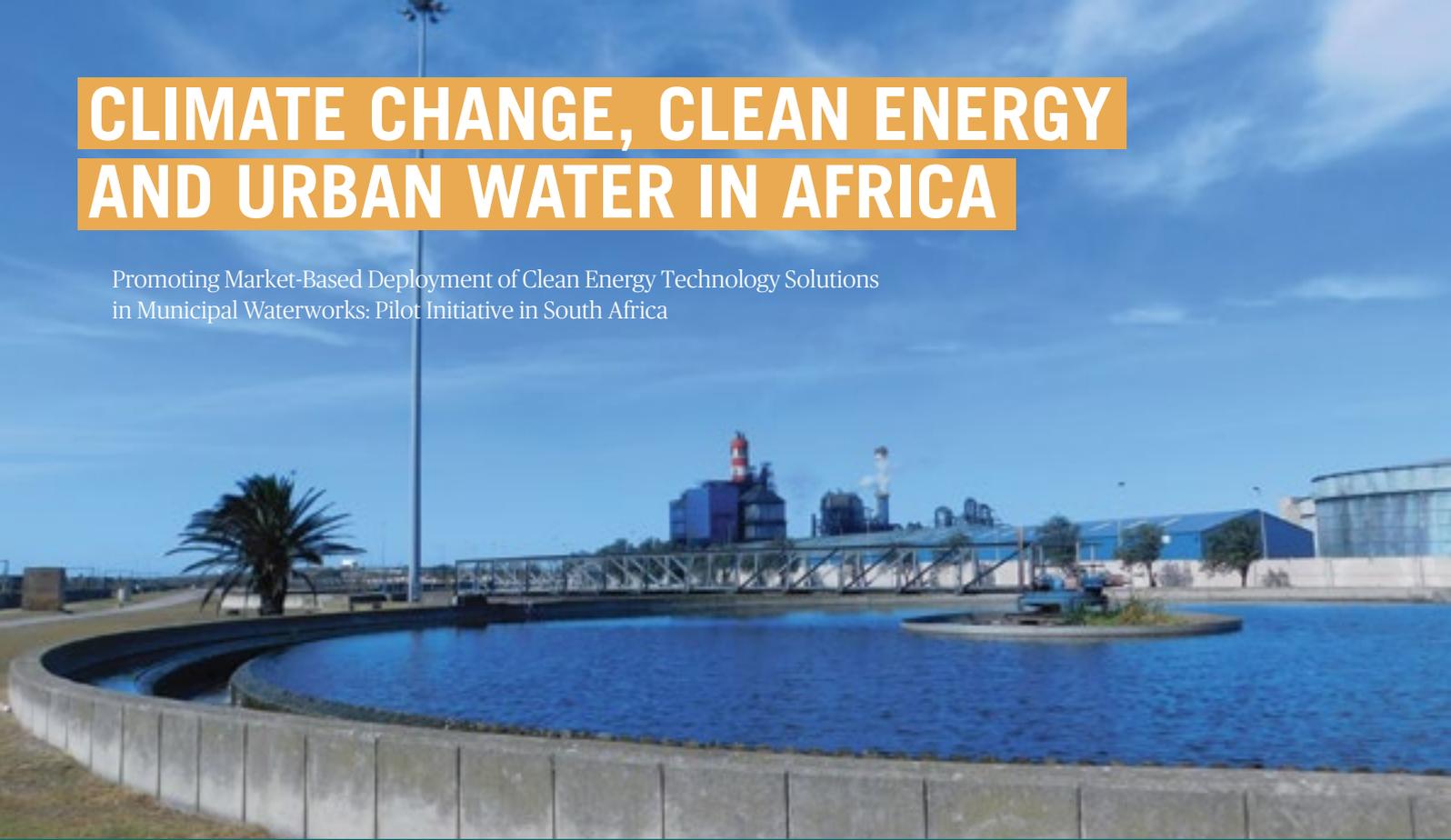


CLIMATE CHANGE, CLEAN ENERGY AND URBAN WATER IN AFRICA

Promoting Market-Based Deployment of Clean Energy Technology Solutions
in Municipal Waterworks: Pilot Initiative in South Africa



REEEP[®]





Aeration ponds near Groblershoop
in !Kheis Local Municipality. Credit:
Thomas Duggan for REEEP.



Water and wastewater systems form the core infrastructure that underpins delivery of water and sanitation services in cities. With pumps and other equipment running 24 hours a day, they are also among the largest consumers of electricity in municipalities - and therefore generate substantial costs and greenhouse gas (GHG) emissions. As cities, particularly in the developing world, continue to grow rapidly, demand for water and wastewater services will continue to rise, increasing pressure on underlying infrastructure. Decisive action is required to manage both the environmental and financial impacts of providing water and sanitation as essential services to growing urban populations.

Clean energy (CE) and energy efficiency (EE) interventions can dramatically improve efficiency and reduce GHG emissions in urban water and wastewater infrastructure. They have proven to operate cost-effectively, with investment payback periods of often only a few years. However, municipalities often lack both the capacity and financial means to plan, fund and implement such interventions.

This 2.5-year pilot project seeks to catalyse commercial activity to reduce GHG emissions in municipal water and wastewater infrastructure. It creates pathways to empower municipalities to build capacity, identify appropriate technical interventions, access finance and ultimately deploy CE and EE technologies and systems in their water and wastewater infrastructure. The project execution team works directly with two host municipalities in South Africa and aims to create a solid base for replication across the country and in Sub-Saharan Africa.

The project is financed by the European Commission, with UNIDO as Implementation Agency and REEEP as Execution Partner. Project activities are overseen by a Project Steering Committee comprising the South African Departments of Environmental Affairs (DEA), Energy (DoE), Water and Sanitation (DWS) and other key national stakeholders.

PILOT MUNICIPALITIES

The two host municipalities participating in this pilot project are !Kheis Local Municipality and Nelson Mandela Bay Metropolitan Municipality. The work with these municipalities has revealed that despite vast differences between them in terms of population size, geography and climatic conditions, in important respects they

face similar challenges in their attempts to upgrade their water and wastewater infrastructure. The goal is, now, to define a 'model pathway.' That is: a series of actions to help guide the municipal sector to implement EE and CE solutions in its water and wastewater infrastructure.

(Census data 2011)	!Kheis Local Municipality	Nelson Mandela Bay Metropolitan Municipality
Project Site Selected	15 Sites including Groblershoop Water Treatment Works	Fishwater Flats Wastewater Treatment Facility
Population	16,637	1,152,115
Population Density, people per km ²	1	588
% Agricultural Households	29%	4%

MAPS

Port Elizabeth



Groblershoop





A raw water abstraction pump, drawing water from the Orange River for drinking water provision in !Kheis Local Municipality. Credit: Thomas Duggan for REEEP.

During the project's inception phase, technical assistance plans were developed in consultation with the two pilot municipalities. This led to close collaboration with the National Cleaner Production Centre of South Africa (NCPC-SA), which facilitated energy audits and conducted accredited energy training for the municipalities' technical teams - a country first for South Africa. Through this work, detailed baseline energy usage information was collected, which informed the identification of key project sites for CE and EE interventions. During the project's implementation phase, each municipality is receiving assistance to procure appropriate technology to implement agreed CE and EE interventions in their respective waste and wastewater infrastructure.

In parallel with the technical work, the project execution team has led an intensive stakeholder engagement programme, including convening four stakeholder roundtable events. These roundtables bring together, often for the first

time, representatives of different departments in municipalities, the finance sector, private sector technology providers, key industry bodies and national government officials. Input gathered from stakeholders at the roundtables has proven instrumental in ensuring the project's activities are tailored to, and address, market needs. Discussion topics have included barriers to greater engagement between municipalities and the private sector, the procurement pathways municipalities must navigate to implement CE and EE measures in their water infrastructure, and sourcing appropriate finance for CE interventions. Lessons learned at these roundtables are integrated into the model pathway and serve to ensure that project interventions, adapted as necessary for local conditions, can be of use to municipalities across South Africa and Sub-Saharan Africa. They will also be leveraged in policy recommendations to the South African government, which will highlight project learnings to inform policy reform efforts, with the ultimate aim of making it easier for municipalities to identify, evaluate

and subsequently procure and fund CE and EE improvements to their water and wastewater infrastructure.

During the remainder of the project's implementation phase, the project execution partners will continue to work closely with both pilot municipalities to implement fit-for-purpose CE and EE interventions and continue their capacity building efforts. Furthermore, lessons learned will be published, policy recommendations refined through ongoing project learnings and tailored events hosted to help other municipalities across South Africa replicate successful project outcomes.

For further information on this project, or to attend future stakeholder roundtables or other events, please contact info@reeep.org.

www.reeep.org
www.unido.org

The Climate Change, Clean Energy and Urban Water project aims to tap into the enormous potential for energy efficiency gains and cost savings in African municipal water infrastructure. Our approach consists of four main parts:



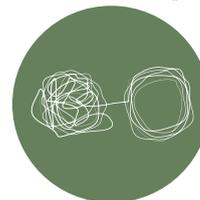
Building Capacity: The project provides training to municipal technical managers to help them identify, procure, finance, install and operate fit-for-purpose clean energy interventions in municipal water infrastructure.



Connecting Stakeholders: The project creates opportunities for representatives of municipalities, the private sector, financiers and government to meet and discuss challenges and opportunities, improve mutual understanding and remove barriers for future cooperation.



Laying Foundations: The project assists municipalities in carrying out energy audits and other baseline studies, so that technical interventions can be identified and selected based on reliable data, and any energy and cost savings proven.



Untangling Procurement Processes: The project helps municipal technical managers identify and navigate the procurement pathways that must be followed to upgrade their water and wastewater infrastructure, and facilitates a dialogue with private sector stakeholders to enable them to respond effectively to municipal tenders.