

WATER CONSERVATION

Keep on saving – Water demand management in a time of plenty

*A new Water Research Commission report by a CSIR team explores how water conservation and water demand management efforts can be sustained beyond water crises.
Article by Sue Matthews.*



This year's winter has been a wet one in the Western Cape, with rainfall well above the long-term average. By mid-August the dams supplying Cape Town were collectively 98% full, having hit the 100% mark in October 2020 for the first time since 2014 and then dropped back down to 67% after the dry summer months.

Water restrictions, which had already been relaxed considerably since the height of the drought, when a daily personal usage limit of 50 litres was imposed between February and October 2018, were lifted altogether from 1 November 2020, although water-saving regulations under the City of Cape Town's Water Bylaw (2010, amended in 2018) will remain permanently in place. These stipulate, for example, that garden watering may only be done before 9:00 or after 18:00, that swimming pools are kept covered when not in use, and that new or replaced toilet cisterns

may not exceed six litres in capacity.

Theoretically, I could resume my old habit of luxuriating in a bath every few days, but now I generally stick to short showers, although I've stopped standing in a tub to collect water to flush the loo. If I do treat myself to a bath these days, it's only half-full at the most, and instead of pulling the plug afterwards I usually add washing powder and soak some laundry so that the next load in the washing machine can be done on the most water- and energy-efficient setting.

Evidently, many other Capetonians have also continued with such 'behaviour change', as overall water usage for the city has generally remained below 800 million litres per day (MLD) – bar a few peaks in summer – whereas before the drought it was

topping out at 1 200 MLD. This is a testament to the effectiveness of the awareness-raising campaign conducted by the City of Cape Town, although its intensive water pressure control, leak detection and repair programme and rising block tariff system have undoubtedly reduced water usage and losses considerably too.

Given that South Africa as a whole is facing a projected water deficit of 17% by 2030 unless 'bold action' is taken to reduce demand, according to the National Water and Sanitation Master Plan of October 2018, the WRC funded a project to consolidate the lessons learned from the drought so that they can be mainstreamed into other municipalities. Conducted by a team from the CSIR consisting of Dr Karen Nortje, Ms Ngowenani Nohayi and Ms Benita de Wet, the project's output is the ***Report on sustaining water conservation and water demand management strategies and practices beyond water crises (WRC Report No. 2946/1/20)***.

The project focused on messaging strategies adopted as part of water conservation and water demand management (WCWDM) measures, and rather than being limited only to the City of Cape Town, it included the City of Ekurhuleni in Gauteng as a second case study. Although this metropolitan municipality has not yet been subject to the kind of 'Day Zero' countdown Cape Town experienced, water restrictions were imposed during the 2015–2016 El Niño-induced drought in the region, and heatwaves attributed to climate change seem to be increasing.

The project sought to address the following research questions:

- What are the messages from municipalities during times of crises and beyond?
- What are the strategies that authorities adopt?
- When the crisis is over, how do municipalities then frame their messaging strategy?

The research approach relied on workshops with municipal officials and a focus group discussion in each of the two cities, together with a household survey that the CSIR had conducted in six metropolitan municipalities during 2018–2019 for a larger project funded from a CSIR Parliamentary Grant. During this survey, 225 respondents in Cape Town and 197 in Ekurhuleni – from a range of income groups in both cities – had been interviewed, and the focus group participants had been drawn from those indicating they were willing to be contacted again. The two focus groups represented very different sectors of society, because the Cape Town one was made up of University of Cape Town staff and students who lived in the vicinity of campus, while the Ekurhuleni one consisted entirely of residents of KwaThema, a township near Springs.

The project team point out in the report that while the focus group discussions were clearly not representative of all residents in the two metropolitan municipalities, they did offer valuable insight into the thinking, attitudes and perceptions of residents. The participants were asked to evaluate – via a 'Dotmocracy' exercise of voting with coloured stickers – a selection of print media messages around water-saving, followed by a discussion on the results. The Cape Town participants preferred simple, visual messages with catchy phrases, rather than text-heavy information sheets that they did not have time to read, while the

KwaThema participants indicated that numbers and percentages in the messages meant little to them, but they could identify with the concept that water would run out. They also felt that messages about taking short showers instead of baths were irrelevant to them, given that they did not own a shower and their township did not even have a continuous water supply.

The KwaThema residents may well be exposed to more targeted messages in the future, given that the City of Ekurhuleni only produced its first long-term WCWDM strategy in November 2019. The strategy covers the period 2020 to 2025, and was developed in response to current constraints in water provision from the Integrated Vaal River System. The water is supplied through Rand Water, which has a licence to abstract 1 600 million cubic metres per year from the system, and this will not be changed until Phase 2 of the Lesotho Highlands Water Project (LHWP) comes online. Originally due to be operational by 2020, the Phase 2 completion date has now been pushed back to 2027. In May 2017, Rand Water initiated Project 1600 to encourage the municipalities it supplies to target a zero or negative growth in water demand in the interim, but the licence volume is nevertheless being exceeded.

Although the City of Ekurhuleni had been implementing a water loss reduction programme for the past decade to curtail non-revenue water, projects were rolled out as and when funds were available. The new WCWDM strategy now strives not only to reduce non-revenue water from 33% to 25% by 2025, but also to stay within the target allocation provided by Rand Water and to reduce water demand by 15% over the 10-year period to 2030. The strategy contains 10 interventions to achieve this, and one of these is the implementation of a water conservation education and awareness portfolio. A browse of the City of Ekurhuleni's



Ashraf Hendricks/Grundup

During the height of the drought in 2018 residents of Cape Town supplemented their water with free supply from the Newlands spring.

website does not yield any easy-to-find information on the topic, but a Google search reveals that the municipality periodically issues press releases about waterwise practices in the home and garden, and regularly posts messages about water saving on Facebook and Twitter. Of course, Rand Water also has a long-running and high-profile WaterWise campaign in the region, with a team of people to facilitate environmental education activities and a comprehensive website with curriculum materials, posters, factsheets, tools, games and quizzes.

The City of Cape Town's awareness-raising around water saving has a long history too, although activities have largely been linked to drought events. Water restrictions were imposed over the summer of 2000–2001, and again in September 2004 following low rainfall in the 2003 and 2004 winters. But as early as 1995, the then Cape Metropolitan Council (CMC) had committed itself to a 10% saving on the historical demand growth of 4% per annum, and in 1998 established a Water Demand Management Section to oversee a 12-point strategy and implementation plan. The following year it launched the Integrated Water Resource Planning Study to investigate water demand initiatives and supply schemes within its jurisdiction, and the results of this study were used to inform the development of a new WCWDM policy and strategy in 2001. By that time, the CMC had merged with neighbouring local municipalities to form the City of Cape Town.

The strategy aimed for a 20% reduction in the projected demand for water by 2010, but funding for WCWDM initiatives was reduced between 2003 and 2006, and the commitments were not maintained. However, the signing in 2003 of the raw water supply agreement between the municipality and the national water department (then DWAF) for the construction of the Berg River Scheme included a condition that WCWDM would be implemented, and this, followed by the 2004–2005 drought, prompted a revival of WCWDM initiatives. By 2007 a more comprehensive WCWDM policy and strategy had been developed, and a unit was established within the municipality's water and sanitation department to implement it. The strategy has been reviewed and updated a number of times over the years and remains in place, although an overarching Water Strategy was also published by the City of Cape Town in February 2020. This includes WCWDM commitments under a chapter on 'wise use', as well as an annexure covering the background history of the municipality's WCWDM initiatives.

Now that the drought is over, the awareness campaign has gone rather quiet again. Perhaps it would create confusion to keep telling people to save water when they are being encouraged to wash their hands frequently to stop the spread of COVID-19, although there is no evidence that such hygiene measures are measurably impacting overall water use, according to Xanthea Limberg, the City's Mayoral committee member for water and waste.

Mainly though, it's a case of shifting priorities – campaigns can be costly and the dams are full, after all. What's more, as the project team point out in the report, "An underlying tension is present here. Municipalities derive income from water sales, and therefore benefit from consumers using more water. At the same time, however, they are required to practice WCWDM in line with the national water legislation. This tension may discourage municipalities from placing as much emphasis on WCWDM as they should, unless they are faced with extreme conditions."

In the final chapter of the report, the project team summarise the key learning points and recommendations from their research under four themes:

- Knowledge, information and education
- The system
- Messaging and communication
- Context, perceptions and the human factor.

Under 'Knowledge, information and education', they stress the need to build a water literate society, using a structured education and awareness approach and incorporating the opportunity to learn and reflect from past experiences, such as Cape Town's water crisis.

Taking a systems approach, they point out, is crucial for taking account of interconnectedness, because while WCWDM interventions may have positive outcomes, they may also have unintended knock-on effects, such as the reduction in revenue from water sales. They also mention the countrywide 'politicisation' of water, which came to the fore during the Cape Town crisis.



The City of Cape Town's Day Zero campaign, implemented between July 2017 and March 2018, highlighted the risk of Cape Town 'running out of water' if water use was not severely curtailed. A daily personal usage limit of 50 litres was imposed as part of the Level 6B water restrictions from February 2018.



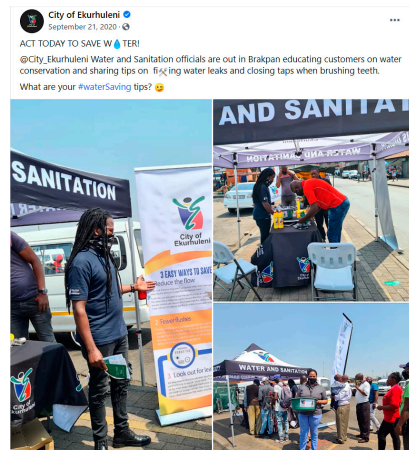
The 'Save like a local' campaign was targeted at local and foreign visitors to Cape Town during the drought. The City of Cape Town made print-ready posters, flags, leaflets and door hangers available to the hospitality industry, and many hotels took steps such as closing swimming pools, removing bath plugs and installing timers in shower cubicles.

"Messaging and communication campaigns should go beyond just providing information," note the project team, highlighting the importance of making access to information easy and via a variety of different channels. While social media provides a useful platform to share information, posts about saving water on the two municipalities' feeds inevitably prompt numerous irate or sarcastic comments from members of the public, many of them containing misinformation. "As such, controlling messaging and information is essential through active monitoring, fact-checking and corrective messaging," observe the project team. "This, however, has to happen in a way that does not alienate knowledge consumers and builds trust."

Turning to 'context, perceptions and the human factor', they note that contextual relevance in communication is essential in a developing country like South Africa, where there are vast differences in socio-cultural and economic circumstances. These



The research revealed that residents of both municipalities preferred positive reinforcement in the form of water saving tips. Strategies that involved 'naming and shaming' households who used too much water or ignored water restrictions were not considered by survey respondents to be effective in encouraging them to reduce water use in future.



The City of Ekurhuleni was used as a second case study in the WRC report. Social media has become a valuable tool for sharing information and encouraging water saving, but the research team note that active monitoring, fact-checking and corrective messaging is needed to counter negative sentiments and misinformation posted by members of the public in the comments.

differences will likely affect peoples' perceptions, which are in turn powerful drivers of – and potentially barriers to – behaviour relating to water-saving efforts.

As an example of such perceptions, the project team relate how survey respondents from high-income households in Cape Town frequently remarked that it was people living in low-income areas and townships that needed to learn about saving water because taps were often left running and leaks not fixed there. Yet respondents from low-income areas – particularly in townships where many people relied on communal standpipes for their water supply – felt that the focus should be on high-income areas where people have large gardens and swimming pools.

The success of the 'Day Zero' campaign, which was not universally supported as it was considered by many to perpetuate fear, anger and panic, can be attributed to the fact that it 'levelled the field' and cut across all spheres of inequality, note the project team – zero water for one person meant zero water for all.