



## Project Sheet

### Project Somarela Thothi water loss reduction project

**LOCATION:** Greater Gaborone. Areas supplied from the Gaborone, Nnywaane and Mmamashia WTWs and Ramotswa boreholes, with focus on Gaborone City, Mogoditshane, Tlokweng, Ramotswa, Oodi, Lobatse and Mochudi clusters.

**PROJECT TITLE:** Implementing agent for Project Somarela Thothi water loss reduction project

**CUSTOMER:** German Development Corporation (GiZ), FNB Foundation and Botswana Water Utilities Corporation (WUC)

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**STATUS:** Final stages of completion **DURATION:** March 2015 to February 2016

**OBJECTIVE:** Reduce water losses and increase awareness among consumers

**CHALLENGE:** WUC is faced with the worst drought in 30 years and started implementing water rationing in April 2013. The WUC is currently only able to supply 60% of the average supply before rationing was introduced, due to water resource and infrastructure constraints. Both Gaborone and Bokaa dams failed in 2015.

#### DESCRIPTION

The one year project, which is a partnership between GiZ, Water Utilities Corporation (WUC) and FNB Foundation, aimed to reduce the current water demand through the implementation of social and technical water loss reduction initiatives. The social interventions would focus on creating awareness to conserve water through promotional material, schools awareness campaigns and outreach activities. The technical interventions would focus on bulk metering and sectorisation to assess the leakage in the Greater Gaborone supply area and pressure management.

- Analysis of the top consumers indicated that 97% of customers use less than 50 kℓ/month and the remaining 3% (3192) of customers is responsible for 52% of the demand. Top consumers were found to be mainly schools, wet industries such as abattoirs and breweries and government institutions such as prisons, health facilities and military services.

#### PROJECT VALUE

The project was divided into three main tasks, with each task being funded by a different partner.

FNB	Community awareness	R 1.16 mil
WUC	Bulk meters & sectorisation	R 1.34 mil
GiZ	Pressure management	R 2.86 mil
<b>Total</b>		<b>R 5.36 mil</b>

#### RESULTS

##### Social interventions

- Seven water conservation officers, from WUC, were appointed and trained to perform community awareness.
- Four water conservation brochures, on "Savings Water in the Home"; "Water Restrictions"; "Fixing of Leaks in the Home" and "How to Read your Water Meter" were developed in English and Setswana.
- Awareness material included the following: 28 000 brochures, 568 A1 posters, 228 golf shirt and T-shirts, 2000 stickers, 2000 fridge magnets, 350 license disk holders, 342 caps and hats, 1400 pencil cases and 2000 bath plugs.
- A pre and post implementation Knowledge, Attitudes and Perceptions (KAP) Survey were conducted among 416 and 128 consumers respectively. Results from the KAP survey indicated that consumers do not know how to read their water meter, the water-rationing schedule is unclear and inconsistent and consumers are not aware that Botswana is experiencing its worst drought in 30 years.



- Three toolbox talks on the "Importance of logging", "Pressure management" and "Sectorising and step testing" were developed to promote WCWDM within the organisation.
- A total of 21 035 consumers has been reached through door-to-door, outreach and workshop activities. The response from consumers was very positive and WUC responded to consumers' feedback to improve communications and awareness.
- The project created improved awareness within the organisation and strengthened working relationships between departments.
- A total of 100 schools was visited, reaching 50 050 learners, with the Thothi mascot to promote water conservation. Each school were provided with posters and limited stationary packs to create awareness.

## Technical interventions

- Through bulk metering and sectorisation, WUC now has a much better understanding of the system operation and connectivity of the water distribution network. The improved understanding enables the WUC to identify areas of high leakage and subsequent interventions.
- Pressure management has been identified as one of the most cost effective measures to reduce water losses, burst frequencies, inefficient water use and prolongs the design life of the distribution network.
- By the end of the project, 29 existing control valves (22 pressure reducing and 7 level control valves) were identified, serviced and commissioned. The control valves are used to reduce pressures in the distribution network and control reservoir levels to prevent overflows. An additional 11 pressure reducing installations were constructed in Gaborone West and Tlokweng. Fifty percent of Gaborone is now under pressure management.
- The project saves 1.6 million m<sup>3</sup>/a of water through pressure management activities mainly in Metsimotlhabe, Mmopane, Gaborone Blocks 7, 8, 10 and Broadhurst Industrial. The savings are significantly reduced by the severe rationing of the water supply. The saving is valued at BWP 9.2 million.
- A total of 22 leaks have been identified of which 19 have been fixed and maintenance work at various reservoir sites are under way.



- Training was provided in the operations and maintenance of pressure reducing valves, water demand management principles and Zednet data acquisition and display system.

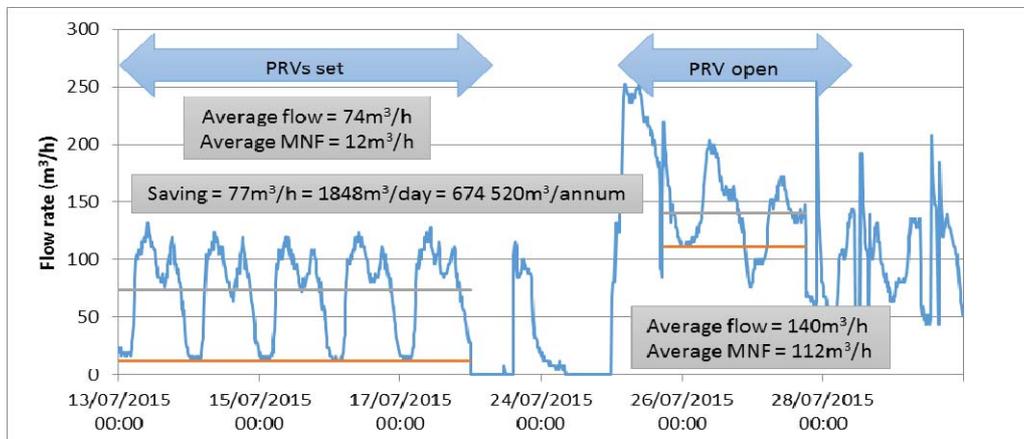


Figure 1: Mogoditshane flow logging results

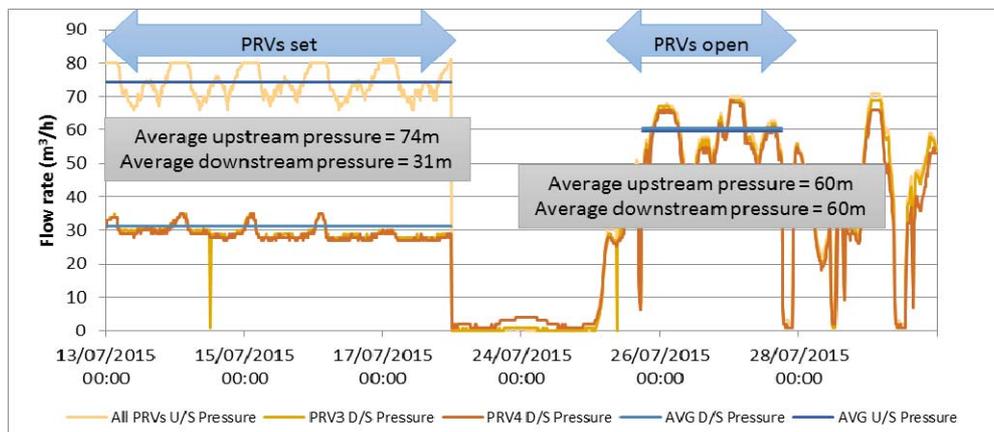


Figure 2: Mogoditshane pressure logging results