Water shortages in Cape Town are here to stay. What the city can learn from others

By David Olivier

11 Jul 2017

Water access is a key challenge for urban futures. In cities like Cape Town, population growth and rising affluence, place increasing demands on finite water supplies. One solution the city has opted for is desalination plants, the first of which is about to come on stream. But hi-tech solutions like this don't curtail profligate water use and present considerable costs to the environment. Technology has its place - but only once water is cherished..

© alvinge – 123RF.com

A good example is Queensland, Australia. As part of long-term planning following severe water shortages, the local government initiated an AU$9 billion programme involving desalination plants and aquifer tapping. But running up to this, they had instituted an intensive water saving campaign. The campaign totally changed the culture of water use so that even a year after restrictions were removed, households continued to use as little water as they had when level six, or 'extreme' water restrictions were in place. Sustainable water use requires a shift in values, not more water.

A sustainable water culture is built on four pillars: tariff structures, public education, water saving technology, and water restrictions.

In the space of one summer, Cape Town cut water use by 27%. It took Sydney, Australia over 20 years to get anywhere near that level of saving.

While the water savings the city has achieved can be applauded, the risk is that residential use will bounce back to old habits as soon as the obvious threat passes. A changing climate means that water scarcity is here to stay. Cape Town's water culture must be changed to avoid stressful water crises.

The following overview of Cape Town's performance shows that its actually doing exceptionally well: the tariff structure is highly sophisticated and equitable; public education is impactful; cutting edge technology is being put to use to curb water wastage and restrictions are appropriately severe and are being enforced. But where room for improvement exists, lessons can be drawn from other cities' experiences.

A healthy water culture

Structuring water tariffs is tricky. Tariffs need to discourage overuse while sustaining enough demand to cover running costs. In Cape Town, an additional challenge is ensuring that all households have sufficient water to meet the World Health Organisation minimum of 6 kilolitres per month.

Water tariffs are an efficient way to curb overuse, but people must be made aware of what the tariffs are, how much their household uses, how much they should use, and how to achieve that goal. This boils down to educating the public.

Public education includes communicating. Posting messages on electronic billboards, including notes on household water bills and communicating through newspapers, radio, television and social media are all important. The medium of communication is important, but so is the content itself.

Water saving tips alone appear largely ineffective to curb water use. But updates on dam levels, naming high water users and praising water ambassadors are highly effective.

There's always great excitement about technological solutions when water shortages happen. But water saving technology is not a silver bullet. Low-flow appliances can actually increase water use, as people think: my shower is saving water, there's no rush to get out.

Nevertheless, technology has its place when combined with the other elements of a healthy water culture. Low-flow shower heads, dual flush toilets and water-efficient washing machines are some of the most effective appliances, even paying themselves off in water savings.

But by far the greatest residential use of water is outdoors, which goes to show how important water restrictions are the most immediate way to save. Over the course of Cape Town's 2016-2017 summer the intensity of restrictions steadily increased to compensate for the residential sector's delayed reaction to water saving targets. These had the desired effect and outdoor use came down dramatically.

But normal winter rains will not replenish Cape Town's heavily depleted dams. So, even over winter – the city's normal rainy season – severe restrictions will be necessary.

Looking ahead

The situation in Cape Town can be saved and water can be efficiently used. A number of other cases illustrate how this may be done:

- As was recommended for Sydney, Australia, raise high water users' tariffs, and use the profit to fund water saving initiatives. This may include increasing the capacity to repair and maintain water infrastructure and to subsidise water saving devices.
- In Melbourne, water bills were used to inform households how much water the water ambassadors in their area use. Households typically curtail their water use when they discover that their neighbours use less than they do.
- In Florida, retrofitting water saving appliances halved indoor household water consumption. Why not legislate water saving devices for all renovations and new builds? In this way, water smart technology will become the new normal.
- Reward exemplary conduct as Australia has done. The easiest way to reward those who use less than the minimum is to give it to them for free. While it's not necessary to provide a free allowance of water to all households as currently occurs, the easiest way to reward those households who manage to use less water than their monthly target would be to give it them free. This will provide a clear goal, even for wealthier households, who tend not to notice water costs rising incrementally.

Cape Town is doing an outstanding job of managing the rather controversial matter of residential water use. But more potential exists for improving its water demand management strategies if permanent changes are to be seen in the way limited water resources are used.

ABOUT THE AUTHOR

David Olivier is a postdoctoral research fellow at the Global Change Institute, University of the Witwatersrand.