



CaseStudy

Challenge

The Congo Caves, a national heritage site near Oudtshoorn, attracts ~250 000 tourists a year. The site is widely acknowledged as a key contributor to the economies of Oudtshoorn, the Klein Karoo, and the Garden Route. However, with an increasing number of tourists every year, and a seven-year drought in the region, the water supply and sanitation infrastructure has come under extreme pressure.

The Congo Caves has been supplied with municipal water through a small diameter pipeline at relatively high pumping costs. It is serviced by an inefficient old reed bed sewage treatment facility. During peak times, the treatment facility can't handle the sewage volumes and has had to contract a company to remove the excess sewage via honey suckers.

Business benefits

Congo Caves has reduced potable water demand by more than 3.6 million litres per annum (~60%) and saved ~R163 200² in the first year (September 2019 – September 2020). The installation of the non-sewered sanitation system has reduced the pumping energy demand, and mitigated potential environmental pollution. The installation would have also saved Congo Caves ~R54 459³ in the first year if the toilet facilities were connected to a municipal sewer.

Annual business water savings	3 600 kl
% annual water savings	60%
First year municipal water savings	R163 200
Potential first year sanitation savings	R54 459
Total capital investment	R2 500 000

¹ Total capital investment includes the cost of the plant (~R1 500 000), installation, piping, instrumentation, electrical, utilities, storage and contractor's fee.

² Cost savings (excluding sanitation, reduced energy demand and sewage disposal via honey suckers) calculated based on the Oudtshoorn Level 4 water tariffs at R38.78 and R42.66 for 2019/20 and 2020/21 per kilolitre (excl VAT) for state properties, respectively.

³ Sanitation savings were calculated based on the 2019/2020 and 2020/21 annual sewerage tariffs of R1788.48 and 1949.44, respectively for government, schools, hospitals or training centres per toilet/pan/urinal.

2021



Off grid sanitation

Cango Caves, Oudtshoorn

By installing off grid sanitation, the Congo Caves reduced water use by 60%, saving R163 200 in the first year of operation.

Solution

In 2017, the Oudtshoorn Municipality put out a tender for an alternative (decentralised) wastewater treatment system to replace the old reed bed. The main aims of the alternative system were to reduce municipal water demand and upgrade the wastewater treatment system. A low energy and maintenance sanitation system that can treat and reuse about 70% of the treated effluent to flush the upgraded toilets and for irrigation purposes was procured for R2 500 000¹. The upgraded toilet facility was fitted with a dual reticulation system to allow for 24 low flush toilets and 6 urinals to be flushed with treated effluent, whilst the wash basins are connected to the potable water system.

Lessons learned and plans for the future

Cango Caves will continue to implement water saving initiatives. They are also looking into augmenting their water supply through the use of rainwater harvesting and groundwater.



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