

Singapore's blue economy innovations

See Wan Yin

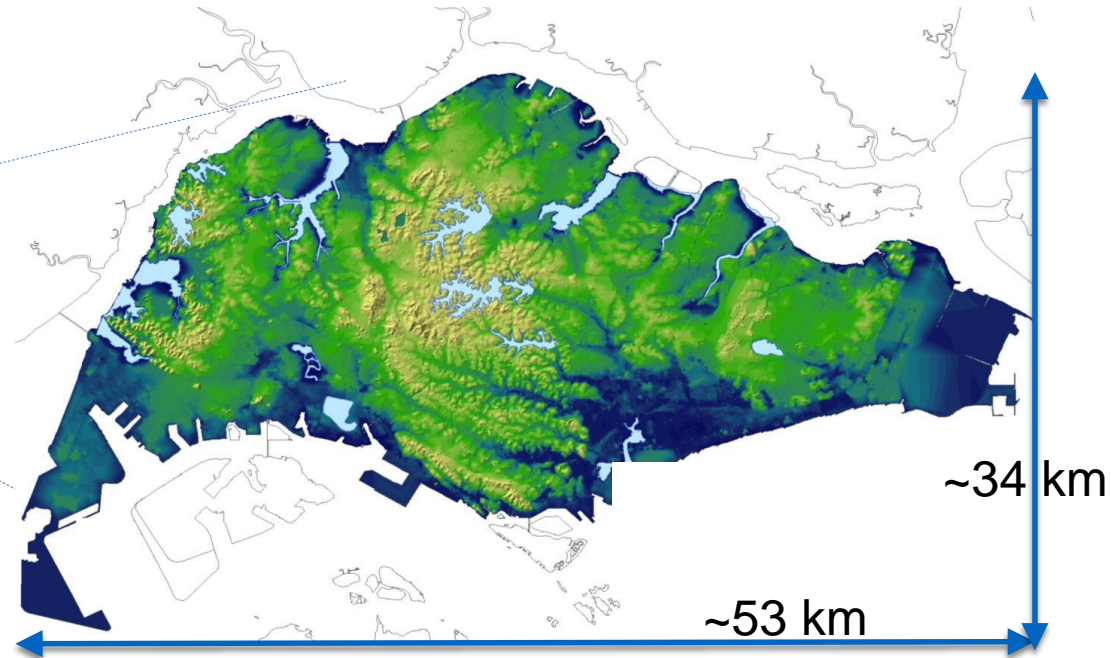
Senior Executive, Ministry of Environment and Water Resources



Singapore: A Small Island State



- Population of **5.6 mil**
- Land area of **719 km²**
- Avg annual rainfall **2330 mm**
- No Natural Resources



Singapore was ranked 171 out of 182 countries in terms of water availability (source: UN World Water Development Report, 2003)

Water is a national priority



Mr Lee Kuan Yew

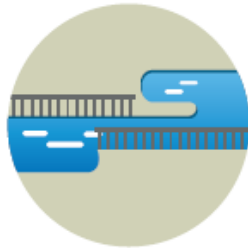
Founding Prime Minister
at Singapore International Water Week 2008

“ ... (Water) dominated every other policy. Every other policy had to bend at the knees for water survival. ”

Key Strategies in Providing Good Water

1

Collect every
drop of water



2

Reuse water
endlessly



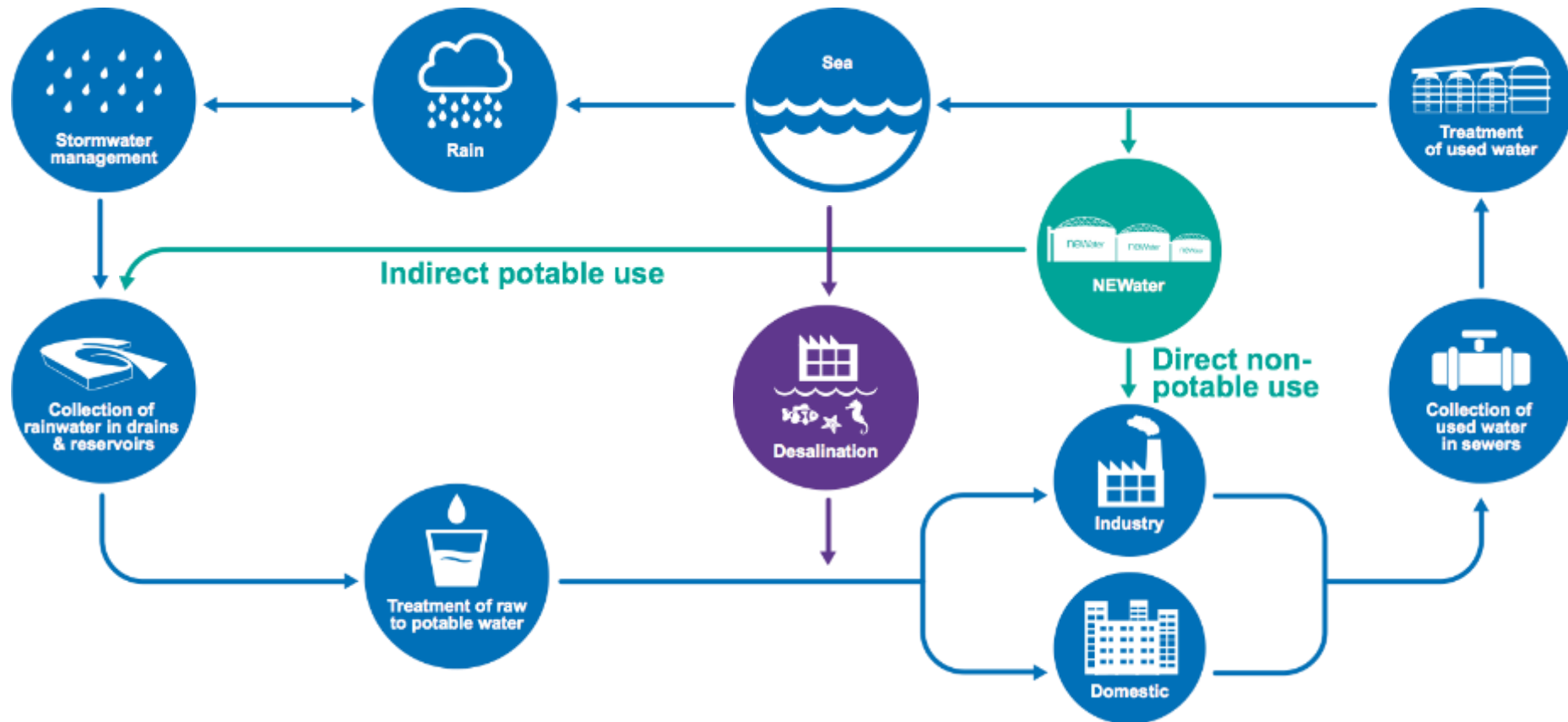
3

Desalinate
more
seawater

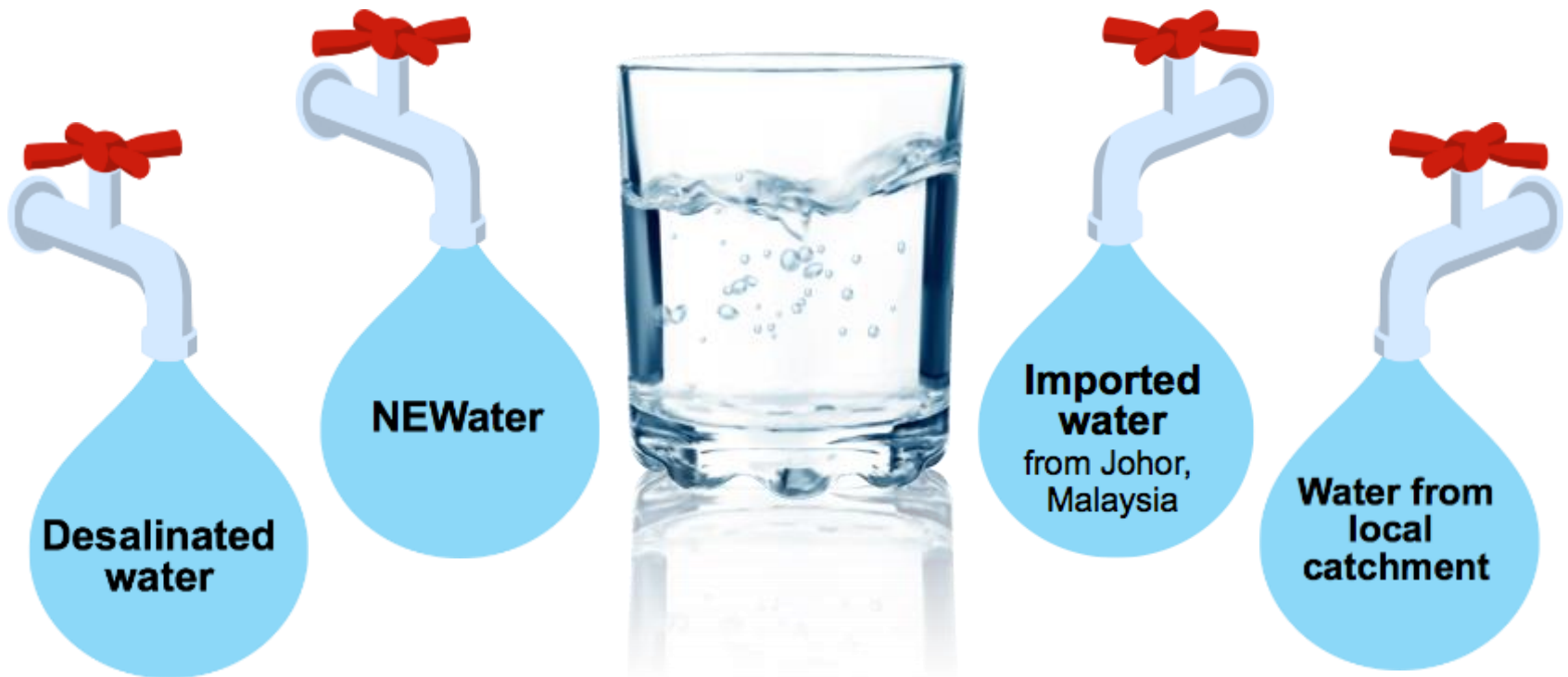


***Today, Singapore has a diversified supply of 4 different sources;
Residents enjoy 100% potable water at tap & 100% sanitation***

PUB manages the complete water cycle



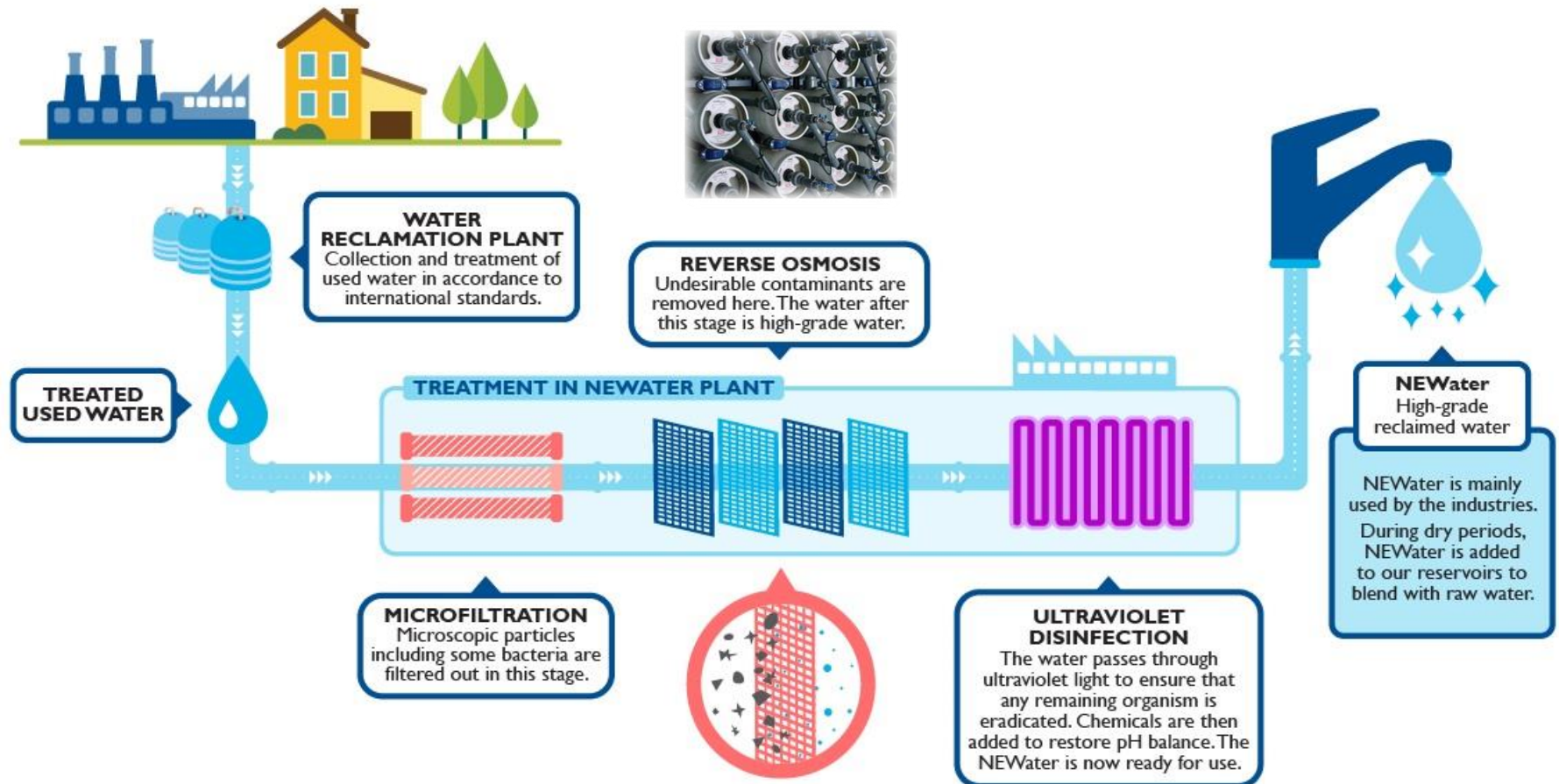
Four National Taps



www.pub.gov.sg

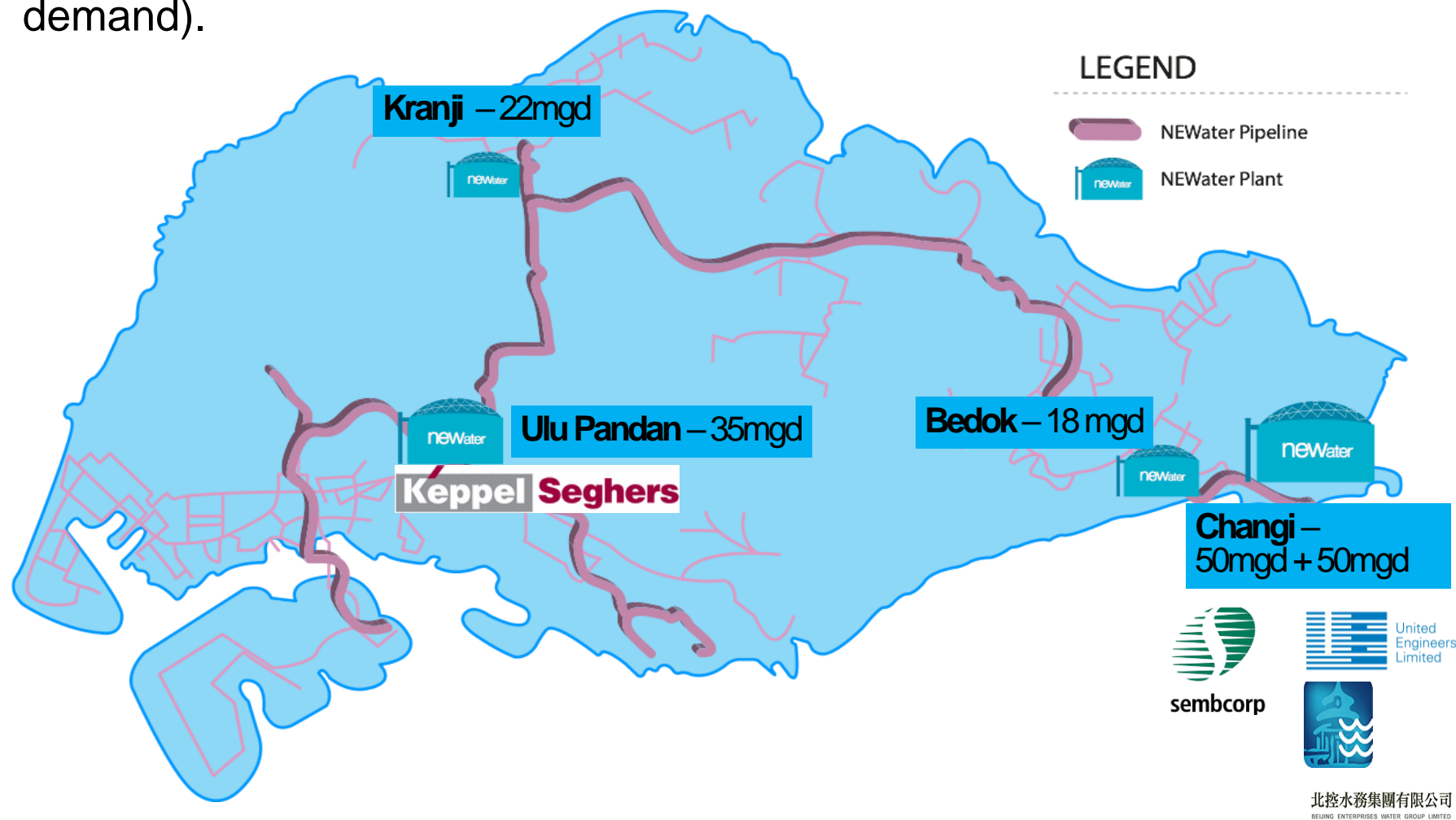
NEWater

NEWater is high-grade reclaimed water (from treated used water), and replaces use of potable water for non-potable uses in industries.



NEWater

5 NEWater Plants today with total capacity of 175 mgd (up to 40% of demand).



Endorsement by leaders



Singapore's Voluntary National Review

2018 High Level Political Forum on Sustainable Development



Reclaiming Used Water: Deep Tunnel Sewerage System

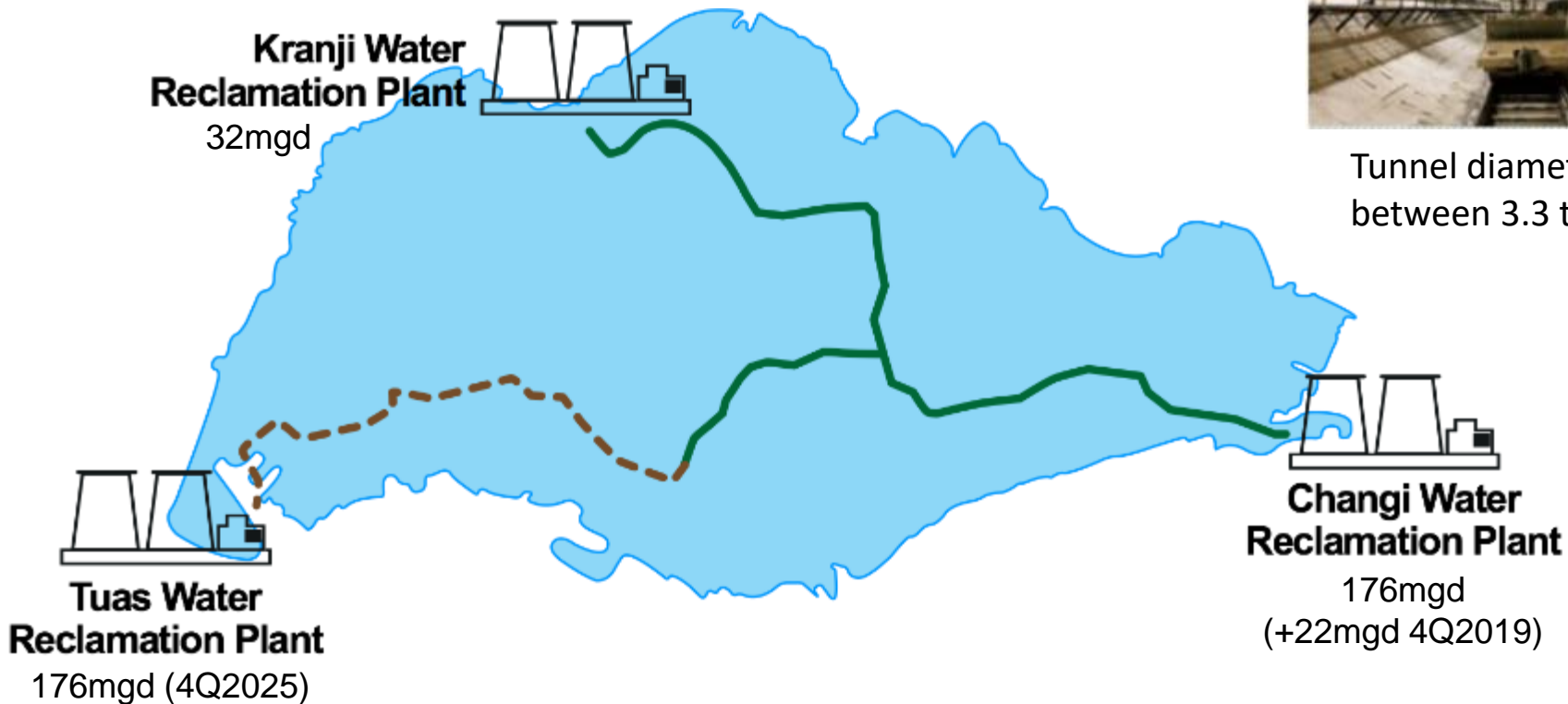
— DTSS Phase 1
- - - DTSS Phase 2

DTSS Phase 1
S\$3.6bil (2000 – 2008)
48km long, 20-55m
underground

DTSS Phase 2
S\$6.5bil (2014 – 2025)
40km long



Tunnel diameter
between 3.3 to 6.0m



Desalination

Current Total Capacity = 130mgd

Hyflux®

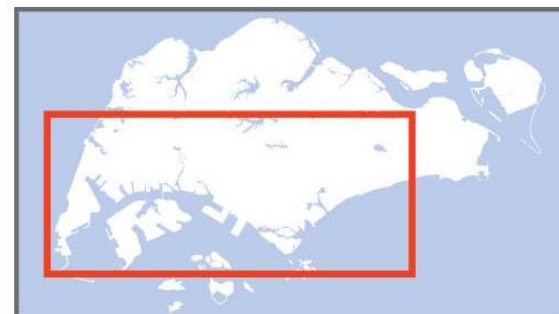
Singspring desalination plant

- Capacity: 30 million gallons of water per day

Hyflux®

Tuaspring desalination plant

- Capacity: 70 million gallons of water per day



Jurong Island



ST Marine

A company of ST Engineering

Fifth plant (Jurong Island)

- Capacity: 30 million gallons of water per day
- Completion: 2020

Keppel

Fourth plant (Marina East)

- Capacity: 30 million gallons of water per day
- Completion: End 2019

Third plant (Tuas)

- Capacity: 30 million gallons of water per day
- Completion: End 2017

HSL

tedagua

Preparing for the Future

50-year Water Masterplan

NOW

DEMAND NOW

Domestic sector **45%**
Non-domestic sector **55%**

SUPPLY NOW

Water from local catchment
Imported water
NEWater **40%**
Desalinated water **30%**

* denotes % of demand



2060

DEMAND IN 2060

Domestic sector **30%**
Non-domestic sector **70%**

SUPPLY IN 2060

Water from local catchment
Imported water
NEWater **[up to 55%]***
Desalinated water **30%**

* denotes % of demand

Thank You

