

Promotion of a Carbon-Neutral Water Sector

The water sector is highly vulnerable to the effects of climate change. Droughts, intense rainfall and mudslides affect drinking water and wastewater services, decreasing the availability and quality of water and damaging the utilities' infrastructure. At the same time, water and wastewater utilities in emerging countries are among the major consumers of energy, emitting significant amounts of carbon dioxide and other greenhouse gas (GHG) emissions, primarily nitrous oxide and methane, which have much more significant multiplier effects on global warming. The need to find solutions to combat climate change is therefore a central challenge for the water sector.

The Energy/Carbon Opportunity & the WaCCliM Project

The provision of drinking water and treatment of wastewater are energy-intensive processes, and thus account for a significant proportion of a utility's overall costs. Energy consumption typically represents about one third of a utility's operating costs. Water losses lead to even higher energy consumption, not uncommonly up to 70%. In addition, the wastewater treatment process can produce large amounts of methane and nitrous oxide, which further increase the carbon footprint of the water sector.

There are excellent opportunities for improving the carbon balance of water and wastewater companies by updating their technologies and management processes to create more energy-efficient systems and recovering energy, nutrients and other materials from wastewater, thus contributing to climate change mitigation.

Investments in energy efficiency and energy production in urban water systems can also be extremely cost effective. If well planned, these investments have payback times of only a few years. Meeting the carbon challenge generates a double benefit: reducing operating costs while reducing the companies' and the country's carbon footprint.

On behalf of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and the International Water Association (IWA) are working together on the project Water and Wastewater Companies for Climate Mitigation (WaCCliM) as part of the International Climate Initiative (IKI). WaCCliM engages with the international water and climate community, with national governments and with water and wastewater utility associations, focusing on four pilot companies in Jordan, Mexico, Peru and Thailand. Together with their partners, GIZ and IWA aim to improve the carbon balance of

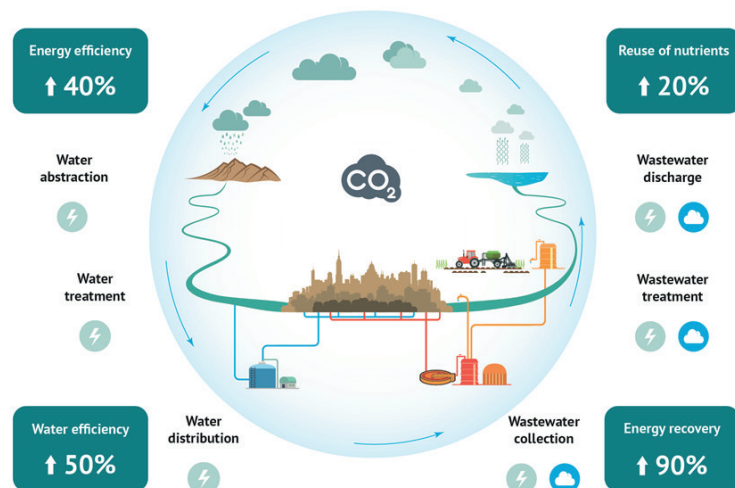
water and wastewater utilities in the four countries and beyond. At the same time, WaCCliM's objective is to ensure that these companies reduce their operational costs and maintain or improve their services. The project is being implemented from December 2013 to January 2019.

Designing solutions for climate change migration

WaCCliM demonstrates how the water sector can contribute to climate change mitigation by developing concepts for a climate-resilient and low-emission water industry based on a holistic water cycle approach.

At the **local level**, WaCCliM supports pilot utilities in identifying a series of appropriate processes and technologies to reduce the companies' energy consumption and carbon footprint. Such operational improvements aim to generate spin-off benefits such as direct savings in energy bills as well as other operational improvements and cost savings relating to labour, chemicals, maintenance and disposal costs. To achieve this, the pilot companies are supported by project experts who develop baseline studies, option studies and training courses and events to strengthen capacities on low-carbon, climate-resilient solutions.

At the **national level**, the project works with its political counterparts and national associations in the partner



countries to create an enabling environment for the financing and implementation of mitigation measures in the water sector.

At the **international level**, WaCCliM develops and scales up knowledge on water and climate change mitigation through conferences, expert groups, technical guidelines and online resources. Effective implementation will help advocate for improved financing mechanisms and political incentives to replicate the success of demonstration projects in the partner countries and elsewhere.

In addition to the results achieved in the partner countries, the project will facilitate the broader development of climate change mitigation approaches for water and wastewater companies.



Mexico

Local level: [SAPAF, SITRATA](#)

National level:

National Water Commission (CONAGUA), Secretariat of Environment and Natural Resources (SEMARNAT)

Peru

Local level: [SEDACUSCO](#)

National level:

Ministry of Housing, Construction and Sanitation

Jordan

Local level: [JORDAN WATER COMPANY-MIYAHUNA](#)

National level:

Water Authority of Jordan, Ministry of Water and Irrigation

Thailand

Local level: [WMA CHIANG MAI](#)

National level:

Wastewater Management Authority (WMA), Ministry of Natural Resources and Environment (MNRE)

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