

Clean water for Cape Town – South Africa

Modernisation of sewage treatment plants

Water is a key factor for the development of the South African metropolis of Cape Town. Its water supply has reached a critical point due to increased consumption and industrial usage against the backdrop of the region's continued urbanisation. At the same time, sewage repeatedly makes its way into the ocean unfiltered, which has consequences for the ecosystem. KfW is thus supporting Cape Town on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ) as it tackles these problems, and is financing the modernisation of obsolete and overburdened sewage treatment plants. To this end KfW has, for the first time, granted a loan directly to a city. The aim of the project is to improve the climate efficiency of sewage treatment and increase the purification performance of existing sewage treatment plants. An additional objective is to increase water availability by processing treated sewage.

Background

About 50,000 people move to Cape Town every year, and the city continues to grow. However, infrastructure expansion in this metropolis on Table Bay in the south-west part of the Republic of South Africa cannot keep up with such rapid population growth. The municipal sewage treatment plants in particular are groaning under the strain. Their capacity was designed for the Cape Town of 1990, not for a rapidly growing metropolis that now has 4.5 million inhabitants.

The weather phenomenon El-Niño caused a rainfall deficit in 2015, which in turn created a dramatic water

supply crisis in southern Africa. The acute threat of "Day Zero", the day on which no more water will come out of the taps, clearly showed Cape Town just how dependent the urban population is on climatic conditions. The city's population relies on a good water supply and sanitation. Inadequate sewage disposal can ultimately lead to water-borne diseases.

The city currently operates 26 sewage treatment plants that have not only reached the limits of their capacity, but some operate extremely inefficiently with regard to energy consumption. For this reason, urban management is planning to invest in modernisation and expansion of individual sewage treatment plants.

Project name	Cape Town urban sanitation system climate initiative
Commissioned by	German Federal Ministry for Economic Cooperation and Development
Country/Region	South Africa
Project partner	City of Cape Town





The Zandvliet sewage treatment plant; in the background a township.
Source: KfW Group, photographer: Thomas Schuch

Project approach

Instead of seeping into the ground or leaking out unchecked, the sewage, particularly from residents of the many townships, is slated for treatment in one of the municipal sewage treatment plants. Some of the plants from the fifties and sixties that are technically obsolete are to be expanded and repaired. This will prevent some of the sewage from continuing to make its way untreated into the ocean and pollute coasts and beaches, as scientists determined in a study published in 2017.

On behalf of the German Federal Government, KfW Development Bank is directly providing the city of Cape Town a loan of EUR 80 million to promote energy efficient and environmentally and economically sustainable urban sewage disposal. This is KfW's first local currency loan granted directly to a municipality in a Financial Cooperation partner country.

One specific focus of the project is on increasing the energy efficiency of the plants – an important issue in a country like South Africa, which still generates nearly 75% of its electricity from coal. One of KfW's further priorities in Cape Town is expanding capacity: after many years of investment backlog, the sewage infrastructure will finally be adapted to the rapidly increasing number of inhabitants. The quality of the purification process will thereby be increased to such an extent that recycling the water for process water will be improved overall. This includes also improved treatment of the sewage sludge and reduction of methane gas emissions during plant operation.

Impact

Increasing the maximum capacity of the sewage treatment plants increases the amount of water that can be used as process water for use in agriculture, industry and tourism. The efficiency of the plants will be increased through this rehabilitation, thus reducing their energy consumption and the operating costs for the municipal operators.

Modernising the sanitation system will better prepare the city to handle the impacts of climate change and deal with periods of drought caused by water scarcity. Climate resilience in the Western Cape region will increase overall.

The project is the first of a series included in the "Clean Oceans Initiative" that was founded in October 2018 by KfW together with the European Investment Bank (EIB) and the French development bank AFD. Its impacts are contributing to the "Clean Water and Sanitation" and "Life Below Water" Sustainable Development Goals (SDGs).

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