

# Water and Wastewater Companies for Climate Mitigation - Mexico



## Background

In Mexico, water and wastewater utilities have a difficult task meeting users' demands. Low tariffs, high water consumption, and an intricate legal framework have led to unsustainable water abstraction, high-energy costs, high water loss, and inadequate wastewater treatment, which contribute to high greenhouse gas (GHG) emissions. GHG emissions are driving climate change and the water sector makes a significant contribution to global GHGs. Approximately 3 -5 % of Mexico's national GHG emissions can be attributed to the water sector.

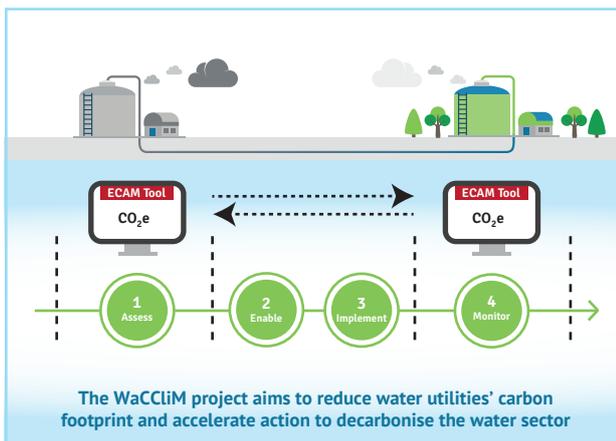


## Objective

The overall goal of WacCliM is to improve the carbon balance of water and wastewater utilities while ensuring that operational costs are reduced and services improved.

## Approach

WacCliM uses a cross-sectoral approach that links water, energy and food security to advance low GHG emissions in the Mexican water industry.



In Mexico, the WacCliM project is working with the National Water Commission (CONAGUA), the State Water Commission of Guanajuato (CEAG), and the National Water Association of Mexico (ANEAS). The pilot utilities selected are located in San Francisco del Rincón in Guanajuato state.

**At the national level,** WacCliM supports CONAGUA to improve the political, regulatory and institutional framework to develop incentives for national mitigation strategies and the introduction of appropriate financing instruments.

**At the international level,** tools and guidelines that integrate lessons learned for utilities have been developed. A carbon accounting tool (Energy Performance and Carbon Emissions Assessment and Monitoring Tool, ECAM) has been developed by the project to estimate energy and GHG emission savings so that the water sector's contribution to climate mitigation can be quantified.

## Impacts

Using the ECAM tool the Mexican pilot utilities in San Francisco del Rincón have assessed their GHG baseline and identified areas of opportunity to improve efficiency, reduce costs and reduce GHG emissions.

The two utilities of San Francisco del Rincón are pioneering the way towards sustainable, low-carbon, urban water management. Expanding wastewater treatment coverage for an additional 52,000 inhabitants has prevented **2,500 t CO<sub>2</sub>e/year** being released into the atmosphere. Untreated wastewater emits on average up to three times more GHG emissions than conventional treated wastewater.

Simultaneously, the utilities have increased their biogas yield to increase on-site energy generation, resulting in energy savings of up to 71 MWh per year. Additional measures are planned to increase the energy efficiency of pumps and reduce CO<sub>2</sub>e/year emissions by ~ 50% compared to the baseline.

WacCliM provides technical advice to partners at state level to improve wastewater strategies. Decision support processes help deliver improved national wastewater treatment strategies. So far, the project has developed a guideline for operating UASB (upflow anaerobic sludge digestion blanket).



	SAPAF	SITRATA
System	Water	Wastewater
Main Treatment	NA	Activated Sludge
Serviced population	122.200	82.500
Coverage	95%	-
Energy cost	350.000 EUR/year	140.000 EUR/year
Energy fraction of operational costs	20%	27%
Biogas production	-	400 Nm <sup>3</sup> /day
Energy consumption	3.400 MWh/year	1.500 MWh/year
Non revenue water	40%	-
Volume	7.150.000 m <sup>3</sup> /year*	5.200.000 m <sup>3</sup> /year**
Volume of reused water	-	31.600 m <sup>3</sup> /year

\* authorized consumption      \*\* treated water

## Outlook

WaCCliM works with ANEAS, and supports the development of partnerships among utilities that strengthen their capacities and technical know-how on reducing their carbon footprint. WaCCliM aims to expand the approach to additional utilities and provides training to utility staff on GHG emission reduction and monitoring in the water sector.

In the up-scaling phase, WaCCliM is engaging the State Water Commission of Guanajuato (CEAG) to promote the adoption of energy efficiency measures within the state. Special focus will be given to the state of Morelos, a region where significant potential for improvements have been identified. The approach is to use the San Francisco del Rincón experience as a model that other utilities can replicate. 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 Partners

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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.



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