

Report: Water is critical for success on climate action

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New research shows that water is much more important in mitigating climate change than previously believed. Better management of water is critical to tackling today's food and energy crises, both of which are exacerbated by climate change.

The report titled "The essential drop to reach Net-Zero: Unpacking

Freshwater's Role in Climate Change Mitigation," released today, is the first-ever summary of current research on the role of water in climate mitigation. A key message is the need to better understand global water shortages and scarcity in order to plan [climate targets](#) that do not backfire in future. If not planned carefully, negative impacts of climate action on [freshwater resources](#) might threaten [water security](#) and even increase future adaptation and mitigation burdens.

"Most of the measures needed to reach net-zero carbon targets can have a big impact on already dwindling freshwater resources around the world," said Dr. Lan Wang Erlandsson from Stockholm Resilience Centre at Stockholm University. "With better planning, such risks can be reduced or avoided."

The report describes why, where, and how freshwater should be integrated into [climate change mitigation](#) plans to avoid unexpected consequences and costly policy mistakes. Even efforts usually associated with positive climate action—such as forest restoration or bioenergy—can have [negative impacts](#) if [water supplies](#) are not considered.

Done right, however, water-related and nature-based solutions can instead address both the climate crisis and other challenges, said Dr. Malin Lundberg Ingemarsson from Stockholm International Water Institute (SIWI).

"We have identified water risks, but also win-win solutions that are currently not used to their full potential. One example is restoration of forests and wetlands which bring social, ecological, and climate benefits all at once. Another example is that better wastewater treatment can reduce [greenhouse gas emissions](#) from untreated wastewater, while improving [surface water](#) and groundwater quality, and even provide renewable energy through biogas."

The report highlights five key messages on the interlinkage between water and mitigation:

- Climate mitigation measures depend on freshwater resources. Climate mitigation planning and action need to account for current and future freshwater availability.
- Freshwater impacts—both positive and negative—need to be evaluated and included in climate mitigation planning and action.
- Water and sanitation management can reduce greenhouse gas emissions. More efficient drinking water and sanitation services save precious freshwater resources and reduce emissions.
- Nature-based solutions to mitigate [climate change](#) can deliver multiple benefits for people and the environment. Measures safeguarding freshwater resources, protecting biodiversity, and ensuring resilient livelihoods are crucial.
- Joint water and climate governance need to be coordinated and strengthened. Mainstreaming freshwater in all climate mitigation planning and action requires polycentric and inclusive governance.

"Climate change mitigation efforts will not succeed if [we are] failing to consider [water needs](#)," says Marianne Kjellén, United Nations Development Programme (UNDP). "Water must be part of powerful solutions for enhancing ecosystem resilience, preserving biodiversity and regenerative food and energy production systems. In short, water security must be factored in to climate action," she adds.

"To tackle the climate, food, nature, and energy crises, water availability is of the essence. It is urgent that the world focuses all attention on the double facts that water is the number one challenge for climate adaptation due to droughts and floods, and a key challenge for mitigation, as there is no safe climate future well below 2 degrees Celsius without a functioning hydrological cycle," Professor Johan

Rockström, Potsdam Institute for Climate Impact Research, concludes.

More information: Report (PDF): [The essential drop to reach Net-Zero: Unpacking Freshwater's Role in Climate Change Mitigation](#)

Provided by Stockholm University

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