include rooftop capture for small-scale use and surface dams to slow run-off to reduce soil erosion and increase aquifer recharge.
- **Adopting climate-smart agriculture.** Using conservation techniques to improve organic matter to increase soil moisture retention; drip irrigation; reducing post-harvest losses and food waste; and, transforming waste into a source of nutrients or biofuels/biogas.
- **Reusing wastewater.** Unconventional water resources, such as regulated treated wastewater, can be used for irrigation and industrial and municipal purposes. Safely managed wastewater is an affordable and sustainable source of water, energy, nutrients and other recoverable materials.
- **Harnessing groundwater.** In many places, groundwater is over-used and polluted; in other places, it is an unknown quantity. Exploring, protecting and sustainably using groundwater is central to adapting to climate change and meeting the needs of a growing population.

Source : <https://www.unwater.org/water-facts/water-and-climate-change>

Sierra Leone accelerates progress on Water Convention accession

25 January 2024

Sierra Leone shares four major rivers with the neighbouring countries of Guinea and Liberia, including the Great Scarcies, Little Scarcies and Moa shared with Guinea, and Mano River shared with Liberia.

All provide crucial freshwater that sustains ecosystems, livelihoods and the well-being of communities.

In this context, Sierra Leone has confirmed its intention to accelerate the accession process to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes.

Along with the formulation of a road map to finalize the accession process by Sierra Leone, a high-level commitment for Sierra Leone's accession was the main outcome of the National workshop organized on 23-24 January 2024 by the Ministry of Water Resources and Sanitation through the National Water Resources Management Agency (NWRMA) in partnership with the Water Convention Secretariat.



According to the Minister of Water Resources and Sanitation, Minister of Water and Sanitation, Dr. Sao-Kpato Hannah Max-Kyne, Sierra Leone has made significant efforts in water resources management, and accession to the UN Water Conventions would demonstrate the country's commitment for furthering its efforts in line with the international best practices.

The Minister of Environment and Climate Change, Mr. Jiwoh Abdulai, stressed the importance of transboundary water cooperation for biodiversity and ecosystems protection. As such, accession to the global Water Conventions will support the country's objective in climate change resilience and ecosystem restoration.

The national workshop followed the approval by the Government cabinet of accession to the Water Convention in April 2023.

Source : <https://unece.org/media/environment/Water-Convention/news/387794>



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