

UNQUENCHABLE THIRST

Could Singapore run out of water?

BY MELINDA MURPHY



Standing in line, surrounded by armed guards, waiting for hours just to get a drink. Sound like a scene from an apocalyptic movie? Think again. This is the reality facing the residents of Cape Town.

For months, Cape Town officials have been warning residents they could very likely run out of water, all thanks to an extreme drought, possibly fuelled by climate change. For now, it seems Day Zero has been avoided in 2018, but the situation is still highly dependent on rain, and 2019 is still at risk. Currently, residents are asked to limit usage to 50 litres a day. Tourists are warned to take 90-second showers. Restaurants and bars have turned off their

taps, encouraging people to use hand sanitiser. Some hotels have filled their pools with salt water.

In fact, much of the Western Cape has already hit Day Zero where there is no drinking water at many schools. Just think what it would mean if the same thing happens in Cape Town: almost four million people living in a major city won't be able to turn on the tap to get a drink, much less bathe. Residents will line up at 200 emergency water stations (each serving approximately 200,000 people) to receive 25 litres of water a day – about what you use in four minutes of showering.

If it can happen there, can it happen here?

Hopefully not, though the World Resources Institute lists Singapore as one of the top countries facing water stress. The key to our water future lies in some plans made very long ago, led by the country's founding father, Lee Kuan Yew, who took actions when Singapore was first formed to protect our water



Marina Barrage

supply. In fact, Prime Minister Lee was so passionate about water that in 2008 he said, “every other policy has to bend at the knees for our water survival.” The managing agency for the island’s water supply, PUB, dubbed him “the architect of Singapore’s water story”; today, that story encompasses four chief sources of water that are dubbed “National Taps”; they are imported water, water from local catchments, NEWater and desalinated water.

A LITTLE HISTORY

When Singapore separated from Malaysia in 1965, the country’s water future wasn’t so rosy. At the time, all our water came from Malaysia. Thanks to water agreements signed between the two nations in 1961, we can continue getting water from the state of Johor until 2061. So, for now, Malaysia provides 40 percent of our current supply.

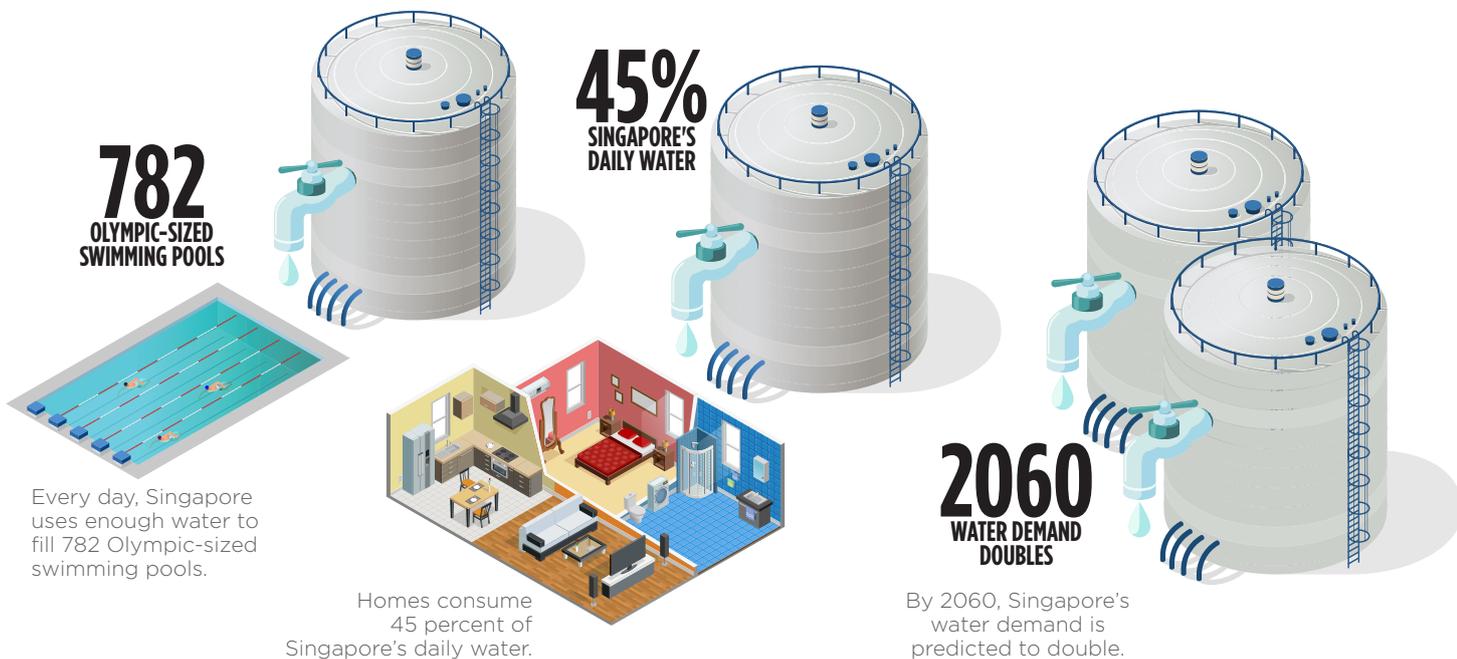
But Prime Minister Lee knew that wasn’t enough, and he challenged the country to find a way to save every drop of rain, a plan that now provides 20 percent of Singapore’s water. You know those canals slicing and dicing the island, the ones that run along many roads here, so deep you feel like you could fall in them and never get out? Well, their purpose is to funnel rainwater to places such as the Marina Reservoir, the largest of Singapore’s seventeen reservoirs, with one-sixth of the country feeding into this catchment. Not only do these canals save water, but they have the added bonus of protecting against flooding. Incredibly, in the past seven years, Singapore has increased its catchment area from half to two-thirds of the country.

WATER AROUND THE WORLD



- 2.8 billion people are affected by water scarcity at least one month a year (World Health Organization)
- By 2025, half of the world’s population will be living in water-stressed areas (WHO)
- More than half the world’s wetlands have disappeared (WWF)
- Only 2.5 percent of the world’s water is fresh (National Geographic)
- 663 million people lack access to clean drinking water (World Bank)

SINGAPORE’S WATER



782
OLYMPIC-SIZED SWIMMING POOLS

Every day, Singapore uses enough water to fill 782 Olympic-sized swimming pools.

45%
SINGAPORE'S DAILY WATER

Homes consume 45 percent of Singapore’s daily water.

2060
WATER DEMAND DOUBLES

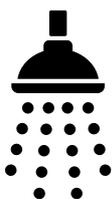
By 2060, Singapore’s water demand is predicted to double.

HOW MUCH WATER DO YOU USE?



5-Minute Shower

151 LITRES



5-Minute
Power Shower

38 LITRES



Brushing Teeth
with Tap Running

78 LITRES



One Toilet Flush

11 LITRES



Other Water
Use (drinking,
cooking etc.)

26 LITRES



Washing Machine

151 LITRES



Dish Washer

38 LITRES



Washing Car
with Bucket

11 LITRES



Hose/Sprinkler

578 LITRES/HOUR

Source: Water: Use Less-Save More

MORE THAN RAIN

But Singapore's road to water independence has to be more than about collecting rainwater. Extreme droughts in the region in the 1960s led to strict rationing and also reminded us that rain isn't always consistent. Just look at Cape Town.

The crown jewel in Singapore's water strategy is NEWater, five plants that purify water, using all sorts of new-fangled techniques such as membrane technology and ultra-violet disinfection. Currently, the plants meet up to 40 percent of our needs, but by 2060 that number is expected to rise to more than half of demand.

Ever wonder how all that used water gets to these plants? Believe it or not, right below your feet is a Deep Tunnel Sewerage System (DTSS), a 48km-long, used-water superhighway that takes your nasty toilet water to the plants to become clean drinking water. Cool, eh?

Last, but not least, Singapore also has capitalised on the fact that we're an island nation. Two desalination plants meet up to a quarter of our current water demand. Three more such plants are expected to be ready by 2020.

THE FUTURE

There are many cities across the globe at risk besides Cape Town: Mexico City already enforces extreme rationing and a limited tap supply; Jakarta is running so dry that the city is sinking because residents are sucking up groundwater faster than it can be replaced; Melbourne says it could run out of water in less than a decade – and that's just to name a few.

Singapore is often held up to the rest of the world as a city doing everything right when it comes to water management. The country is now considering new measures to help with water supply such as an Automated Meter Reading (AMR) system, which was piloted in Punggol in 2016. The AMR would automatically transmit information to PUB; a related app would then let homeowners know how much water they're using and alert them if they have a leak. There'd also be a related game and rewards – all aimed at making those of us living here do a better job at conserving water. Yup, Singapore is blazing the way.

Believe it or not, Cape Town has actually won awards for water management in the past. Unfortunately, the city's officials made the assumption that rainfall levels would continue as always – an assumption that has proved to be disastrous. All to say, we in Singapore can't rest on our laurels.

We also can't just depend on the government to take care of us. We have to do our part, too. Anybody with small kids has no doubt endured a lecture by them on how to save water, something they learn in school. Take shorter showers. Turn off the tap when you brush your teeth. Give half-used glasses of water to the dog or a plant. You know the drill.

In short, do your part, so Singapore can do theirs. *ε*