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Capacity Development for Water Conservation & Water Demand Management

Maruleng Municipality

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Introduction

The Olifants River Water Supply System provides water for domestic and industrial water use purposes, irrigation, mining and power generation. The system serves more than 3 million people comprising 18 local municipalities and parts of City of Tshwane metro inside the catchment area and Polokwane and Mokopane and their surrounding rural areas outside of the catchment area.

Key results from the Reconciliation Strategy for the Olifants River Water Supply System (DWS, 2015) indicate that the system is under stress and the demand is expected to exceed the supply by 2017 once the ecological reserve is implemented. The situation is exacerbated by poor water quality from coal mining activities in the area, and in particular acid water decanting from existing and defunct mines.

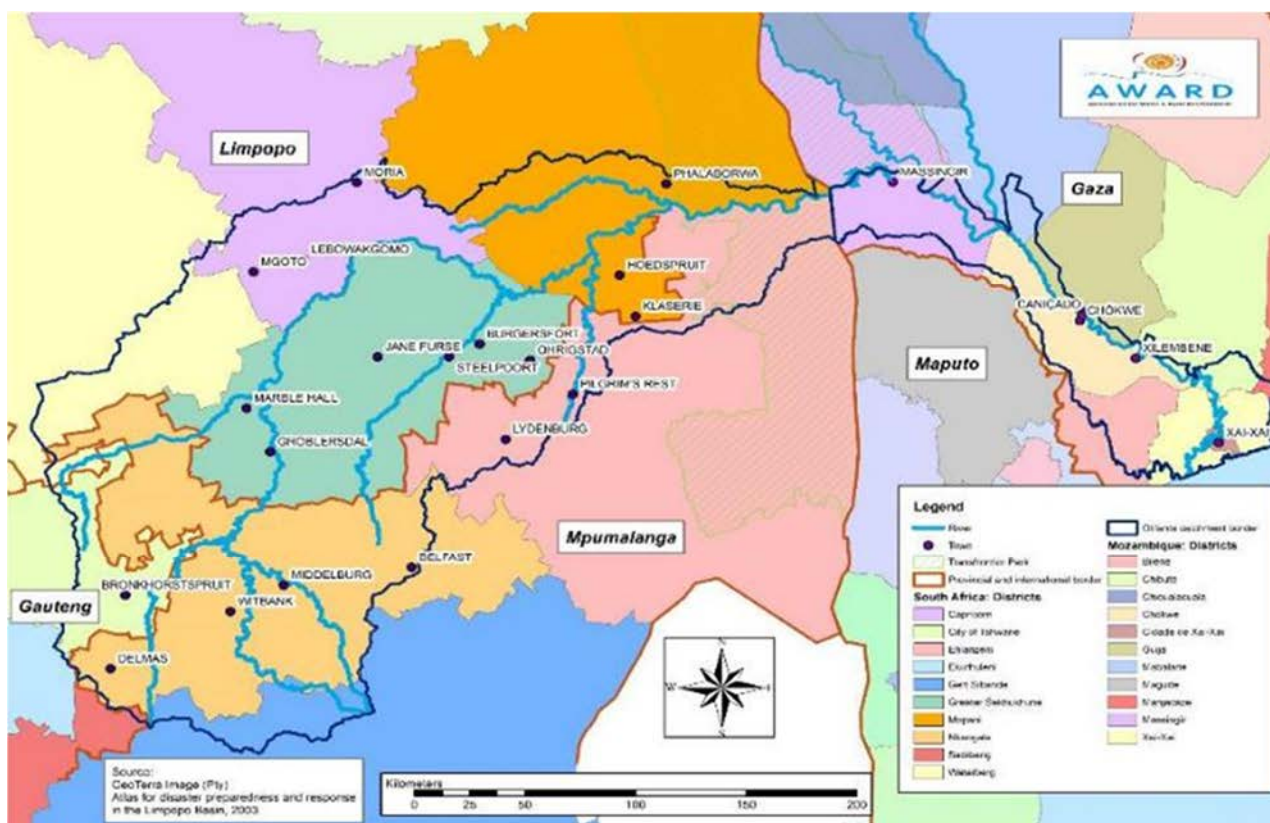


Figure 1: Olifants River basin



The following interventions were projected prior to the project implementation and are necessary to overcome the expected water deficit from 2017:

- Water Conservation and Demand Management for the Irrigation, Urban and Mining Water Use Sectors - phased in over 5 years for the former two sectors and over 10 years for the latter, all from 2013. A reduction in urban consumption of 20 million m³/annum has been set over this period.
- Eliminating unlawful water use - phased in over 5 years from 2015.
- Groundwater development from 2012 over the next 23 years.
- Treatment of additional decant water from existing and decommissioned and rehabilitated coal mines.
- Interventions that will increase the water supply:
 - Removal of invasive alien plants - implemented over 25 years from 2010. (A continuation of the programmes already running).
- Maruleng municipality is situated in the Olifants catchment area. Maruleng local municipality has no WCWDM programmes while its water losses and non-revenue water are in excess of 50% and it is unlikely that water services could be sustained unless urgent WCWDM interventions are undertaken. Maruleng needs to reduce its consumption by 10% in the next two years to ensure that the overall target of 20 million m³/a reduction by 2018 is achieved.
- Sewage water reuse in Polokwane and Mokopane.

Project Objectives

- Development of a WCWDM strategy and business plan for Maruleng and Ba-Phalaborwa local municipalities.
- Focus on the enhancement of long-term water security and protection, climate change adaptation and catchment resilience through the reduction of water losses, non-revenue water and the improvement of water use efficiency
- Detailed analysis to
 - Identify and quantify water loss contributing factors.
 - Identify potential interventions, budgets and timelines.
 - Prepare business plan to unlock funding for implementation.
- Training and capacity building through social learning and systems thinking

Project Activities

- Task 1 - Desktop study, collect and collate information about the supply system in Maruleng
- Task 2 - Skills gap assessment, training and capacity building
- Task 3 - Knowledge Attitude Perception survey
- Task 4 - Schools audit and awareness campaign
- Task 5 - Field investigations
- Task 6 - Retrofitting and repairs
- Task 7 - Pressure and flow logging
- Task 8 - Analysis, completion report and documentation
- Task 9 - Development of a WCWDM strategy and business plan
- Task 10 - Stakeholder workshops and strategy approval
- Task 11 - Media and communication strategy



A number of institutions joined the training. There were members from the Local municipalities: Maruleng and Phalaborwa, the Dept. of Public Works, the DWS. Nine modules were completed and certificates were awarded.

Figure 2: A number of officials were trained in matters of WCWDM

Project Findings

- Water use in Hoedspruit-Kampersrus cluster is still within the licenced abstraction and capacity of the water treatment plant but well above the assumed consumption.
- There are very little seasonal fluctuations in the demand.
- Field investigations indicate that there is a lack of maintenance and consumer metering is poor.

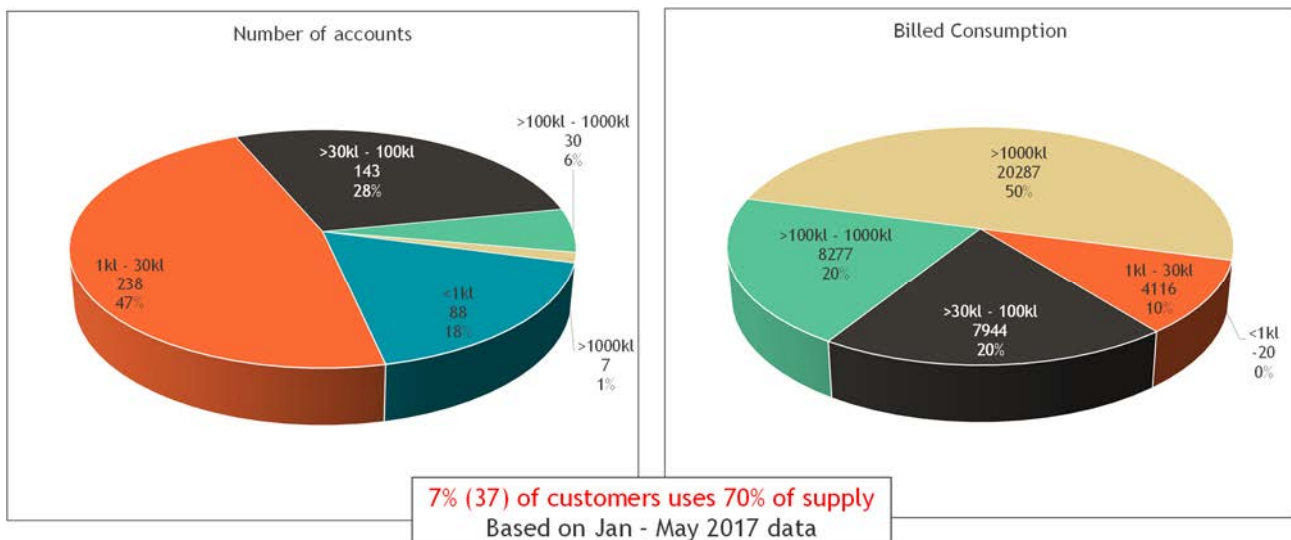


Figure 3: Number of accounts vs billed consumption

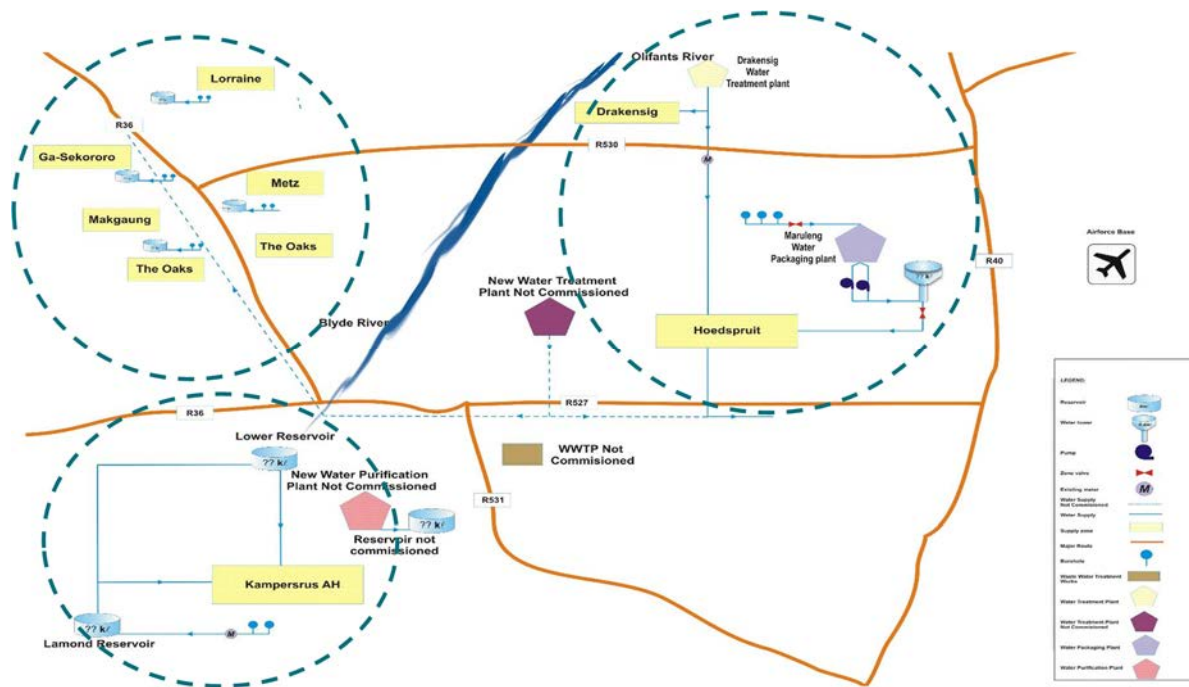


Figure 4: Scheme of water service clusters in Maruleng

- Water loss key performance indicators for Maruleng indicates high water losses 44%, high non-revenue water 46.8% and inefficient water use (762ℓ/c/d).
- Flow and pressure logging profiles are stable.
- A total of 88 or 18% of accounts have a zero consumption and the average consumption is very high at 84 kℓ/household/month.
- 7 consumers use in excess of a 1000 kℓ per month. Emphasis should be placed on the top consumers as (5%) consumers uses 349 961 kℓ/month (50%) of the total water billed.
- There is scope for community awareness and training.
- Water tariffs are very low and do not promote water use efficiency.



Figure 5: Lack of water management



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The Association for Water and Rural Development

AWARD is a non-profit organisation specialising in participatory, research-based project implementation. Their work addresses issues of sustainability, inequity and poverty by building natural-resource management competence and supporting sustainable livelihoods. One of their current projects, supported by USAID, focuses on the Olifants River and the way in which people living in South Africa and Mozambique depend on the Olifants and its contributing waterways. It aims to improve water security and resource management in support of the healthy ecosystems to sustain livelihoods and resilient economic development in the catchment.

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About USAID: RESILIM-O

USAID: RESILIM-O focuses on the Olifants River Basin and the way in which people living in South Africa and Mozambique depend on the Olifants and its contributing waterways. It aims to improve water security and resource management in support of the healthy ecosystems that support livelihoods and resilient economic development in the catchment. The 5-year programme, involving the South African and Mozambican portions of the Olifants catchment, is being implemented by the Association for Water and Rural Development (AWARD) and is funded by USAID Southern Africa.

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