

TRADE EFFLUENT MANAGEMENT

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MAKE
EVERY
DROP
COUNT

Singapore – A Water-Stressed Country



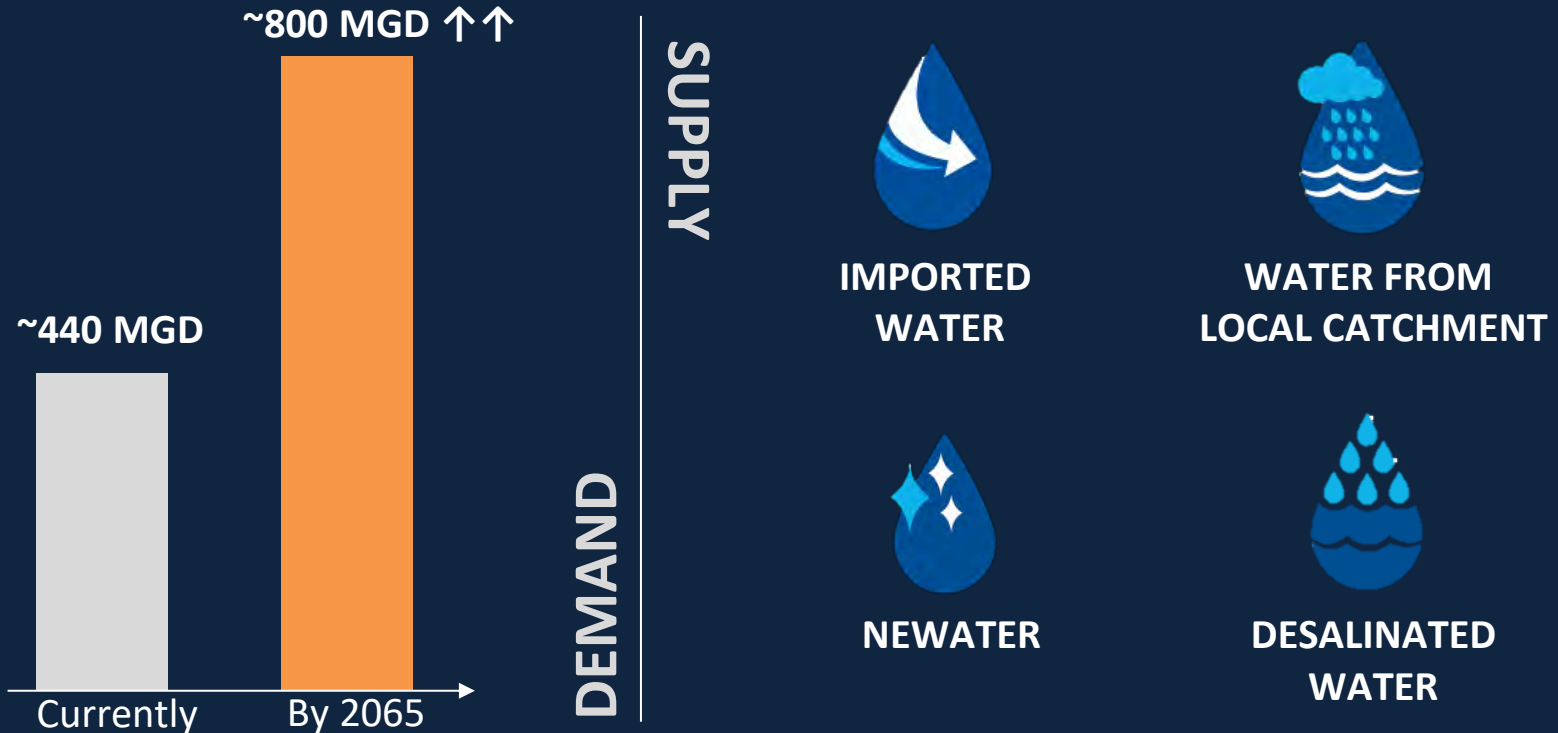
Land Area: ~730km², Population: ~6 million
Average Annual Rainfall: ~2739.8mm (2024)

➤ Limited resources

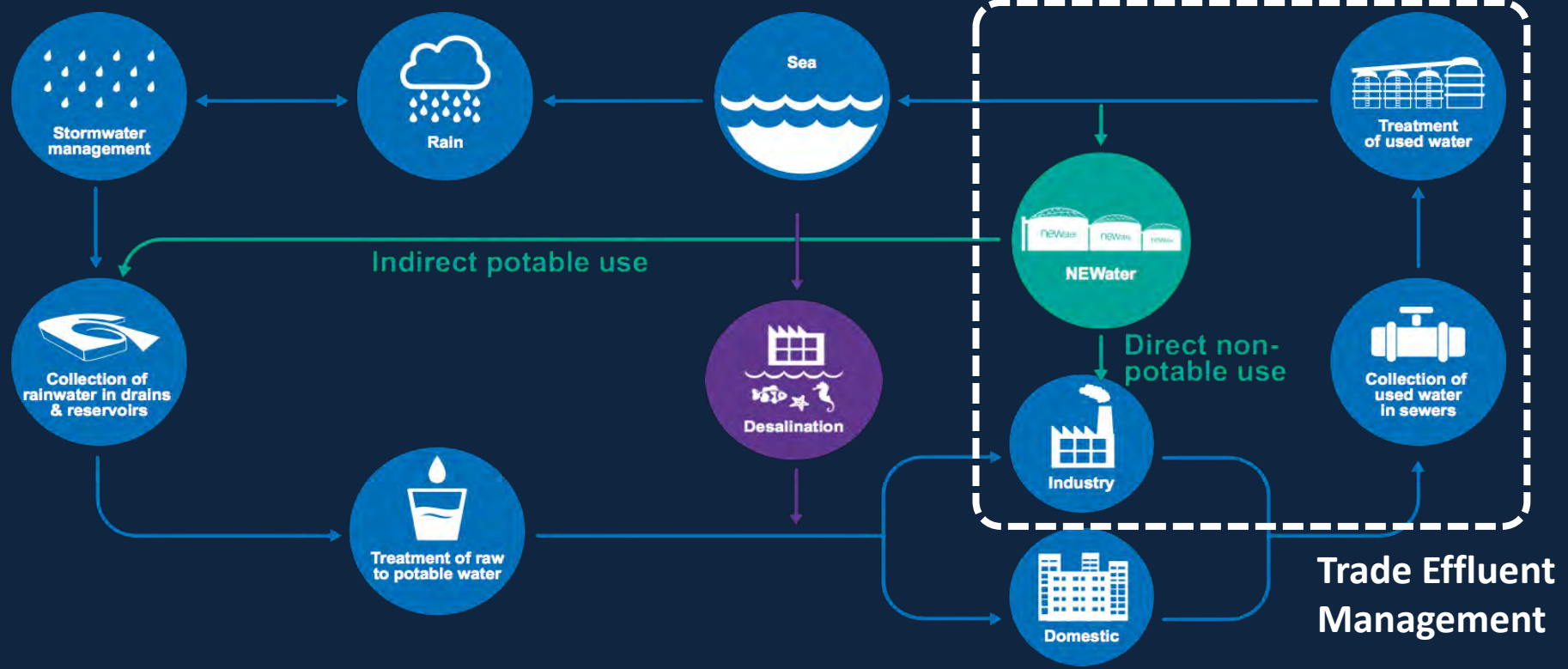
➤ Land scarcity with competing land uses

Singapore's Four National Taps

To meet **rising water demand**, Singapore has built a **robust & diversified supply of water** -- "Four National Taps"



Singapore's Water Loop



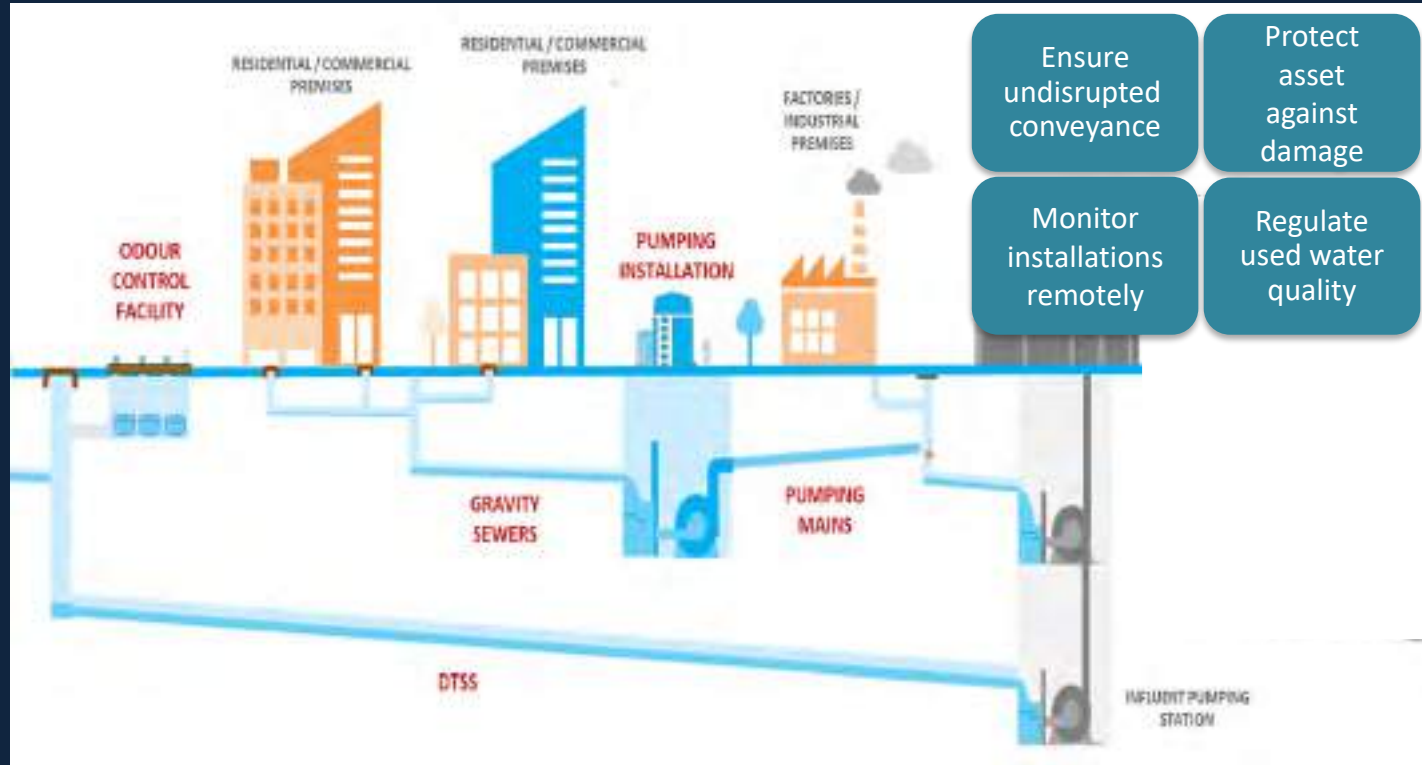
NEWater allows us to re-use every drop of water

Singapore's Public Sewerage System

Before embarking on water reuse efforts, it is **imperative** that we can recover every drop of used water

Comprehensive system in place to ensure our sewerage network:

- i. Functions well and reliably
- ii. Able to recover every drop of used water



The Need For Trade Effluent Management

Trade effluent is used water generated from trade premises / factories

Why regulate?

To deter illegal discharges into sewers and safeguard:



Health & Safety of sewerage workers



Biological process in Water Reclamation Plants



Feedstock for NEWater production

Main Legislations

- Sewerage and Drainage Act
- Sewerage and Drainage (Trade Effluent) Regulations

Hence, a need for a comprehensive risk-based strategy to manage trade effluent

Trade Effluent Management Framework

4-prong strategy to tackle illegal discharge

Create awareness with stakeholders

- **Dialogues** with Trade Association
- **Engage agencies** for collaboration
- Embrace **social media** and



Stakeholder Engagement

Prevention and Deterrence

Effective measures to prevent & deter at source

- **Written Permit** to know who and what discharge
- **Risk profile** of factory
- **Plan and execute ambush** on targeted factory
- **Deployment of Sensors** at targeted factories/network



Enforcement & Penalty

Robust enforcement regime to deter and penalise offender

- **Review risk profile** of offender to higher tier
- **Regular legislations** review to ensure relevance and tackle emerging issues
- **Regulatory/ Criminal action**
- **Publicize** successfully convicted cases in media

Capability Development

Knowledge empowerment to staff & harness technologies

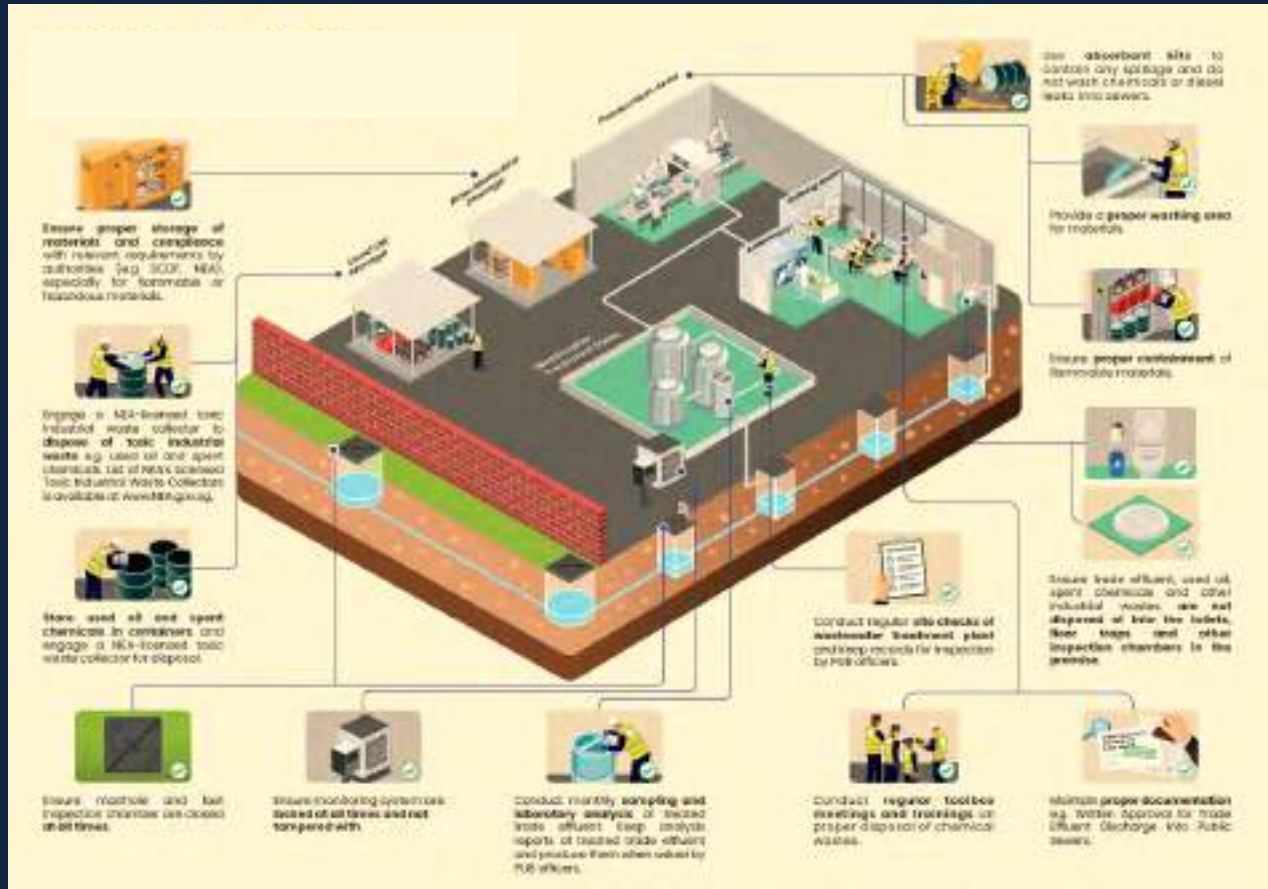
- **Staff development** and training
- Closing gaps with **R&D projects** to enhance surveillance and monitoring



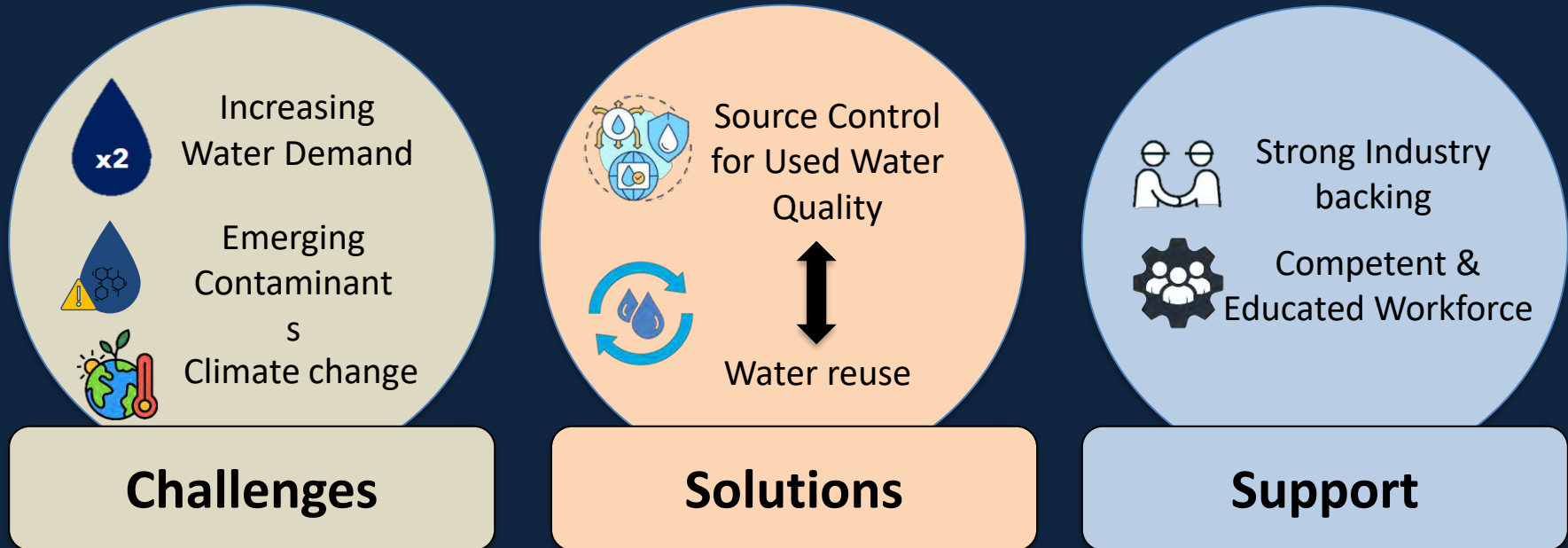
Effective Management of Trade Effluent

Guidelines on effective management of Trade Effluent:

- Need to be pro-active and treat trade effluent discharged into the sewerage system
- Not about implementing expensive technologies but could simply include:
 - a. Proper waste segregation & containment measures
 - b. Sampling and laboratory analysis regime
 - c. Other administrative means e.g training



Key Takeaway - Singapore's Unique Story



THANK YOU

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