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Residents ready to embrace alternative water sources for flushing, study reveals



Teboho Mofokeng

Photo: Robin Thuynsma

A study by a University of Cape Town (UCT) academic, Teboho Mofokeng, has revealed that residents are ready to embrace alternative water sources for flushing. The study focused on residents in two communities in Cape Town and Durban, and examined South Africans' behaviour towards water.

Mofokeng is a lecturer at UCT's [Department of Civil Engineering](#) and a PhD candidate in the Water Research Group, which is part of the [Future Water Institute](#). Her research focuses on water management and reuse amid drought conditions, water security, and the water-food-energy nexus.

As climate change disrupts weather patterns worldwide, causing unpredictable rainfall and intensifying droughts, diversifying South Africa's long-term water strategy is critical. The first step is to incorporate unique and innovative water sources to secure a reliable supply of this precious commodity.

"As a nation, it is critical that we start viewing and managing water differently. But what is equally important is that water users are educated on sustainable water-use behavioural practices to be able to make informed decisions," Mofokeng said.

The plan

South Africa currently disposes of up to 300 million litres of wastewater into the sea daily. While often labelled as "waste," this water can be treated to remove harmful bacteria and repurposed, according to Mofokeng. Though not suitable for drinking, she said treated wastewater can be effectively used for flushing toilets, which currently makes up about 20–30% of household water consumption.

Would South Africans embrace alternative water sources to flushing toilets? Mofokeng set out to answer this question. She aimed to discover whether her research participants' choices were driven by the understanding that using lower-grade water for flushing eases the demand for high-quality drinking water; and whether they've adopted pro-environmental behaviours, prioritising the community's and environment's long-term interest over immediate, personal gain.

"We wanted to understand people's thinking around a shared responsibility towards the use of sustainable water sources, with the potential to benefit future generations in the long term," she said.

Hout Bay vs The Bluff

For this research study, Mofokeng focused on two coastal suburbs: Hout Bay in Cape Town and The Bluff in Durban. She presented participants with the following scenario: "The cost of drinking water has increased. As a result, would you opt to use seawater, recycled water, or expensive drinking water to flush the toilet?"

Interestingly, Mofokeng pointed out that Hong Kong has been using seawater to flush toilets for decades, which remains a key part of its long-term water strategy. Why couldn't the approach work in South Africa, especially in areas where untreated wastewater is discharged into the sea? Her research aimed to test participants' preferences regarding colour, smell, cost, water stains, and disposal practices for alternative water supply options.

Mofokeng noted that respondents in Hout Bay were receptive to using recycled water for flushing toilets. Their choices were driven by an awareness of water scarcity and a sense of responsibility to accept and embrace alternative sources. This pro-environmental behaviour, she noted, was prevalent among non-white heads of households.

However, Mofokeng observed that households earning R12 800 and more per month preferred to continue using drinking water for flushing, even at a higher cost. In contrast, households headed by women with university degrees or diplomas were more inclined to choose the seawater alternative.

The Bluff residents had a different perspective. Mofokeng said that while respondents acknowledged the importance of adopting pro-environmental behaviours, heads of households earning over R12 800 per month and who had experienced the recent drought preferred to keep using drinking water for flushing toilets. However, she said that homeowners between the ages of 18 and 34, especially those sharing their homes with three or more people, were more open to using recycled water.

"Generally, our research shows that residents in both communities, although hesitant in some cases, are willing to accept alternative water sources for flushing, if necessary," she said.

Fun fact

Mofokeng said awareness campaigns were effective in ensuring residents developed water-conscious behaviours. Both the City of Cape Town and the eThekweni Municipality implemented successful water-wise awareness campaigns during their recent national droughts.

Using Cape Town as an example, Mofokeng's research highlights that respondents' water choices reflect their pro-environmental behaviour, underscoring the effectiveness of the city's water-wise awareness campaign. These campaigns promoted water-saving efforts through water maps that tracked households' conservative activities and community engagement programmes fostering long-term pro-environmental habits. However, she added that the eThekweni Municipality's campaign was less interactive and focused mainly on education. As a result, while 86% of residents there recognised the importance of water conservation, they had not fully adopted pro-environmental behaviours.

"So, while awareness is important, it alone will not lead to increased pro-environmental behaviours. That would require integrating those behavioural nudges to have a total mind shift," she said.

Adopt dual supply water networks

Mofokeng said her research and participants' responses were timely, coinciding with ongoing discussions and efforts to review and potentially replace the country's aging sanitation pipe network infrastructure, which was built in the 1970s.

She highlighted that replacing or upgrading the pipe infrastructure offers a chance to rethink traditional water supply systems and explore the feasibility of dual supply networks, drawing inspiration from Hong Kong's success. She explained that with dual water supply networks, high-quality water would be allocated for essential household activities like drinking water, bathing, and cooking, while separate, lower-grade water supply would be used for tasks such as flushing and garden irrigation.

"It is clear that participants' choice to adopt alternative water sources are influenced by the quality of the water, conservation and environmental protection benefits, as well as cost and an understanding and awareness of water systems," she said. "This study contributes to this knowledge, especially from an African perspective where very little research has been done to understand preferences towards alternative water use."

Mofokeng's research shows that South Africans are open to using alternative water sources. She hopes the findings will assist decision-makers and planners in enhancing the country's

water supply, infrastructure development, and awareness campaigns, ultimately benefiting all South Africans in the long term.

At the time of writing, residents of the Atlantic Seaboard in Cape Town welcomed the city's proposal to construct a wastewater treatment plant in Green Point. Residents said that the plant would reduce pollution and waterborne diseases.

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