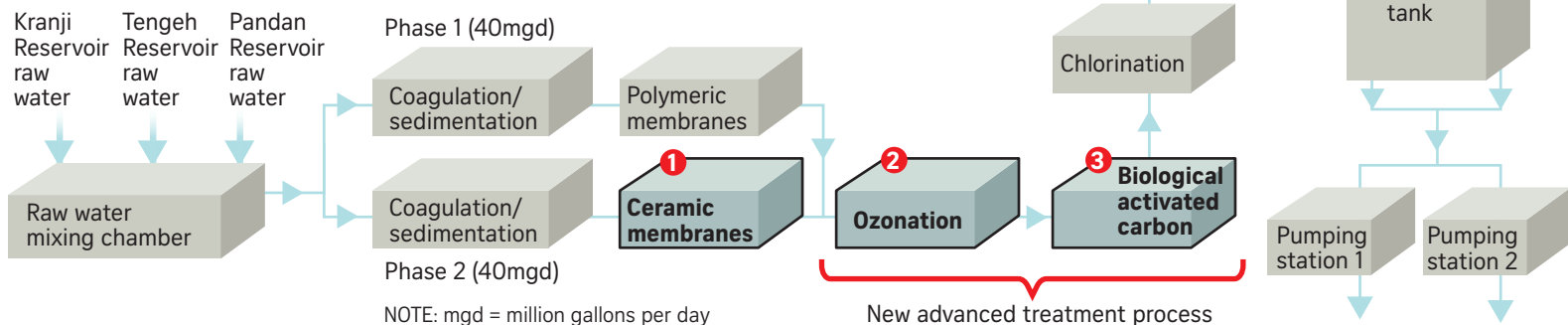


State-of-the-art upgrade for Choa Chu Kang Waterworks

One of Singapore's oldest water treatment plants has been given a \$162 million revamp. The new ceramic membranes and advanced treatment process at the plant will allow Singapore to better tackle the impact of climate change, such as increased algae growth at reservoirs. Similar ceramic membrane systems are also used at water treatment facilities in the Netherlands and Britain, but the one at the Choa Chu Kang plant is the first for Singapore. The Choa Chu Kang plant is now the world's largest ceramic membrane water treatment plant.



A bird's-eye view of Choa Chu Kang Waterworks.



New advanced treatment

Water from three reservoirs is purified in many stages. Sand filters have been replaced by ceramic membranes, which filter the water more efficiently. An additional advanced treatment process purifies the water further.

1 Ceramic membrane filtration

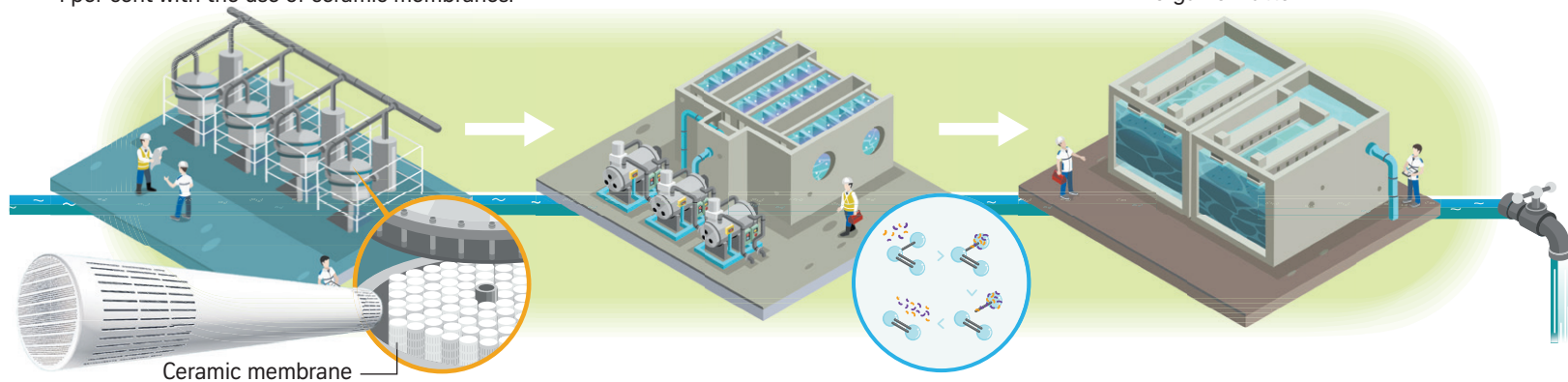
- Pressurised water is pumped through the ceramic membranes.
- Ceramic membranes last for about 20 years, four times longer than polymeric membranes.
- Water loss is reduced from 5 per cent to 1 per cent with the use of ceramic membranes.

2 Ozone treatment

- Just three ozone generators are needed instead of 12 previously.
- Bubbles of ozone gas are mixed into the water.
- The ozone destroys microbes and removes other contaminants.

3 Biological activated carbon treatment

- Water passes through a biologically active carbon media via gravity.
- Helpful bacteria cultivated in the carbon help consume remaining organic matter.



Plant milestones

