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Using what we have wisely!

A water conservation & water demand management strategy for Maruleng

Maruleng Municipality is situated in the Olifants River Catchment where water resources are under threat and we are facing an increasingly precarious situation with greater water insecurity and growing inequity.

Recent work by the Department of Water and Sanitation indicates that water consumption in the catchment is extremely high and losses are in excess of 50% in some municipalities. To address potential water shortages, reduce losses and increase security of supply, all municipalities - such as Maruleng need to develop a Water Conservation and Water Demand Management (WCWDM) strategy. It is unlikely that water services can be sustained unless urgent WCWDM interventions are undertaken. This flyer summarises the WCWDM strategy for Maruleng as part of the on ongoing activities of AWARD's RESILIM- O project under the grant from USAID: Southern Africa.

This AWARD initiative is designed to support the collaborative development of a WCWDM strategy and business plans for the local municipality and district. This offers the municipality an opportunity to improve Maruleng municipal water services, to positively contribute towards the protection of the Olifants River Catchment through improved climate change adaptation, biodiversity conservation (terrestrial and aquatic), natural resources management, and livelihoods, especially of the poor and the vulnerable.

"The Olifants Catchment is our home and it is worth investing in its future. The work reported here is part of the ongoing activities of AWARD's RESILIM- O project under the grant from USAID: Southern Africa.

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Some important terms

- Water Conservation & Water Demand Management (WCWDM): WC is the minimisation of loss or waste, the care and protection of water resources and the efficient and effective use of water. WDM is the adaptation and implementation of a strategy by a water institution to influence the water demand and usage of water in order to meet any of the following objectives: economic efficiency, social development, social equity, environmental protection, sustainability of water supply and services and political acceptability.
- Non-revenue water (NRW): NRW is the volume of water supplied by the water utility (e.g. municipality) but for which it receives no income. NRW consists of unbilled water (metered or unmetered) that was a) authorised for consumption and b) water losses. Water losses are the sum of "apparent" losses (theft, meter inaccuracies and transfer errors) and real or physical losses (leaking and burst pipes). High levels of NRW are detrimental to the financial viability of water utilities and service delivery.

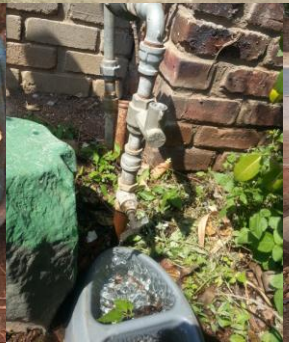
What are the legal requirements?

The development and implementation of a WCWDM strategy is a legal requirement and critical in terms of water security and achieving national strategic objectives.

Field Investigations

Field investigations were undertaken to validate the information collected during the desktop study, assess the condition of the water infrastructure and obtain an understanding of the system operations.

The Hoedspruit-Kampersrus water supply system was the focus of the study. Limited investigations were undertaken in the Mametja Sekororo system given the malfunctioning infrastructure and small amounts of water used



Key findings for Hoedspruit-Kampersrus

- Water Use:
  - Findings revealed extremely high water use in Hoedspruit-Kampersrus with an average of **573 ℓ per person per day** compared to the national average of 233 ℓ per person per day.
  - The average billed consumption is 84 m^3 per month per account. This is higher than usual due the large number of estates.
  - About 37 consumers (e.g. business, estates) use 70% of the total water billed
  - There are a large number of "zero consumption" figures (18%), especially in Hoedspruit.

- Water Losses And Infrastructure:
  - The results indicate **high water losses** of 44.2% which is well above international standards for well-managed systems and the national average of 35.9%.
  - The high non-revenue water and water losses support the high minimum night flows and suggests lack of effective metering, reading, billing and cost recovery systems.
  - There are a large number of visible leaks as a result of deteriorating infrastructure and lack of maintenance

- Revenue And Non-Revenue Water (NRW):
  - **Non-revenue water is 46.7%** which is well above international standards for well-managed systems and the national average of 35%.
  - There are approximately 1191 households in the supply area but, on average, only 393 accounts are distributed on a monthly basis.
  - The results for 2017 indicate that 88 or 18% of accounts have a "zero consumption".
  - Managing 7 'big' consumers (e.g. business and estates) can have a significant positive impact on water supply and revenue management.
  - There is a large number of "zero consumption" figures (18%), especially in Hoedspruit,
  - Maruleng has a very basic plus fixed tariff structure for residential and business consumers. **Water tariffs are very low** and do not promote water use efficiency
  - Average cost per month based on an average billed volume of 84 m^3 is as follows:

MUNICIPALITY	RESIDENTIAL (RAND)	BUSINESS (RAND)	BASIC BLOCK TARIFF
MARULENG	R 500	R 1 078	7.66
POLOKWANE	R 1 368	R 1 644	134
TSHWANE	R 1 917	R 1 630	185

  - The costs in City of Tshwane and Polokwane are significantly higher which suggest that the water tariffs in Maruleng are too low and must be reviewed to promote water use efficiency.

Key findings for Mametja Sekororo

- Water Use:
  - In general people have extremely low water use due to limited availability which, as shown by AWARD's work, constrains undertaking any value-added livelihood activities (e.g. small businesses).
  - People are paying much more for water through the informal system than in the neighbouring areas when considered as per KL cost (e.g. R100/KL compared to R5/KL).

- Water Losses And Infrastructure:
  - Most households have water tanks and rely on boreholes or springs for water supply
  - Reservoirs, pump stations, reticulation, bulk lines and a water treatment works have been constructed but are incomplete, vandalised and not commissioned.
  - Metering, billing and cost recovery are not undertaken.

Recommendations for the way forward?

WCWDM interventions will lead to a more sustainable and reliable water supply and offer a great opportunity to create sustainable employment opportunities. It can eliminate the need for intermittent supply, which leads to major infrastructure problems and water quality issues. It creates significant financial savings by postponing capital infrastructure projects and can reduce wastewater pumping cost and capacity problems in wastewater treatment plants. It is clear that there is significant scope for WCWDM in municipalities, which will result in both a reduction of non-revenue water and the total system input volume.

- A key focus initially should be on the top consumers (37 consumers using 70% of the total water billed). This would have a significant impact on water supply and revenue management
- The large number of "zero consumption" figures (18%), esp. in Hoedspruit, should be investigated.
- The municipality should focus on the proper metering and billing of the top consumers in Hoedspruit Kampersrus
- Municipality should target **250 l/c/d** and a **NRW of 35**% in line with national averages. These targets should be achievable with the current infrastructure, financial and human resource capacities.
- Potential savings will contribute to enhancement of long-term water security and protection, climate change adaptation and catchment resilience
- Water conservation campaigns are required to address water wastage and improve efficiency
- The municipality should improve metering, reading, billing and cost recovery to reduce non-revenue water and increase efficiency.

- Customers should understand their water consumption and account. Informative billing would promote water use efficiency and a culture of paying for water services.
- Payment would encourage residents to use water more sparingly and wisely and to be more aware of the importance of water conservation.
- Municipalities need to improve timelines of responding to enquiries and complaints
- It is estimated that by reducing the input volume by 55%, increasing billed consumption income by 15% the project should be paid for within 3.0 years. Applying a rising block tariff would further increase revenue and promote WCWDM thereby shortening the payback period

Results have highlighted the magnitude of the water crises problems affecting the Municipality and its community members. It is clear that Maruleng Local Municipality faces challenges regarding access to water and provision of good quality water that it perceived safe to drink by consumers.

The *Association for Water & Rural Development (AWARD)*

AWARD is a non-profit organisation specializing 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 program, 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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