Factsheet - Thailand

Water and Wastewater Companies for Climate Mitigation - Thailand

Water and Wastewater Companies for Climate Mitigation

WaCCliM

Background

Located in one of the global regions most vulnerable to the impact of climate change, Thailand's demand for water is increasing rapidly as the country's main economic sectors grow. Water pollution is a major environmental concern. The discharge of untreated domestic wastewater directly into water bodies is one of the main drivers of pollution, resulting in a deterioration of water sources and significant greenhouse gas (GHG) emissions.

A growing population, urbanization, industrial and agricultural expansion is increasing the demand for water and wastewater services. At the same time climate change impacts, such as severe flooding and extreme drought, increase the challenges that water managers are facing.

Wastewater treatment accounts for ~ 50 % of the total GHG emissions of the waste sector in Thailand, and contributes to high energy related emissions. Based on Thailand's nationally determined contributions (NDC) roadmap, wastewater treatment can contribute up to 30% of the total GHG mitigation potential in the Thai waste sector. Wastewater treatment is an area with huge potential for mitigation measures within the energy and wastewater sector.

Recognising the importance of climate change mitigation in the wastewater sector beyond the municipal level, the Water and Wastewater Companies for Climate Mitigation (WaCCliM) project is working with the Ministry of Natural Resources and Environment (MNRE) and the Wastewater Management Authority (WMA), to improve the carbon balance of wastewater utilities.

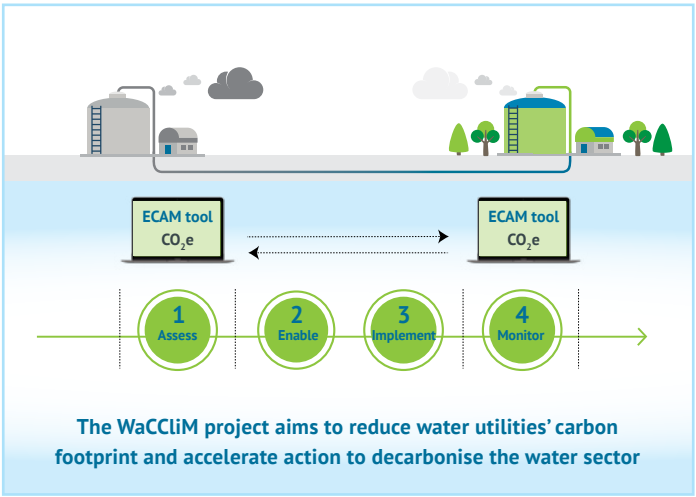
Objective

The objectives of WaCCliM are threefold:

- Introduce greenhouse gas (GHG) reduction technologies at water and wastewater utilities.
- Create an environment where the introduction of appropriate financing instruments and incentives for national mitigation strategies, help expand GHG reduction measures.
- Integrate lessons learned into international guidelines for water and wastewater companies.

Approach

WaCCliM offers utilities a roadmap to achieve energy and carbon neutrality. As a cornerstone to the roadmap, the Energy Performance and Carbon Emissions Assessment and Monitoring Tool (ECAM) supports water and wastewater utilities in reducing their carbon footprint.



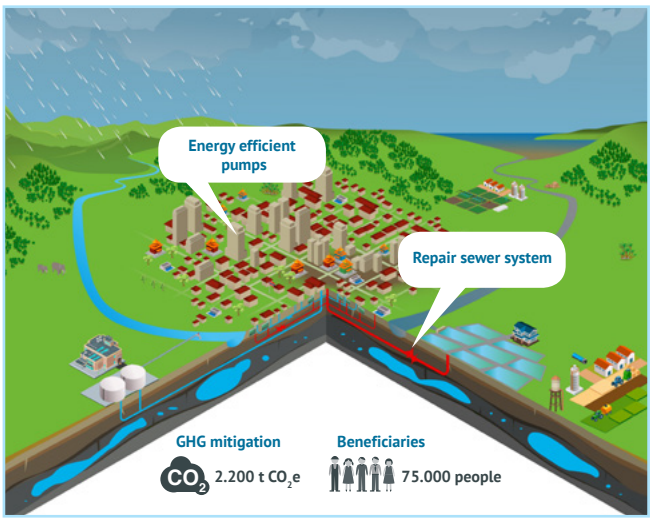
The WaCCliM project aims to reduce water utilities' carbon footprint and accelerate action to decarbonise the water sector

In Thailand, WaCCliM supports a pilot utility in Chiang Mai to assess opportunities to improve its carbon balance. Studies identified untreated wastewater due to fractured pipes in the wastewater collection system as the main source for GHGs in Chiang Mai. The large amount of untreated wastewater flowing directly into the public canal of Chiang Mai City is producing significant amounts of methane and nitrous oxide, both GHGs with a large global warming potential.

Impacts

Repairing the sewer system in Chiang Mai and improving pump energy efficiency will reduce GHG emissions by at least 12%, and will generate spin-off benefits such as direct savings in energy bills.

At the national level, WaCCliM supports WMA to improve the regulatory and policy framework for scaling up the implementation of climate mitigation measures in the wastewater sector. This includes developing a 20-year GHG mitigation strategy to reduce emissions, as well as formulating lines of action. Training workshops are being held to ensure knowledge transfer to utility staff on GHG mitigation opportunities and monitoring to wastewater companies across Thailand.



	Chiang Mai
System	Wastewater
Main Treatment	Aerated lagoon for septic tank overflow
Resident population	150.000
Energy fraction of operational costs	49%
Energy consumption	180 MWh/year
Volume of treated water	2.400.000 m^3/year

Outlook

WaCCliM supports the development of partnerships between utilities and strengthens capacities and technical know-how on reducing their carbon footprint. WaCCliM aims to expand the approach to additional utilities and provide trainings to enable carbon accounting for the water sector. Since 2016, additional utilities in Hat Yai, Sansuk and Krabi municipalities are applying the ECAM tool to assess their carbon footprints and identify improvement measures. Water utilities working with WaCCliM are becoming sector leaders, and are seizing the opportunity to become more resilient, efficient and effective in an uncertain future.

The Water and Wastewater Companies for Climate Mitigation (WaCCliM) project, is a joint initiative between the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and the International Water Association (IWA). This project is part of the International Climate Initiative (IKI). The German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) supports this initiative on the basis of a decision adopted by the German Bundestag.

The Partners

The Wastewater Management Authority (WMA), which serves under the Ministry of Natural Resources and Environment (MNRE), provides management and technical assistance to municipalities for operating wastewater treatment systems.

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