

Desalination is an integral part of future water-source mix for Cape Town

Desalination must form part of the future water-source mix in a large coastal city in a water-scarce environment like Cape Town. However, it must be carried out responsibly from an environmental and financial perspective.

The impact of higher water tariffs to fund water augmentation schemes will be long-lasting, and may be a future burden for ratepayers, especially when the drought is past, Hatch's Pieter de Kock cautions.

Desalination of seawater is carried out by means of reverse osmosis (RO). This is a process whereby salt water is passed through a very dense membrane to strip the water molecule of salts and other minerals, leaving demineralised water that is further treated before it is fit for human consumption. "It is expensive to carry out reverse osmosis on a large scale, and very energy-hungry due to the high pressures required," de Kock notes.

There are also significant challenges to transport millions of litres of treated water from the coast to the main reservoirs to distribute via the existing distribution network and new large diameter pipelines and pump stations will be required. The relative unit cost per kilolitre of water produced could be up to three times more expensive than surface water depending on the relative location and cost of connecting infrastructure. The impact of brine discharge on the environment and

coastal areas must also be taken into account, and detail coastal modelling studies are required.

The City of Cape Town is currently investigating largescale desalination for Cape Town. It is constructing a number of smaller-scale desalination plants, which is anticipated to deliver the first two million litres of an expected seven million a day by March 2018.

Hatch is managing a R60 million emergency water augmentation project for the Stellenbosch Municipality in the Western Cape, which includes the implementation of fifteen to twenty new boreholes, and at least eight new containerised borehole water treatment plants to assist in mitigating the effects of Day Zero for the Municipality. This will make Stellenbosch Municipality largely independent from the City of Cape Town for its potable water requirements.

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