



## Project Sheet

### “Project Boloka Metsi” - Emfuleni Water Loss Reduction Project

**LOCATION:** Emfuleni local municipality, ±50 km south of Johannesburg, South Africa

**PROJECT TITLE:** Project Boloka Metsi – Emfuleni water loss reduction project – Phase 1 & 2

**CUSTOMER:** SASOL and GiZ in association with Metsi-a-Lekoa, the Water Services Unit of the Emfuleni Local Municipality,

**Contact Persons:**

Sasol: Mr Bob Kleynjan, Senior Manager: Environment, Tel +27 16 920 2921, Mobile +27 82 809 1887, E-mail: [bob.kleynjan@sasol.com](mailto:bob.kleynjan@sasol.com)

Emfuleni LM: Mr. Dawid Dirks, Manager Water: Metsi-a-Lekoa Tel: +27 16 986 8341, Cell: +27 82 774 9764, E-mail: [dawind@emfuleni.gov.za](mailto:dawind@emfuleni.gov.za)

**STATUS:** Complete **DURATION:** Phase 1: Apr 2012 to Jun 2013 and Phase 2: Jul 2013 to Jun 2014

**OBJECTIVE:** To reduce water leakage and levels of wastage in the water distribution system. To increase community awareness and improve water security in the Integrated Vaal River System.

**CHALLENGE:** The Sebokeng and Evaton areas support ±500 000 residents that were in dire need of leakage reduction due to major water losses in the municipal system which in turn were causing major spillages of untreated sewage into local rivers.

#### DESCRIPTION

The Sebokeng / Evaton area forms part of the Emfuleni Local Municipality and houses approximately 423 707 people in 122 697 households (Census 2012). The area is in the south of Gauteng, the industrial heartland of South Africa, and supports many large industries including the largest steel plant in South Africa. The Sebokeng/Evaton areas currently utilise an annual water demand of 39 million m<sup>3</sup> which is purchased from Rand Water by the Municipality at a cost of approximately R5 per m<sup>3</sup> with payment levels from the consumers of below 10%. Any water savings achieved in the area either before or after the customer meters will therefore not only reduce the overall water consumption but generate real financial savings to the Municipality.

The project includes the following main tasks:

- Reduce internal plumbing leakage by appointing local plumbing teams to perform basic low cost household leak repairs.
- Increase community awareness to conserve water through water wise gardening, schools education activities, encouraging consumers to repair their own internal leaks and to embrace water wise practices within the home.
- Reduce the water purchases from Rand Water which provides the bulk potable water to the Municipality.
- Reinvest the full savings achieved back into the community by creating jobs, improving the level of service, increasing water use efficiency, improving water security and deferring future capital investments.
- Achieve water savings in the Integrated Vaal River System to improve water security in the Orange/Senqu River Basin which is an international river basin shared by Botswana, Lesotho, Namibia and South Africa.

#### Methodology

The project is being undertaken in joint partnership between Emfuleni Municipality, Sasol and GiZ. All three stakeholders have expressed their genuine interest in improving water use efficiency and water security in the area.

The project is being managed by a Management Consultant responsible for the project management, technical expertise and social awareness components of the project. The Management Consultant has appointed “Water Warriors” in each ward to promote awareness as part of the education and awareness component of the project. Three local contractors are operating simultaneously with the “Water Warriors” supported by numerous local plumbers to address internal plumbing leaks in up to 80 000 properties.

The local plumbing teams concentrated on basic low cost leaks within households which typically involves replacing tap and toilet washers as well as any additional work required to address obvious household leakage. A typical property with household leakage can use up to and sometimes over 200 m<sup>3</sup>/month which is reduced to between 10 m<sup>3</sup>/month and 15 m<sup>3</sup>/month after the leaks have been repaired. The Water Warriors perform house to house visits prior to the leak repair interventions to raise awareness of the leakage problems and the need to save water. They also assist with community workshops, schools programmes, clinic workshops and councilor liaison. Since all of the Water Warriors are employed from the local community in which they are based, they are able to communicate effectively with the local residents who are often suspicious of strangers from outside of their community advising them on water issues.

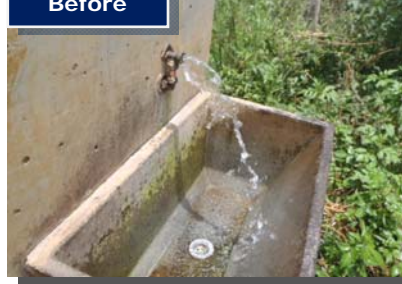


## RESULTS

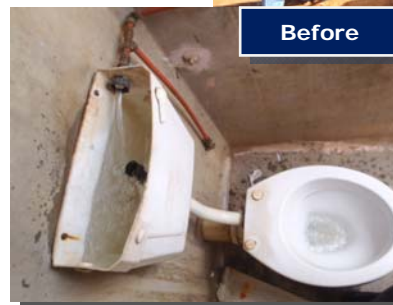
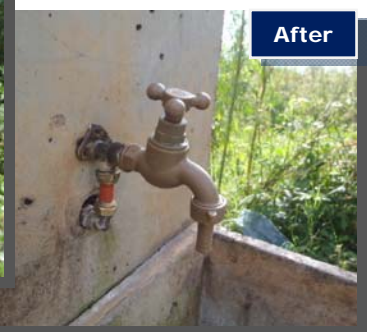
- 26 water warriors and one water warrior supervisor were appointed
- 58 local plumbers were appointed
- 4 student technicians from the local University of Technology were appointed to assist with quality control and Occupational Health and Safety
- The project team involved in excess of 145 people of which at least 80% were from the Emfuleni Municipal area.
- 103 088 households were visited by the WCW of which 58 929 were personally engaged. An additional 56 634 households were revisited in Evaton where the engagement started in 2012;
- The Water Warriors reported 24 698 water and sewer related problems;
- Approximately 98 712 tap washers and 144 216 toilet washers (242 928 washers in total) were replaced within 106 000 households;
- 98 schools were visited and personally assessed by the project team regarding the management of water losses in the schools;
- 63 schools workshops were conducted for learners in grades 6, 7 and 10 and 12 475 learners were reached
- Cumulative savings from Jul 2012 to Jun 2013 are 2 076 793m<sup>3</sup> or R 10 513 490. This represents a reduction of 5.2% in the projected demand. The savings must also be viewed against the background of an increase in water pressure to the Palm Springs area which supplies water to almost 22 000 residents. In this area the level of service and thus also water use has increased significantly thus offsetting some of the savings achieved elsewhere;
- Cumulative savings from Jul 2013 to Jun 2014 are 4 763 580m<sup>3</sup> or R 26 461 570. This represents a reduction of 11.4% in the projected demand;
- The project saved in total 6 840 373m<sup>3</sup> or R 36 975 061 in the Sebokeng / Evaton area from Jul 2012 to Jun 2014. This represents a reduction of 8.4% in the projected demand;
- The total demand for Emfuleni reduced by 1.16million m<sup>3</sup> (1.25%) from July 2013 to June 2014 which contributes to increased water security and contribution towards Project 15% for reducing losses in the Integrated Vaal River System;
- An almost 9% reduction in minimum night flows which has a direct impact on the Sebokeng Wastewater Treatment Works;
- Reduction in approximately 10 260 ton CO2 emissions through reduced pumping costs from Rand Water (6.84million m<sup>3</sup> saving x 1500 ton CO2 per 1 million m<sup>3</sup> saving);
- The contractors and WCWs gained new skills which could be used for further career development;
- Increased community awareness;
- Plumbers and WCWs received accredited basic plumber training;
- There were no reportable accident or incidents during the project;
- 78 schools were audited and leaking taps and toilets were repaired; and
- The level of service to several areas such as Palm Springs has improved significantly.



Before



After



Before



After