Water and climate
Climate change adaptation and mitigation in the context of international water policy

BACKGROUND

No life without water. Not only do we need it to drink, it is also essential to agriculture and energy production – either in hydropower or as cooling water for power plants. Without water, industry cannot hope to manufacture goods. And, not least, all ecosystems on Earth depend on water to survive: not only forests, but also tundras and semi-deserts.

- Water covers three quarters of our planet’s surface. However, less than 3% of it is available as freshwater.
- Water is a key factor in the global climate system. Even minor climatic alterations can have a significant effect on the regional availability and quality of water. For people, ecosystems and industries, climate change also manifests itself in the form of extreme weather events.
- Floods and droughts, generally exacerbated by climate change, are responsible for three quarters of all natural disasters.
- Two thirds of the global population are exposed to extreme water scarcity for at least one month per year.

The effects of climate change on the water cycle threaten not only the development of water supply and sanitation but also the achievement of the Sustainable Development Goals (SDGs) as a whole.

Water can play an important role in the mitigation of greenhouse gas emissions – a significant factor in considerably raising the ambition of Nationally Determined Contributions (NDCs).

- Wetlands are the biggest carbon reservoirs among land-based ecosystems. Annually, peatlands alone absorb 150 – 250 million tons of carbon dioxide (CO2) from the atmosphere, thus functioning as carbon sinks.

KEY ACTIONS AND FINANCING

One of the four main goals of the current BMZ Water Strategy is the mitigation of emissions caused by the water sector and adaptation of the sector to the effects of climate change.

- Water is the second largest sector in which the BMZ commits adaptation funding (just under 200 million euros in 2018). Currently, the BMZ has water projects in 34 countries across the world. Water is a priority area of German development cooperation in 17 countries.

Specifically, the BMZ assists its partner countries mainly in four central aspects of mitigation and adaptation in the water sector.

Flexible water storage on the Champavathi, India © MGNREBA-EB, GIZ / Travelling Tripod Films LLP
1. FLEXIBLE WATER STORAGE
Dealing with uncertainties requires robust and flexible approaches. They need to be resilient to foreseeable climate risks, on the one hand, and be adaptable to as yet unforeseeable impacts.

- Flexible water storage is a major aspect of climate-resilient water management and key to adapting to floods and periods of drought. More water can be stored by expanding retention areas and using the natural storage potential of wetlands and aquifers.

2. TRANSBOUNDARY WATER MANAGEMENT
Climate change knows no borders. So coordination and cooperation across borders is needed in addition to national strategies. The water sector can contribute its manifold experiences with transboundary resilience management.

- The BMZ supports the development of legal, institutional and political frameworks by river basin commissions aimed at cooperative management of water resources.

- Transboundary water management strengthens regional stability and the development of a shared infrastructure. And it unites countries in their efforts to adapt to climate change and protect ecosystems.

3. RESTORING WETLANDS
Water ecosystems cause significant greenhouse gas emissions but can also serve as major carbon sinks.

- The capacity of peatlands to absorb and store greenhouse gas emissions depends on the availability of water. The draining and burning of peatlands can compromise their ecological functioning and thus decrease their potential for climate protection.

4. LOW-EMISSION SANITATION SYSTEMS
Around 5% of global greenhouse gas emissions are caused by water supply and sanitation. 80% of global wastewater remains untreated and releases significant amounts of greenhouse gas emissions in the form of methane and nitrous oxide.

- Mitigation measures funded by the BMZ promote decentralised and integrated sludge management as well as the treatment and use of nutrients from wastewater.

- 25% of energy consumed in the water sector is used for wastewater treatment. More efficient water and energy use and a switch to renewable energy have enormous potential to reduce emissions.