



WATER CONSERVATION AND WATER DEMAND MANAGEMENT

December 2017

Sibanye-Stillwater's SA region purchased 18,284ML of drinking water from water boards in 2017 at a cost of R230.95 million.

Of the water purchased, 95% was drawn from the Integrated Vaal River System (IVRS), with the majority distributed to Sibanye-Stillwater operations via the Rand Water distribution network.

The Water Resource Analysis Report published in March 2009 by the Department of Water Affairs and Forestry (DWAFF), now the Department of Water and Sanitation (DWS), presents scenarios where demand on the IVRS exceeds the supply capacity in current years, largely due to population growth in its supply regions. The report confirmed that water conservation and water demand management interventions are required. The 2015 – 2016 drought and emergency curtailment initiatives and anticipated delay in the implementation of the Lesotho Highlands Scheme have further highlighted the need for WC/WDM interventions.

Sibanye-Stillwater recognises water as a critical resource. We further consider our integrated approach to the management of our water footprint and water systems infrastructure as a key component of the business strategy and so we have committed to the responsible use of water in a manner that is sustainable to production and surrounding communities.

Sibanye-Stillwater's water conservation and water demand strategy consists of various components. These include:

- using alternative available underground water sources to replace purchased water within the conditions of our licences
- identifying and reducing water losses through improved metering and water balance management
- reducing water wastage through optimisation strategies

Case study: Kroondal

Kroondal is an established, shallow, mechanised platinum group metal (PGM) mine exploiting the UG2 Reef. It is located in the water scarce western limb of the Bushveld Complex. Kroondal has five operating shafts and one shaft under care and maintenance (the former Marikana mine). Two concentrator plants (K1 and K2) process run-of-mine material with additional processing capacity available at the Marikana Plant, currently under care and maintenance.

The four Marikana pits cover an area of approximately 4.1km², and have a ground water source that sustainably supplies the Kroondal concentrator plants with process water. In 2016, the plants received 4.06ML of water per day on average from the pits. Kroondal is the only consumer from this water source and, when the water is not used, the Marikana pits fill up with water to a level where it stabilises, presumably at the level of the water table. It was reported that water volumes of up to 1,660ML for Marikana Pit 1, 1,620ML for Marikana Pit 4, 1,090ML for Marikana 2, and 72ML for the Marikana Wes Pit were accumulated.

Water scarcity is a reality in the Bushveld Complex with pressure on the IVRS and other municipal systems. The impact of the limited available water resources was highlighted in 2017, with production losses of 560oz and 990oz from the E-Feed and Western Limb Tailings Retreatment (WLTR) surface mining operations respectively. The losses were directly attributable to insufficient water supply.

Reducing reliance on Rand Water supplies is critical to alleviating the stress on the local municipal system, on local communities and the environment, but also to reducing the costs associated with purchased water in the interests of sustainable production.

The water contained within the Marikana pits was identified as a sustainable alternative source of process water to substitute a portion of Rand Water water for the processing of ore at the Kroondal plants. With existing pumping infrastructure available, installed power at the Marikana return water dam and a minimal capital investment of R3.2 million for the installation of a 10km pipeline, it was established that the Marikana pits were able to supply 588MI, reducing Sibanye-Stillwater's reliance on Rand Water by 25% from 2,333MI to 1,744MI, realising a saving of some R584,000 a month, for a payback period of less than six months.

During 2017, 7.6Mt of UG2 ore was processed. Kroondal abstracted 5,050MI of water to process the ore. Of this, 35% or 1,744MI, was consumed from Rand Water at a cost of R23.4 million. Another 26% of the water (1,313MI) was taken from underground fissure water and the balance (40% or 2,020MI) from the Marikana pits, under licence

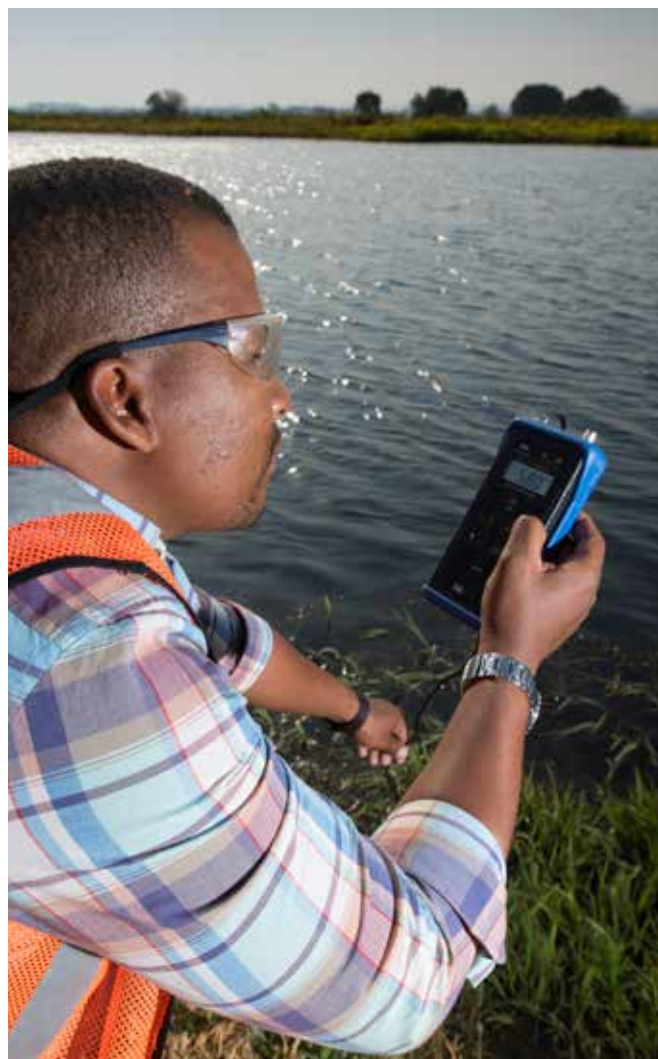
¹ Sibanye-Stillwater is supplied with drinking water through the Rand Water Board (RWB) and Sedibeng Water networks which draws from the IVRS. The remaining 5% is supplied through the Bospoort water network which draws from the Crocodile Catchment, to Rustenburg operations.

² Total for 2016 including the January to March period where Sibanye-Stillwater did not own the operations

	2017	2016	Variance
RWB Consumption (MI)	1,744	2,333	(588)
Marikana Pits Water (MI) **	2,009	1,483	526

* The table compares the total consumption of Kroondal for 2016 with the total of 2017 even though Sibanye-Stillwater acquired the operation in April 2016.

** Pits water for 2016 was calculated due to no measured data available.



Sibanye-Stillwater is committed to complying with the requirements and water consumption targets set by the authorities and we take responsibility for our impact on local and macro water systems. We respect the environment and the communities and employees with whom we share the water and always strive to improve and ensure the safety and security of our water system.

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