

Sewage helps Singapore shake off M'sian shackles
Malaysiakini.com
June 29, 2010

When Singapore said it would not renew a water-supply pact with Malaysia, the news hardly caused a ripple in a nation where technology is now flowing through the taps.

In the past, the idea would have seemed dangerous in a resource-starved island that bought almost all its water from its bigger neighbour.

But with Singapore steadily approaching self-sufficiency and exporting technology to recycle sewage into drinking water, there is a growing sense of confidence that it is less vulnerable to Malaysian water pressure.

"This could mean that the Singapore public is no longer as exercised by water security," the pro-government Straits Times said in an editorial after the April announcement.

"Gradually shedding dependence on Malaysia is high on Singaporeans' wish list, if only to eliminate a source of neighbourly conflict."

Singapore has two accords to buy raw water from Malaysia, which evicted the island from a federation in 1965. The first will expire next year - and will not be renewed - and the second will lapse in 2061.

Singapore is confident that by then it will be able to supply all of its water needs if necessary - a major boost to its strategic security.

"Because of our sustained efforts, we have come a long way in water self-sufficiency," said former prime minister Goh Chok Tong.

Cutting dependence on Malaysian water would help ease tensions because "whenever there were serious bilateral disagreements, some Malaysian politicians would use water as leverage to pressure us to compromise in their favour," he said.

From weakness into opportunity

Technology has played a vital role in Singapore's dramatic success in turning a weakness into an opportunity to not only become self-sufficient in water but make billions exporting the technology as well.

The city-state is currently hosting the annual Singapore International Water Week, which gathers the world's top experts on the subject.

"Water, the foundation of life, is at the heart of a daily crisis faced by millions of the world's people," said Noeleen Heyzer, executive secretary of the UN Economic and Social Commission for Asia and the Pacific.

She told the conference about 1.1 billion people worldwide have no access to clean water and more than two billion lack basic access to sanitation.

In May, Singapore opened its biggest and most advanced plant that purifies used water until it is fit for humans to drink and for use in factories.

Water flushed from toilets and kitchen sinks is pushed through a series of membranes to remove impurities, producing an end product branded as NEWater that used to be ridiculed but is now widely accepted by the public.

The latest NEWater plant, built by state-linked SembCorp Industries and the fifth such facility in Singapore, can produce 228,000 cubic metres (50 million gallons) of ultra-clean water per day.

This is enough to fill 90 Olympic-size swimming pools, said the Public Utilities Board (PUB), the national water agency.

NEWater now accounts for 30 percent of the country's total water needs, and this is expected to rise to 50 percent by 2060, PUB said.

From old to NEWater

Desalinated water - costlier to produce than reclaimed waste water - now provides 10 percent of Singapore's needs, while local catchments and imported water from Malaysia account for the rest.

By 2060, desalinated water should account for up to 30 percent of water needs, PUB added.

SembCorp's facility is part of the sprawling Changi Water Reclamation Plant complex, capable of treating 800,000 cubic metres (176 million gallons) of used water before it is either flushed into the sea or further purified as NEWater.

A 48-kilometre (30-mile) underground tunnel that runs from Kranji in the city's northern suburbs feeds used water to the Changi reclamation plant on the eastern coast. The mega sewer is buried 20-50 metres underground.

Singapore has a separate system, including 7,000 kilometres (4,340 miles) of drainage, that directs rainwater into reservoirs.

At the Changi water reclamation complex a lift takes staff to a cavernous pump room deep below the surface, where powerful machines push the water to elaborate facilities on the ground level for treatment.

Yet there are no tell-tale signs, not even a faint smell, betraying the fact that the facility is a massive receptacle for dirty water flushed daily by the city's nearly five million residents.

"People are surprised that this is actually a water treatment facility. They don't really know what's underneath," Yong Wei Hin, an assistant director at the water reclamation plant, told AFP during a recent visit.

When Singapore hosted an Asia-Pacific leaders' summit in 2009, Chinese President Hu Jintao specifically requested a tour of the facility, said Yong.

Unlike treatment plants in the 1980s which emitted a foul smell because tanks were not covered, all outlets at the facility are tightly sealed and odours from by-products are neutralised before being released into the air.

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