

## Innovative financing arrangements and waste water re-use

Rustenburg, South Africa

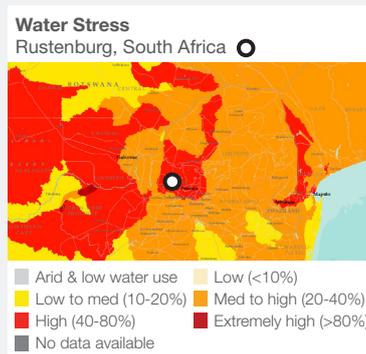
### water scarcity impact

Reduced withdrawal	
Reduced consumption	
Improved water quality	●
Increased productivity	
Net basin benefit	●

volumetric impact  
**13 505 000 m<sup>3</sup>/yr**

capital cost  
**\$59 000 000**

estimated unit cost of water  
**35 ¢/m<sup>3</sup>**



**Water Stress Map:**  
F. Gassert, P. Reig, T. Shiao, M. Luck and M. Landis, 2015. "Aqueduct Global Maps 2.1."

**Confidence level**  
 Low
  Medium
  High

**Water Scarcity Impact Key**  
 Main
  Minor

**Credits**  
We wish to acknowledge the input of Andre Kruger of Absa Bank in the preparation of this case study.

### Project Overview

In the last two decades Rustenburg has experienced a rapid population growth due to the expansion of mining operations in the region. This significantly increased both municipal and industrial water demands and overwhelmed the capacity of the existing wastewater treatment works. As a result, a restriction against further expansion was imposed on the municipality by the Department of Water Affairs creating a significant constraint to economic growth.

The water services provider, Rustenburg Municipality, was rated as the 3<sup>rd</sup> most distressed in South Africa and thus unable to raise the finance required to address the problems. This led to a joint initiative between the mines and the municipality to establish a Special Purpose Vehicle (SPV) with a 25-year concession to finance, upgrade and operate water infrastructure. The key to the success of the SPV was the signing of a long term offtake agreement with the mines for the provision of non-potable treated wastewater. This forms 50% of the SPV's revenue.

The mines previously relied on freshwater that was imported from neighbouring catchments. The move to the use of non-potable has enabled the re-allocation of the imported freshwater to the municipality thus increasing the overall freshwater resource that is available in the catchment. Partial improvements in downstream water quality have also been made through better wastewater treatment.

### Key Elements

- Establishment of a 25-year concession to the public-private Rustenburg Water Services Trust (RWST) to finance, upgrade and operate water infrastructure.
- Rustenburg Municipality established as the beneficiary of the water services trust, thus mitigating the political challenges of conventional public private partnerships.
- Long term non-potable bulk water offtake agreements with two major platinum mines.
- Bulk water and sewerage services provided to the municipality at rates benchmarked against bulk water charges levied by government parastatals elsewhere in South Africa.

### Key Outcomes

- Establishment of a financially sustainable bulk water and sewerage system, with cash reserves of \$12m after seven years of operation.
- Upgrading and expansion of two water treatment works and one wastewater treatment works.
- Industrial use of non-potable treated sewerage releasing up to 25 000m<sup>3</sup>/d of freshwater for municipal use.
- Debt refinanced and renewal of operators through open tender.



Rustenburg, South Africa

## Intervention Features

- Wastewater reuse
- Institutional reform

## Project Levers

### (1) Financially ring fenced Special Purpose Vehicle

Rustenburg Municipality faced both institutional capacity and financial challenges that constrained its ability to finance and operate infrastructure upgrades. The Rustenburg Water Services Trust was established as a financially independent body with a 22-year concession to finance, upgrade and operate water and sewerage bulk infrastructure. Ownership requirements of the South African Municipal Systems Act were fulfilled through the municipality being the main beneficiary of the Trust, however, the constitution of the Trust regulates transfer of finance between the Trust and the Municipality thus reducing risks to private sector investors. Transfers are only permitted if certain cash reserves and cash flow ratios are maintained.

### (2) Secure Revenue Streams

The common constraint to the raising of private sector investment for municipal water supply is the securing of revenue streams. In this case, 50% of the trust's revenue stream was secured through long term bulk water off-take agreements with two large Platinum mines. This was a precursor to the securing of limited recourse finance from ABSA bank.

### (3) Benchmarking of Bulk Water and Sewerage Tariffs

Bulk water and sewerage services are provided by the Trust to the Municipality who in turn are responsible for distribution and bill collection. A common challenge in this arrangement is the political acceptability of the bulk tariff. In this instance, this was mitigated through the tariffs being linked and benchmarked against those charged by the country's largest bulk water parastatal, Rand Water.

### (4) Institutional Capacity

A high level of institutional and technical capacity within the Trust is a key conditionality for obtaining private sector finance. This was achieved through the presence of engineering specialists as trustees and the procurement of an experienced operator for the works.

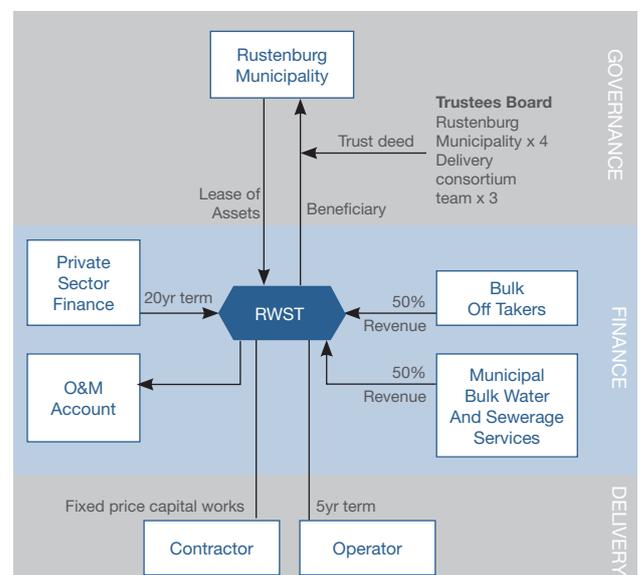
## Outcomes and Challenges

The existing sewerage and water treatment plants at Rustenburg, Boitekong and Bospoort have been fully refurbished and capacity expanded. The additional water treatment capacity has increased the availability of potable water by 12000m<sup>3</sup>/d.

The sewerage treatment processes have also been upgraded. This has enabled the mines to move from the use of potable water, which was imported from other catchments, to locally available treated effluent. 25 000m<sup>3</sup>/d of imported freshwater is thus available to the Rustenburg Municipality for domestic use.

The technical capacity of the operator is a key aspect to the success of the intervention. The contractual appointment of the operator allows for the procurement of a new operator on a periodic basis. After seven years of operation the Trust recognised the need to change operators and competitively procured a new operator to ensure effective ongoing operations. This action was essential for avoiding the need for private sector investors to exercise step-in rights.

This intervention has enabled investment in treatment infrastructure and the use of lower grade water for industrial purposes. However, challenges remain in the catchment with the overall water balance still insufficient; future interventions to augment water resource capacity will be required.



Above: Rustenburg Special Purpose Vehicle arrangements