

WHAT EXPERTISE DOES THE CITY OF CAPE TOWN HAVE IN WATER REUSE?

The City of Cape Town has been developing critical technical and institutional capacity in water reuse by engaging other water utilities around the world and learning from their experience, as well as partnering with local and international experts in water reuse.

The operation of a demonstration-scale advanced purification plant for over two years has also helped the City gain valuable experience in water reuse. This has allowed us to analyse the source water quality over time, put in place the correct design, operating, monitoring and management protocols, and engage with key stakeholders, helping us develop the expertise required to implement a much larger production-scale advanced water purification facility.

See a short video describing the water reuse demonstration facility at www.capetown.gov.za/water-reuse.



WHERE WILL THIS BE DONE? THE FAURE NEW WATER SCHEME (FNWS)

After 25 years of careful economic and environmental studies, technical research and planning, the Faure New Water Scheme was identified as the best opportunity for water reuse in Cape Town.

The scheme will receive source water from the upgraded Zandvliet wastewater treatment works. Already-treated effluent from this facility will be piped to a new advanced purification plant a few kilometres north at the Faure treatment plant near Somerset West. There, up to 100 million litres of clean drinking water will be produced per day. Initially, it will be blended with raw water from dams and treated once more using conventional treatment. It will be blended to be a maximum of 20% of that supply. From there, the distribution network will have the flexibility to supply the water widely across most of Cape Town.

For more information and videos, visit www.capetown.gov.za/water-reuse.



CITY OF CAPE TOWN
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WATER REUSE FOR CAPE TOWN SUMMARY LEAFLET



HELPING
SECURE
CAPE TOWN'S
WATER
FUTURE

WHY IS WATER REUSE BEING IMPLEMENTED IN CAPE TOWN?

Cape Town is a growing city facing uncertainty about when and how much climate change will influence our rainfall and available water supply.

We are not alone – water stress currently affects as many as 1,5 billion people living in cities all over the world.^a

In 2018, during the worst drought on record, Capetonians narrowly avoided 'Day Zero', the day when the piped water supply would have had to be shut off in most areas and everyone would have had to queue for water.

Rainfall is unpredictable, evaporation is set to increase (with higher temperatures), and there are limited options for further surface water schemes.

The recent drought showed us that we need a new relationship with water, so we need to find alternative sources of water. The Cape Town Water Strategy sets the direction for new water supply options including groundwater, further surface water, sea water desalination, and water reuse. Removal of 'thirsty' alien invasive vegetation will also increase yields running into our dams.

Recycling the treated water from wastewater treatment works is already being used for irrigation, industrial and construction use, but the biggest demand in Cape Town is for drinking-quality water.

Water reuse is one of the most cost-effective new sources. It is estimated to cost about 60% of what desalination and groundwater from the Cape Flats aquifer cost, and set to cost slightly more than the cost of groundwater from the Table Mountain Group aquifer. It also has less environmental impact than desalination and other surface water options.

The City of Cape Town (the City) wants to pursue water reuse as an important part of the diversified mix of new water sources to take us into a more secure shared water future. A demonstration facility has tested this process, and shown to produce water of a very high quality. A longer-term reuse scheme called the Faure New Water Scheme is being planned and designed, and commissioning is set for 2025/26.



Climate experts warn us that droughts are going to happen more often and will last longer and be more severe. We can no longer rely on surface water stored in dams to meet our anticipated growing demands.

^a World Resources Institute, 2019. Aqueduct Project, Water Risk Atlas

WHAT IS WATER REUSE?

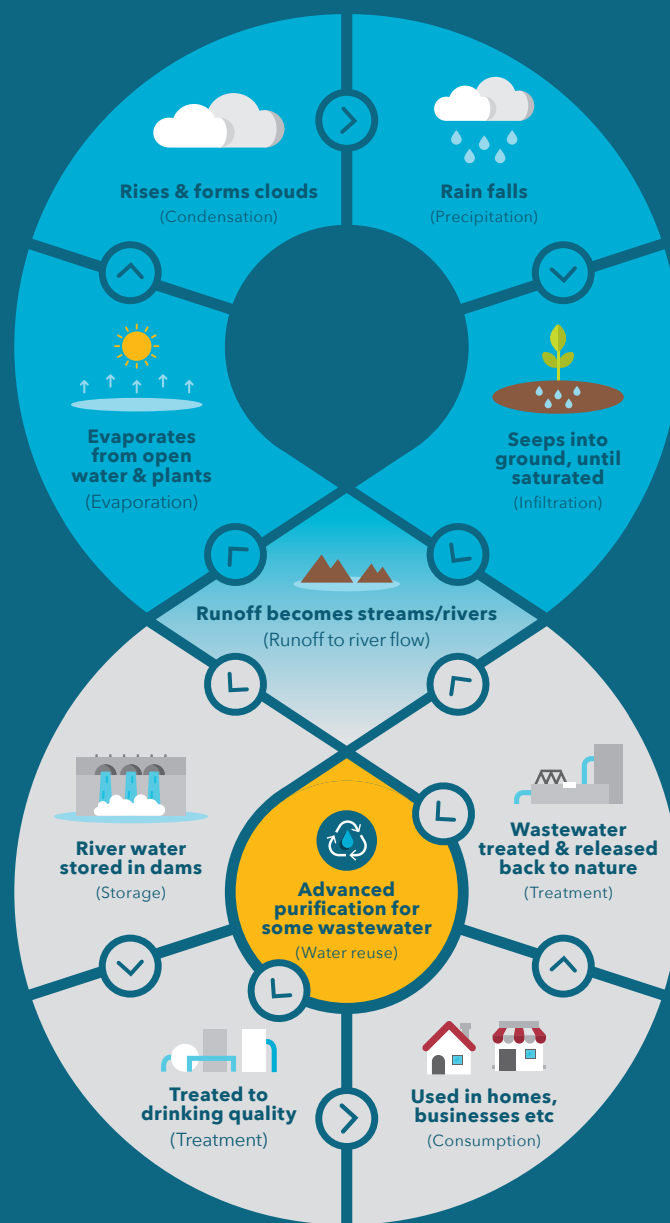
Water reuse in Cape Town refers to the purification of treated wastewater through an advanced purification process to produce drinking-quality water. This can add to our bulk water supply. It is reliable, relatively cost effective and sustainable.

Recycling of water happens continuously in nature. Rain falls from clouds and seeps into the ground, or collects in rivers and is captured in dams, treated, and piped to our homes, schools and businesses for us to use.

Once we're done with it, our water is treated at a wastewater treatment works and released into our rivers and oceans, where it evaporates to form clouds that rain – and the cycle starts all over again. The same water is going around and around, just as it's always done.

Water reuse enhances this cycle by redirecting treated wastewater and purifying it so that we can use it again, rather than releasing it all back to the rivers and the ocean and waiting for it to rain.

THE NATURAL WATER CYCLE



THE URBAN WATER CYCLE

This is a simplified graphic of the natural and urban water cycle, which doesn't include all possible aspects.

WHO ELSE IS DOING WATER REUSE?

Water reuse for drinking-quality water has already been successfully implemented in many major cities across the world, including in America, Australia and Singapore. African cities have also been involved in leading the way in water reuse, including Beaufort West, Ballito and Windhoek (Namibia), where it's been done for more than 50 years.

In Cape Town, at the MutualPark office complex in Pinelands, about 10 000 people have been using water from the on-site treatment plant on a daily basis since 2018.

HOW CAN WE ENSURE REUSED WATER IS SAFE TO DRINK?

The water is thoroughly, carefully and repeatedly processed to remove particles, pathogens and pollutants at an advanced water purification plant with proven multi-barrier treatment processes and advanced monitoring. (Pathogens are bacteria, viruses or other microorganisms that can cause disease. More commonly called germs.)

The process at the Faure New Water Scheme will include ozonation, biologically activated carbon filtration, granular activated carbon filtration, ultrafiltration and advanced oxidation.

To make sure the process operates correctly, each step is validated and verified with online monitoring systems and an on-site laboratory. Samples are also regularly sent to independent laboratories to be tested against strict global drinking-water standards.

Water quality results will be published regularly at www.capetown.gov.za/water-reuse.

Residents / stakeholders are welcome to approach the City about conducting collaborative research related to water reuse. To make an arrangement, please email water@capetown.gov.za.



THE ADVANCED WATER PURIFICATION RELIES ON SOPHISTICATED TREATMENT TECHNOLOGIES.

