Water crisis is here to stay – prof

'We need a radical change in strategy'

SHEREE BEGA

EVERY day, and several times a day, Lorenzo Fioramonti's phone beeps with messages from his municipality, urging him not to water his garden or wash his car, using threatened stores of high-value water.

Fioramonti, a professor of political economy and the director of the Centre for the Study of Governance Innovation at the University of Pretoria, feels like he is living in the 1960s.

"This is palliative. It's very much a band-aid approach to a problem that is not going to leave us. It's the kind of campaign that would have been okay back then.

"We think it's about people saving water, but it's about rethinking how water works. We need to get people to understand water is not coming back. We're not just experiencing water leaks, we're experiencing water failure. And our economy requires water like blood."

The focus on behavioural change, while important, is cosmetic, Fioramonti says.

"And it can be detrimental. The danger is that people think the water crisis can't be so bad if it's all about not washing their cars or watering their gardens. On the contrary, we're facing a serious problem."

Earlier this year, Fioramonti predicted water shedding was on the cards, noting resource depletion and contamination, growing demand and inefficient infrastructure.

"Our government believes this is a temporary crisis. I don't think they have a real plan... They're hoping that with restrictions... this will at some point fix itself."

But South Africa is past the stage of normal.

"The government must realise things are changing systematically. We have to start dealing with the problems that will be with us for the long term. That requires systematic action – rethinking how we use water, price water, distribute it and allow people to be active players in its conservation.

"Look at California – it's a rich state in a four-year drought that has realised it's not going to be saved by technology. The drought will be fixed only by dramatically changing the way water is organised in the system.

"It's about how companies use water and how the economy works, not just by saving at a household level. Agriculture, mining, construction... rely on immense quantities of water."

Jay Bhagwan, who heads the water use and waste division at the Water Research Commission, says: "Our problem is that when we have a crisis, we all respond and change our behaviour, but when things go back to normal, our thinking is that the problem is over.

"We don't continue to behave like it's the last drop of water... If we want to be water-secure, we need to make sure we're not vulnerable, irrespective of what happens in the environment.

"Behaviour is not aligned to recognising that water is a limited resource... people can't continue to enjoy 13 litres to flush their toilets."

'Big 5' risks if supply fails

WATER researcher Anthony Turton calls them the "Big Five" – the risks that ordinary individuals are highly likely to encounter as water supply fails.
The first is low pressure that will affect high-lying areas in reduced volumes and flows.
Second are airlocks, and third is sudden water loss due to system breakdown.
Fourth is the ingress of dirty water into pipe systems when a vacuum occurs as high-lying areas drain, and fifth is deteriorating water quality.
"This arises from the fact that up to 75 percent of our (dams) are contaminated with sewage not removed by treatment plants."
Turton suggests people do two things: "Ensure adequate on-site storage of clean water to get them through a short-term breakdown in supply. Buy a water treatment unit capable of dealing with bacteria, viruses and toxins." – Sheree Bega

DISASTER ZONE: The Meulspruit Dam near Ficksburg, Free State, has dried up, leaving thousands of fish dead. Farmers are battling to feed their livestock and cattle have died because of the drought in the province. The Free State is one of the provinces that have been declared disaster areas. PICTURE: ITUMELENG ENGLISH

Droughts bring feast and famine, says Kruger official

SHEREE BEGA

ZEBRA and blue wildebeest will thrive on shorter grasses, while lion, leopard and hyenas will do well too. But wild animals that feed on long grass, such as buffalo, tsessebe, reedbuck and rare roan antelope, will not be favoured by drought in the Kruger National Park.

That's the verdict of Dr Eddie Riddell, the park's manager of freshwater resources, who says that in the well-documented 1991/92 drought larger predators did well, but this was at the expense of smaller predators, including wild dog, cheetah and jackal, that they "outcompeted" for resources.

"Furthermore the surviving buffalo were the strongest and most resilient, and therefore only the 'best' repopulated the park," Riddell says in the September/October edition of the Water Research Commission's Water Wheel magazine.

The article predicts that the severe drought could "hold far-reaching consequences" for the Kruger, where summer rainfalls last year and this year have been below normal across large parts of the park.

Extreme droughts could cause severe or longer-term ecosystem changes, particularly since the park is fenced and the rivers that run through it are used heavily before they enter the park, the article says.

A common misconception is that animals die of thirst during prolonged droughts, says Riddell.

"In fact, most starve to death after grazing has been depleted... Some animal and plant species flourish when plenty of water is provided, while others do not."

Riddell says the El Nino-related droughts of 1982/83 and 1991/1992 were the most severe droughts on record in the Kruger and characterised by below-normal rainfall for two consecutive years – a scenario predicted for this year.

The five perennial rivers that run through the park, including the Luvuvhu, Letaba, Olifants, Sabie and Crocodile rivers, arise in catchment areas outside the park.

The article says a severe drought "holds many consequences". In March 1992, the Sabie River, regarded as the most biodiverse in the country, was close to losing its status as a perennial river for the first time in recorded history.

Riddell says there have been some "challenges" to meet the ecological reserve in the catchments of the Letaba, Crocodile and Sabie Rivers, but these have largely been resolved through collaboration with upstream users. "If the dry period continues... (this would) become more challenging."

Severe drought would allow the Kruger to answer pertinent questions, Dr Freek Venter, the park's general conservation manager, says in Water Wheel.

"Will the perennial rivers... dry up or will the strategy to build larger dams in the upper catchments rather than in the Kruger itself bear fruit?"

Venter also wonders whether roan will decline or disappear from the Kruger ecosystem.

Company offers solution to crisis: water out of thin air

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WATER shortages could be wiped out forever at a cost of R500 000 to the government.

This is according to Ray de Vries, chief executive of Water From Air, a Durban-based water solution company, which sells machines that suck in air, cool it down, and use the condensation to create filtered mineralised water from humidity in the air.

The machines are designed to run off solar power, a generator or the electricity grid.

There are 12.9-trillion litres of water in the atmosphere that we can to tap into.

As scary as it may sound, said De Vries, "varying levels of harmful chemicals are found in our tap water, including everything from heavy metals, chlorine and arsenic to prescription drugs and even human hormones."

He said the machines could make up to 1 500l of clean water a day. "They sell for about R785 000 each and we can deliver a thousand of these machines in six months if the government ordered," De Vries said. "A thousand machines would make over 1 million litres of 100 percent pure water per day."

He said the project would create 300 to 400 jobs for people who would build the systems.

With the current heat wave, drought, water restriction, dams drying up and with water levels at reservoirs reaching alarming lows, De Vries said: "To think that for decades companies have been building dams and purifying water, but the solution to a sustainable water supply has been in the air all along.

"You would be surprised how much humidity is in the air. Even deserts have humidity at night."

He said they had approached the government for potential business ventures and his team had a meeting with Water Affairs Minister Nomvula Mokonyane, who described their systems as "a brilliant idea".

They were in talks with the department but progress was slow. "We have sold units to overseas clients in California, Berlin and Mexico," he added.

Water From Air has sold more than 500 units. "Our service is not a 'until the drought ends solution'. This is permanent," said De Vries.

"For 1 litre of water a person drinks of our water, a litre from municipal water is saved for those who can't afford to buy our machines."

Bruce Jones, managing director of Cirrus Water Management, which uses atmospheric water generators (AWG) to generate water from the air, said it was expected technologies like AWG would create new supply lines for water to meet the shortages.