



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

WATER REUSE IN CAPE TOWN

Water Strategy and water reuse in Cape Town – March 2021

AGENDA FOR WATER REUSE ENGAGEMENT MEETINGS

Introduction and purpose of engagement

Presentation 1: Water Strategy and planning for water reuse in Cape Town

Video 1: History of water in Cape Town and introducing water reuse

Initial thoughts and questions

Presentation 2: Overview of the Faure New Water Scheme and demonstration plant

Video 2: Demonstrating water reuse, and the advanced purification process

Questions and open discussion

WHY WE ARE ENGAGING YOU AT THIS POINT

inform you of Water Strategy and water reuse (history & what's coming)

hear from you about your views on this

invite you to partner with us to make this project a success

WATER-STRESSED CITIES

Cape Town is one of several cities worldwide experiencing water scarcity. In fact, **130 large cities were hit by drought disasters between 2010 and 2015.** Other major water-stressed cities include:

São Paulo

Beijing

London

Bangalore

Tokyo

Moscow

Istanbul

Perth

Los Angeles

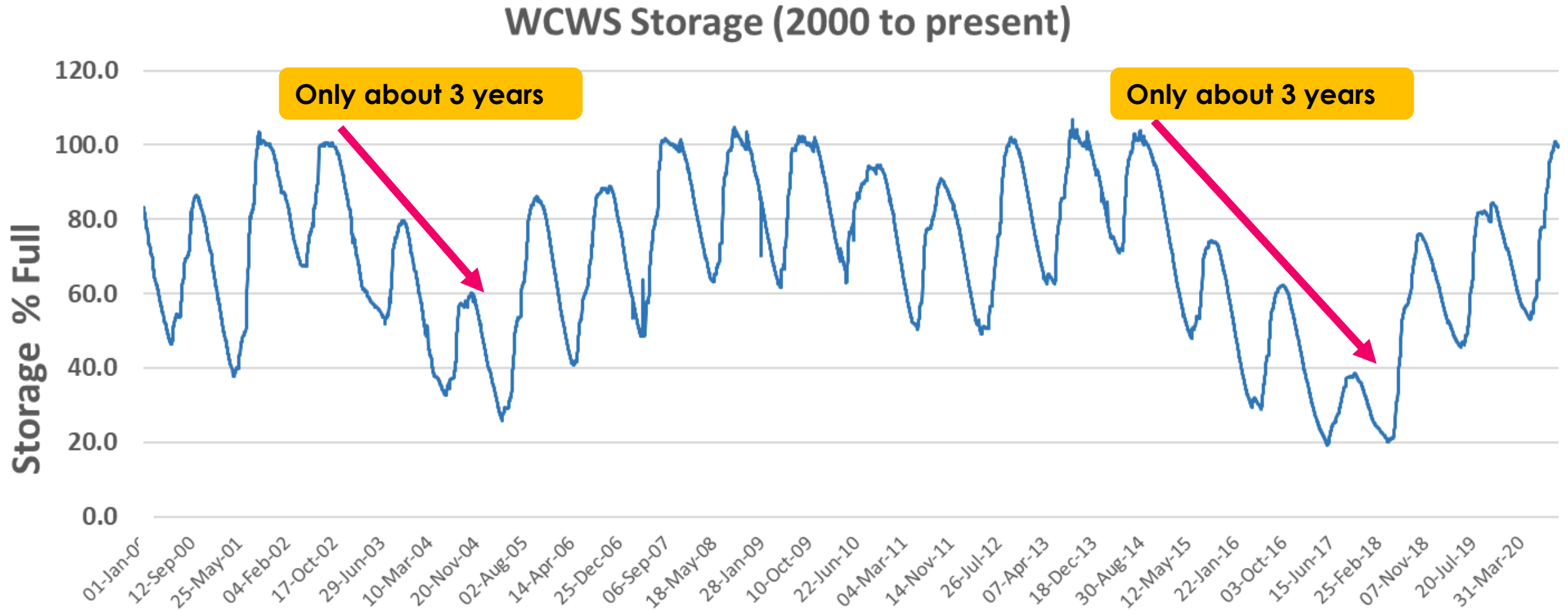
CLIMATE CHANGE IMPACT ON WATER SECURITY

In 2018, the city narrowly avoided 'Day Zero' when water would have to be shut off. Dams were down to just **9.8%** of usable storage capacity.

To reduce the risk of this re-occurring, we have to face the reality of less predictable rainfall patterns.



DROUGHT AND STORAGE CAPACITY OF OUR DAMS



CAPE TOWN'S WATER STRATEGY (2019)



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Making progress possible. Together.



FIVE COMMITMENTS IN THE WATER STRATEGY

Supporting the City's Resilience Strategy and the IDP strategic priorities

- 1 SAFE ACCESS TO WATER AND SANITATION FOR ALL**
- 2 WISE WATER USE** through pricing, regulation, active citizenship, network management
- 3 SUFFICIENT, RELIABLE WATER FROM DIVERSE SOURCES:** surface, ground, desalination, RE-USE (more water resilient by 2030)
- 4 SHARED BENEFITS & MANAGED RISKS** from regional water resources
- 5 WATER SENSITIVE CITY** by 2040

300 million litres per day of new capacity over 10 years

NEW WATER SUPPLIES – as well as
MANAGEMENT INTERVENTIONS

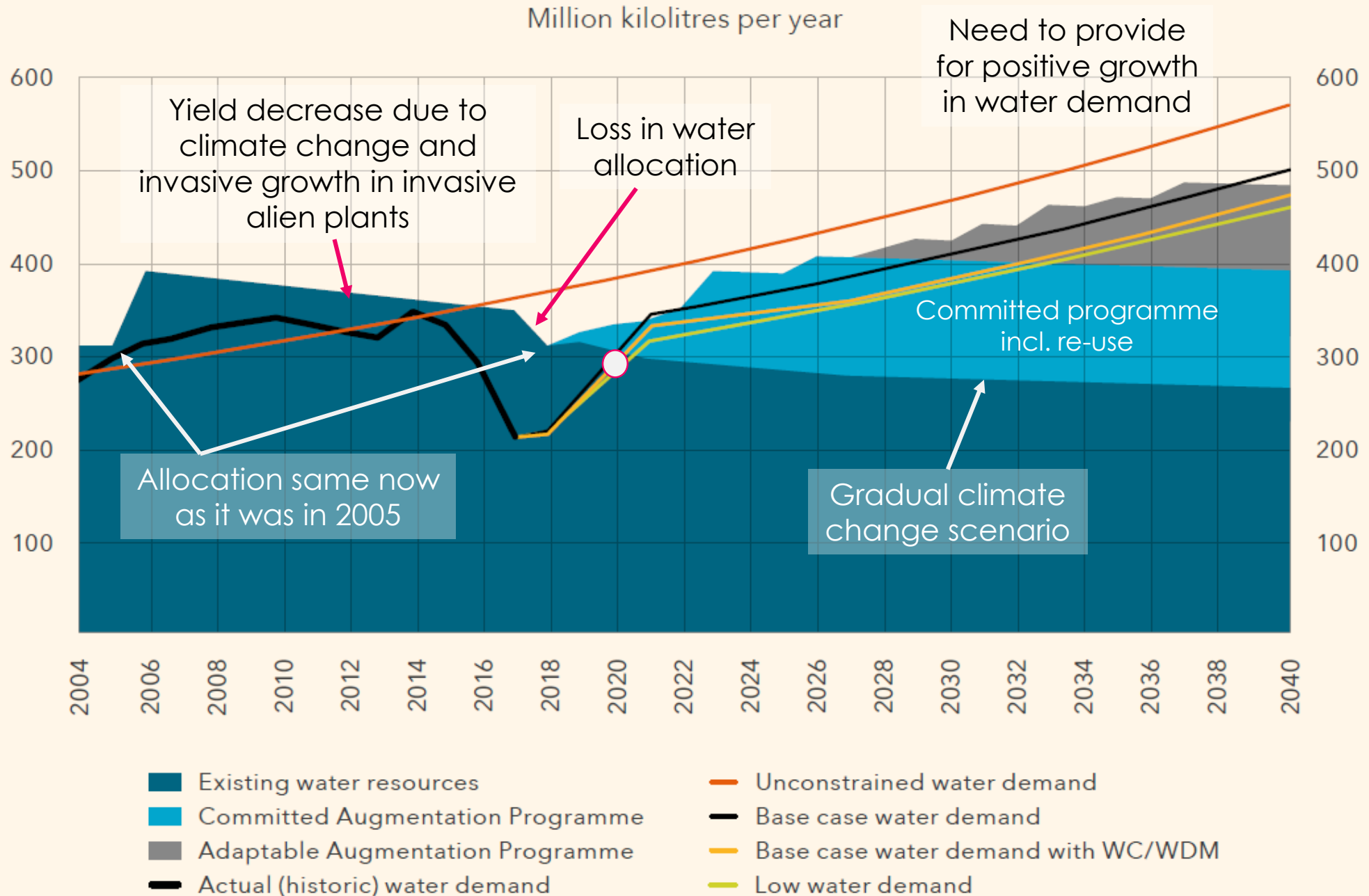
See www.capetown.gov.za/thinkwater

OTHER ONGOING CITY INTERVENTIONS

- Water conservation & 'demand management' e.g. leak fixing programmes and efficiency in City-owned facilities etc
- Advanced pressure management
- Dam management optimisation
- Reuse of treated effluent
- Clearing 'thirsty' alien invasive plants in catchment areas which reduce water coming into our dams



FIGURE 8: THE SCALE AND TIMING OF THE NEW WATER PROGRAMME

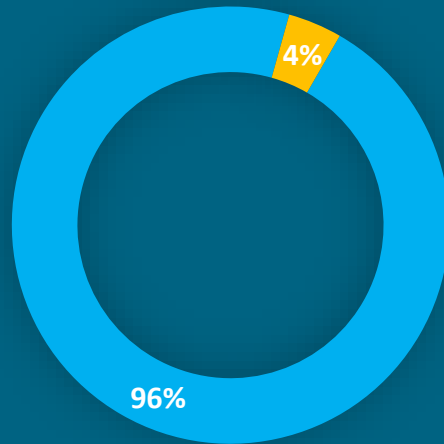


HOW CAPE TOWN'S WATER SUPPLY SYSTEM WILL CHANGE

City of Cape Town

current

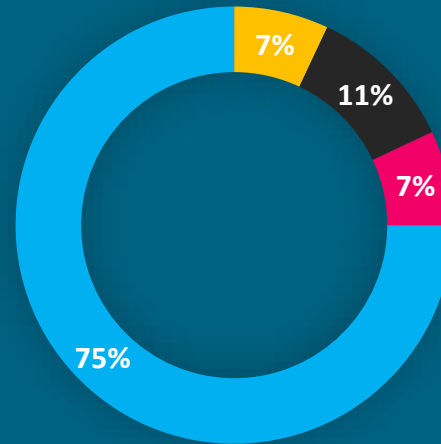
water resource mix



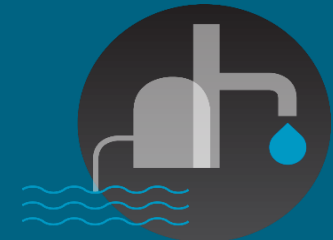
City of Cape Town

2040

diversified water resource mix



- Surface Water
- Groundwater
- Desalination
- Reuse



CAPE TOWN NEW WATER PROGRAMME – INDICATIVE COSTS



Surface water



BERG RIVER
FLOW INTO
VOELVLEI DAM



PLANNING



40ML/d

Groundwater



SPRINGS & AQUIFERS -
ATLANTIS, CAPE FLATS &
TABLE MOUNTAIN GROUP



CONSTRUCTION



100+ML/d

Desalination



LOCATION
TBC



PLANNING



50ML/d
scalable

Reuse



FAURE NWS



DESIGN



70ML/d
scalable

PROJECT

PROGRESS /
STATUS

CONTRIBUTION

DEMONSTRATION

DECOMMISSIONED

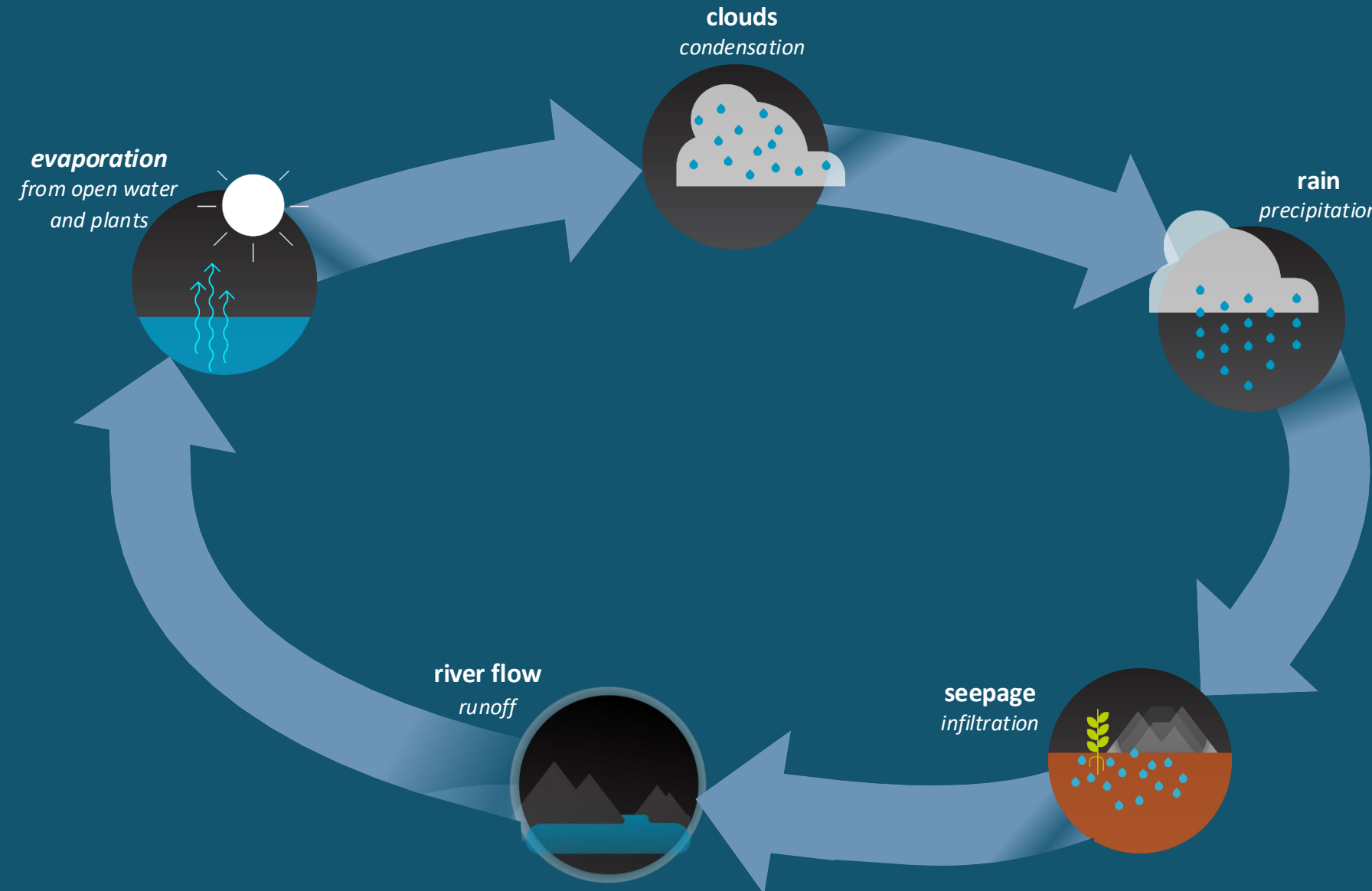
IN OPERATION

INTRODUCTION TO REUSE

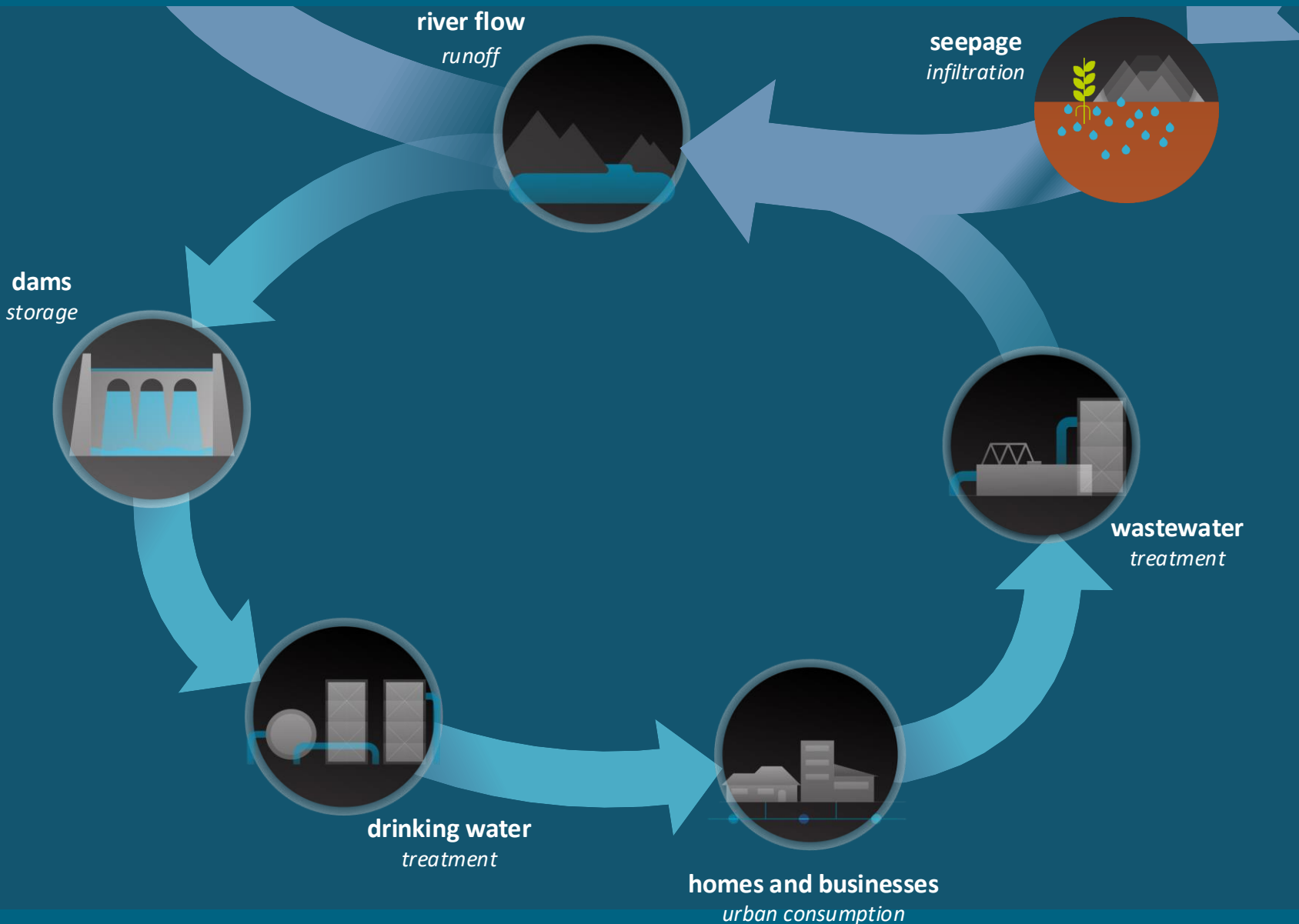
REUSE – LEARNING FROM NATURE

the natural cycle

Recycling of water is natural. Each step of the water cycle involves physical, chemical and biological process that clean the water so it can be used by plants and animals all over again.



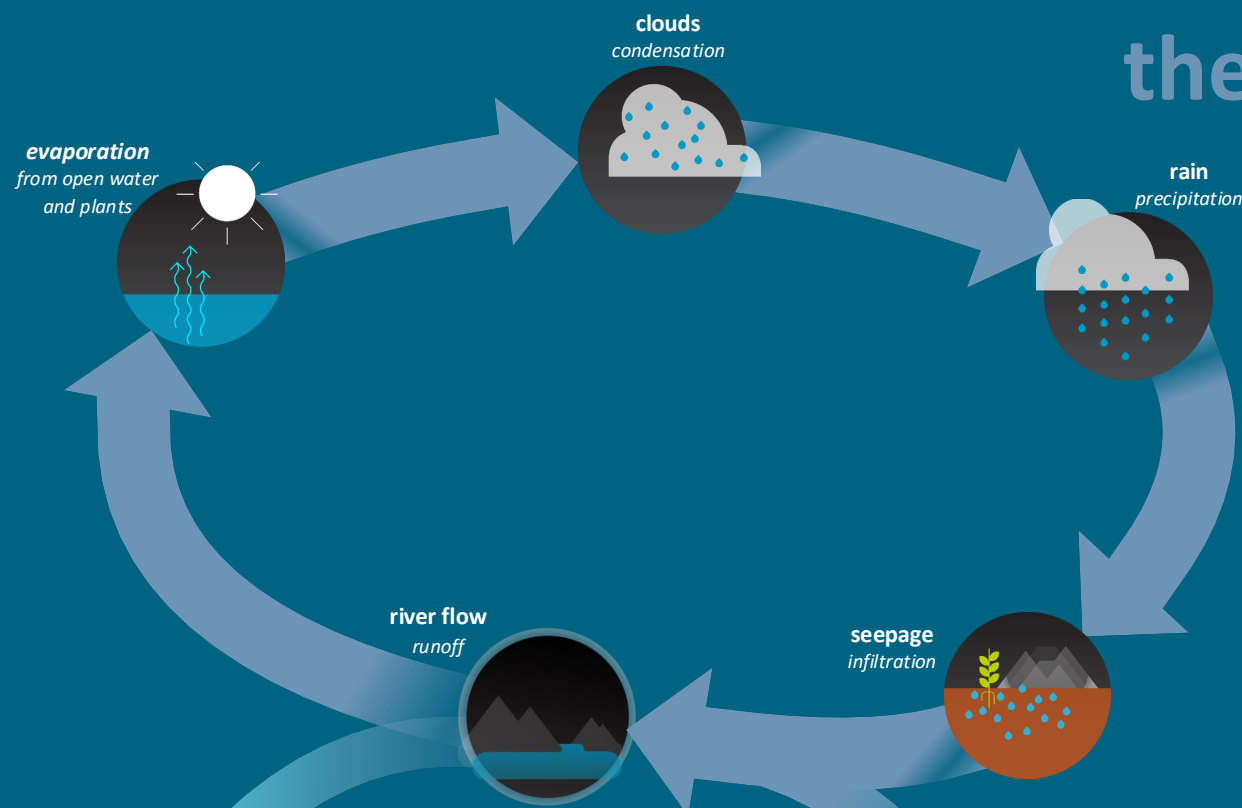
REUSE – LEARNING FROM NATURE



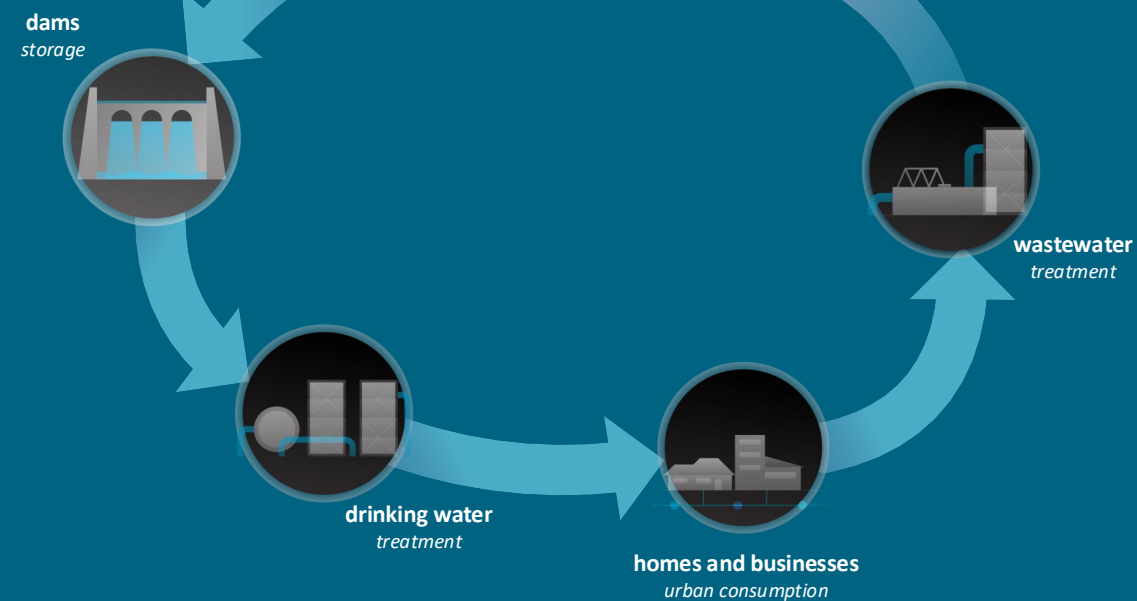
the urban cycle

Our urban water system forms its own loop with the natural water cycle – storing runoff in dams, treating water for drinking use, and treating the used water again so it can be safely released back to nature and join the natural cycle again.

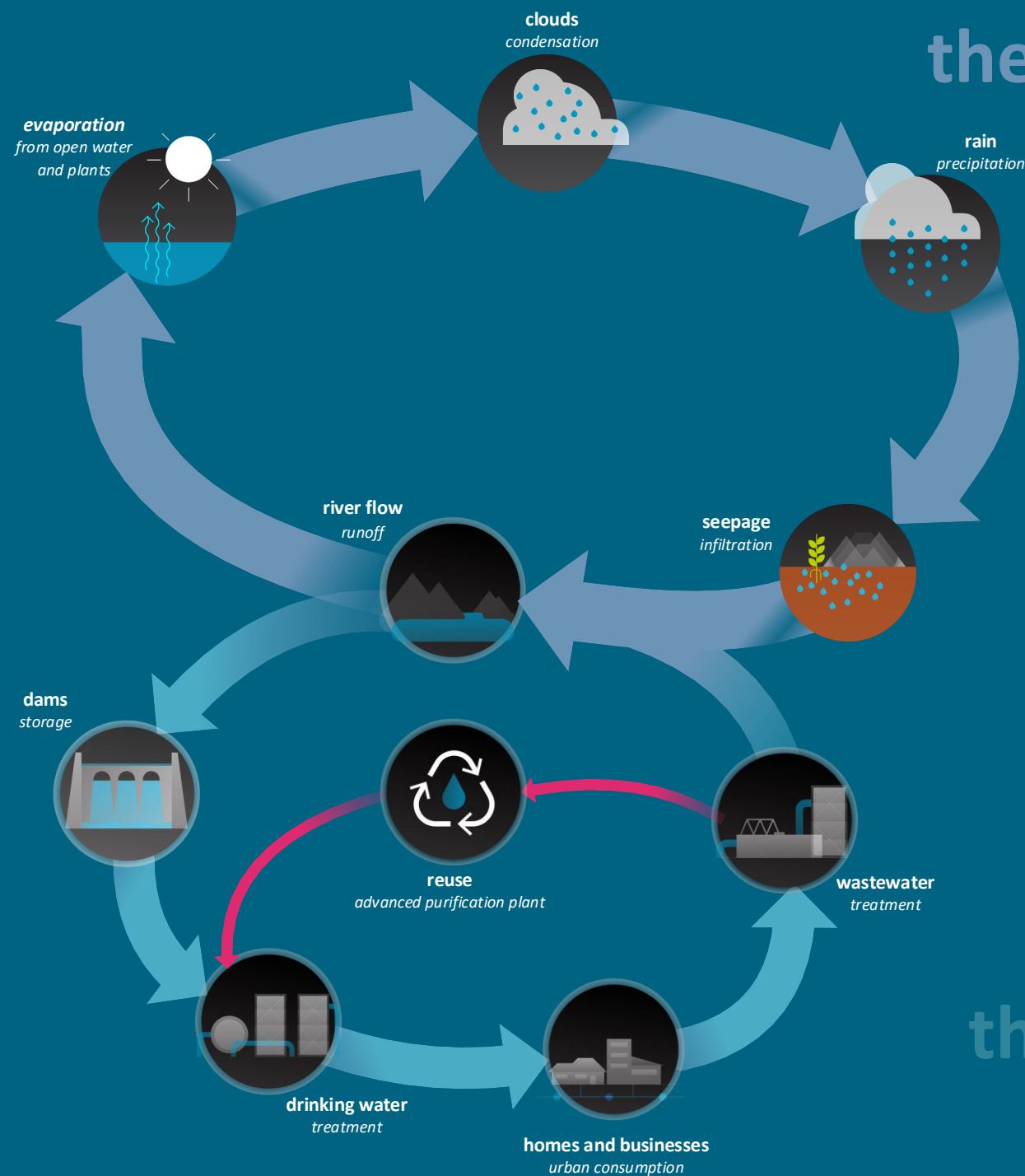
the natural cycle



the urban cycle



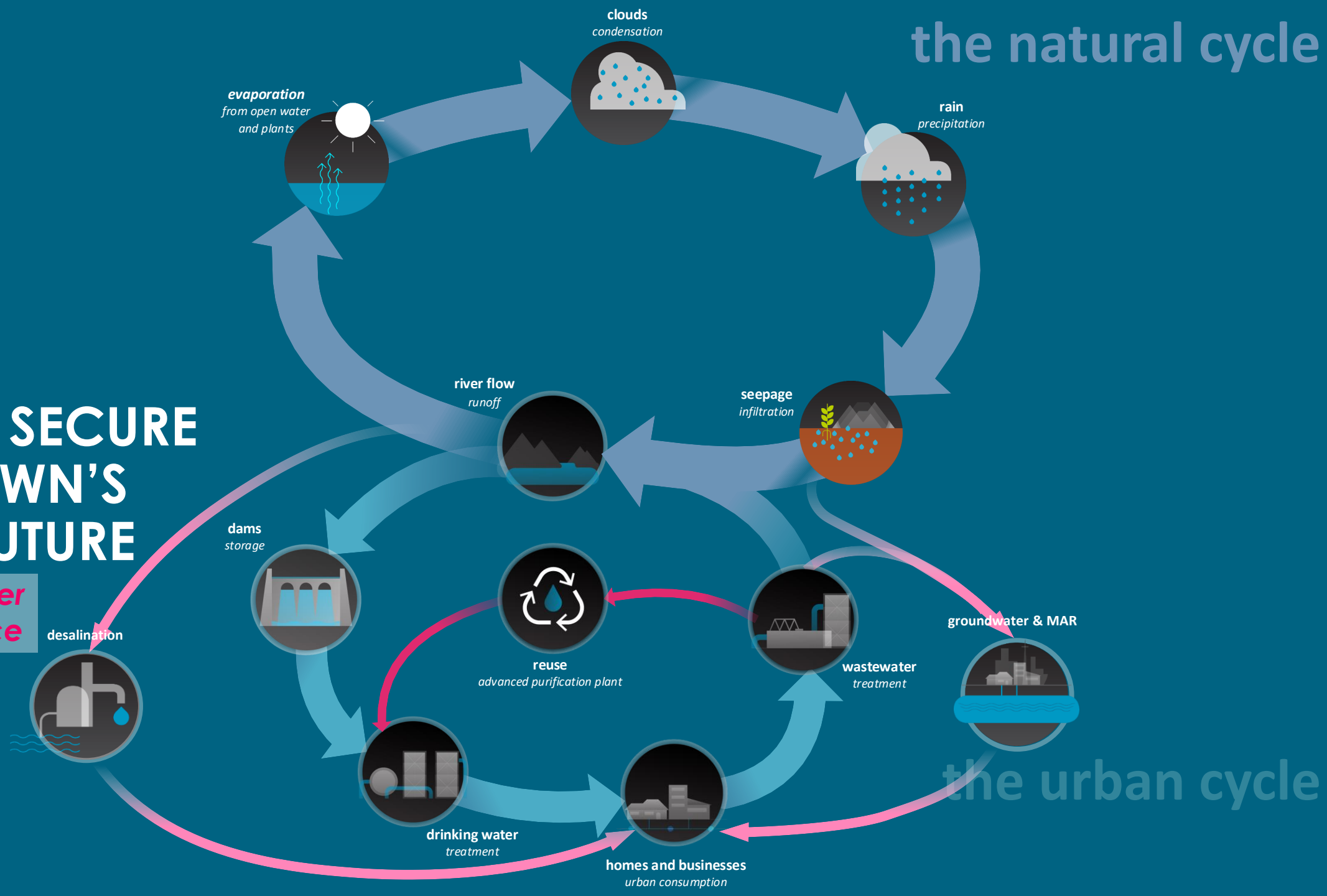
REUSE: HELPING SECURE CAPE TOWN'S WATER FUTURE



the natural cycle

REUSE: HELPING SECURE CAPE TOWN'S WATER FUTURE

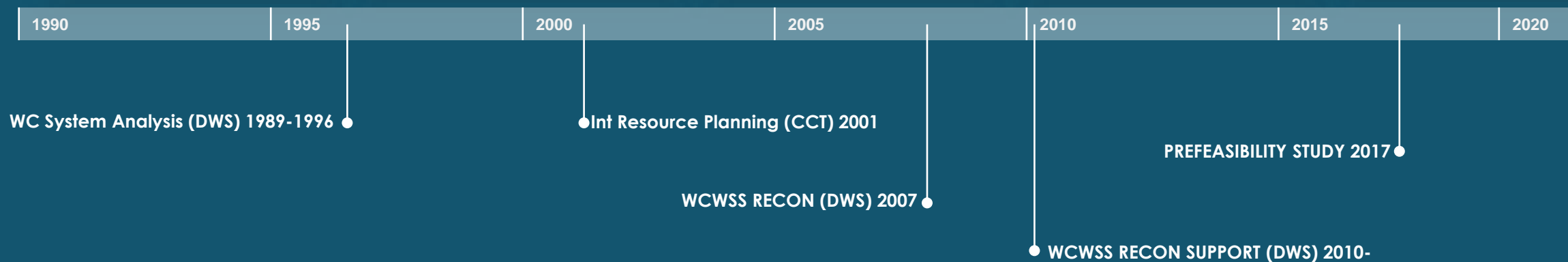
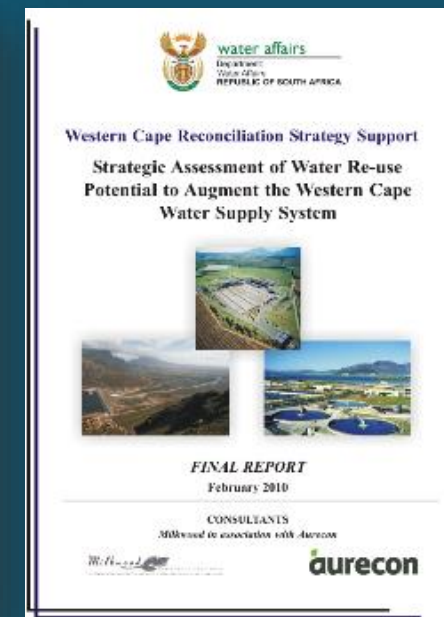
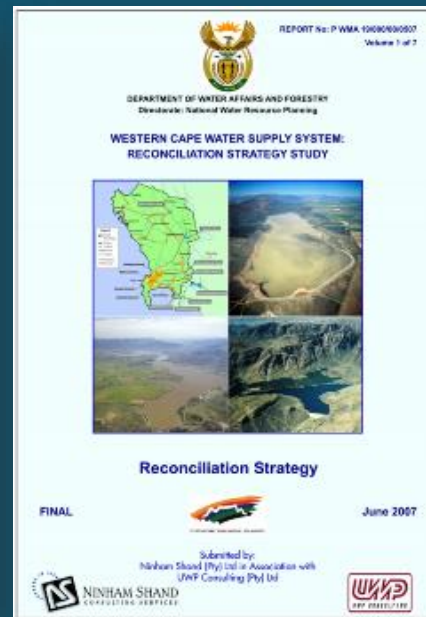
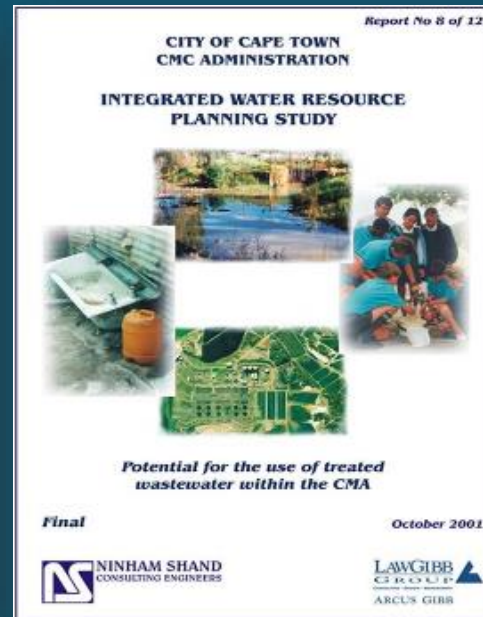
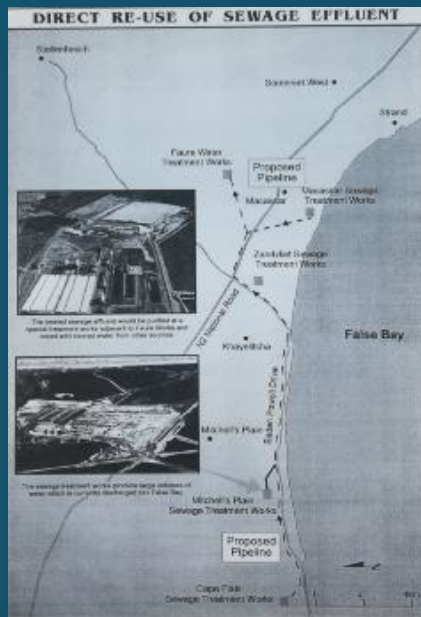
More loops offer
better resilience



POLICIES & STRATEGIES



STUDIES & INVESTIGATIONS



REUSE – LEARNING FROM OTHER CITIES

Windhoek, Namibia

Operational since 1968

>50 Years

Singapore

Operational since 2003

Beaufort West, RSA

Operational since 2010

San Diego, USA

Demonstration

Perth, Australia

Planning stages for reuse





Windhoek
>50 yrs



Beaufort-West
10 yrs



Ballito
4 years

MutualPark

2 yrs



“This technology is now tried and tested over a few years, and it’s reliable and trustworthy. It supplies about 10,000 people who work and visit that property every week day.”

Khiyam Fredericks, Former National Technical Manager, Old Mutual



DEMONSTRATION PLANT (10 MLD)

Initially intended as an emergency water source during drought but now a demonstration plant to build experience and confidence and ensure successful implementation of the much larger permanent plant which is planned – the **Faure New Water Scheme**.

Drinking water use: Subject to stakeholder engagement and water quality testing



PERMANENT WATER REUSE

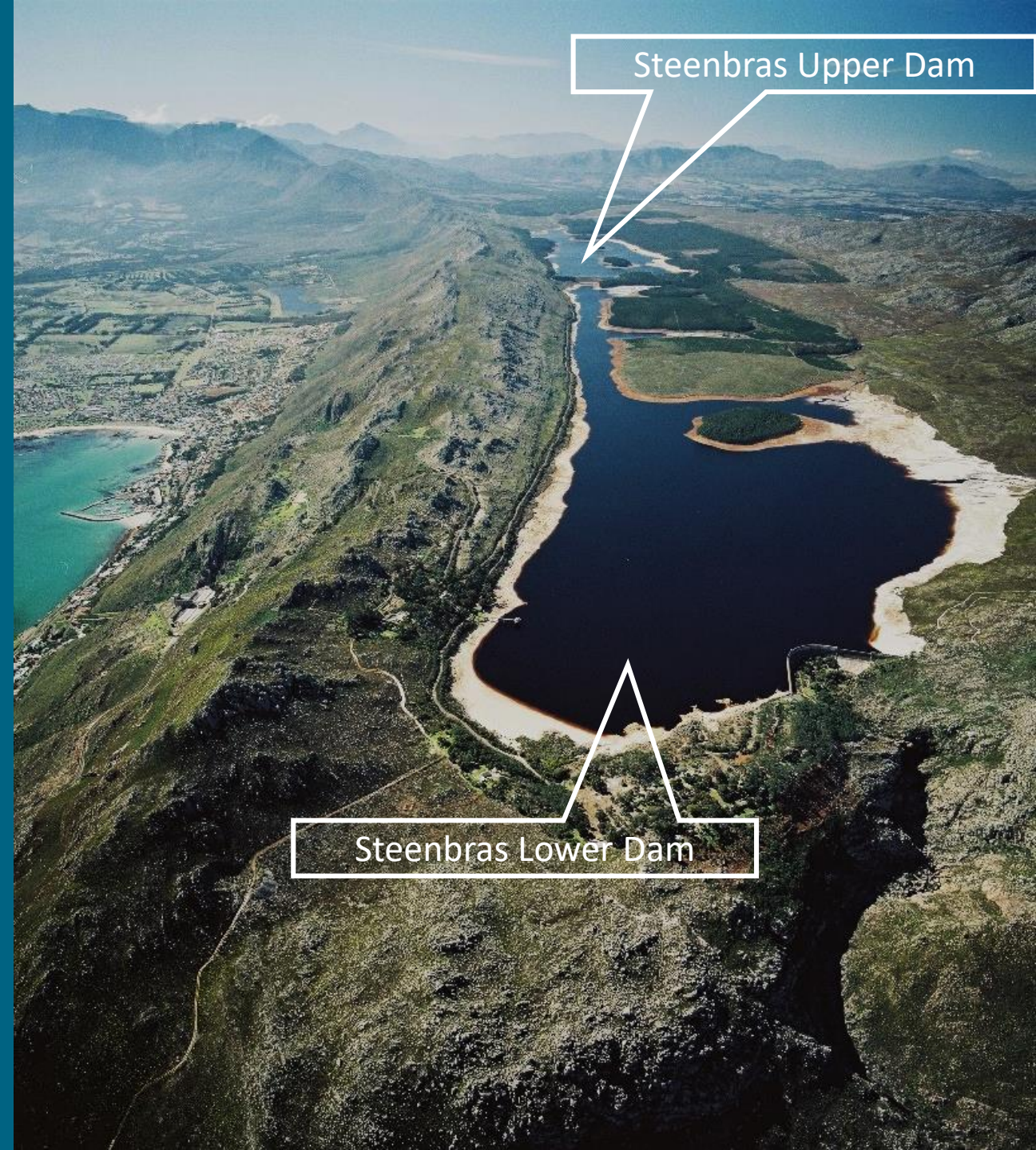
The Faure New Water Scheme

The end product of the Faure New Water Scheme will be up to

**100 million litres
per day of water
that is safe to drink.**

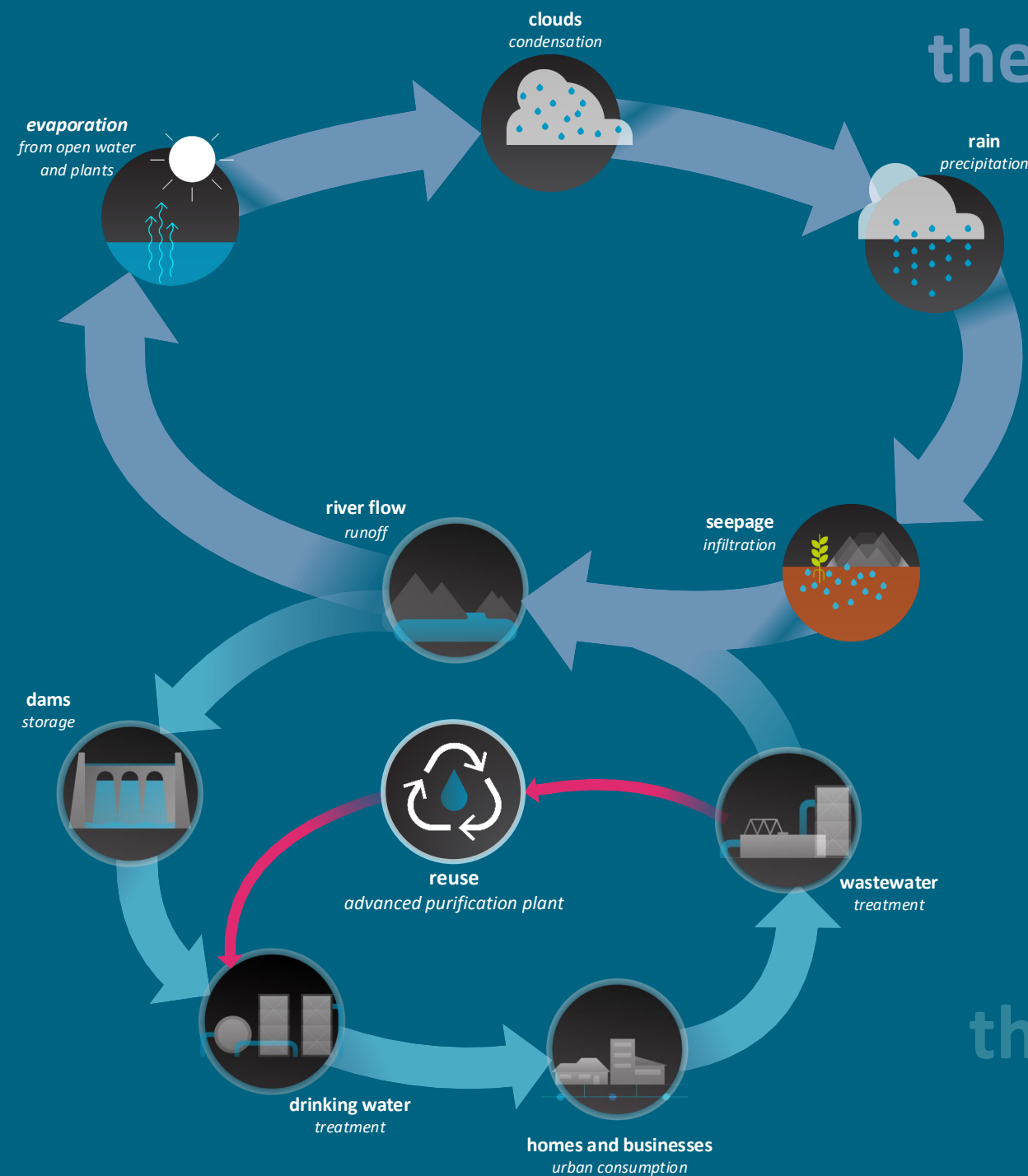


Equivalent to the supply from
Steenbras Upper and Lower
Dams

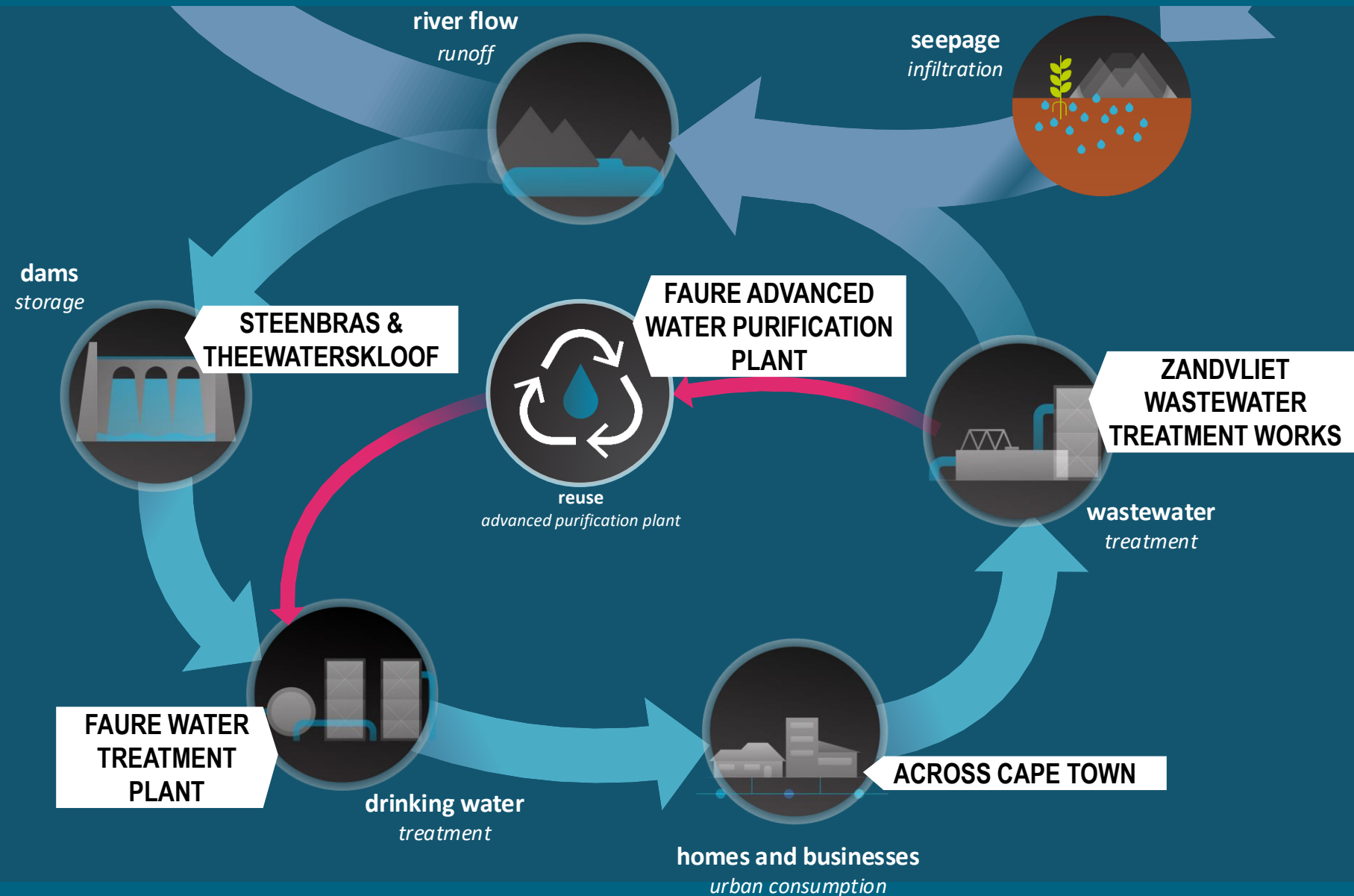


THOUGHTS AND QUESTIONS SO FAR?

Faure New Water Scheme



Faure New Water Scheme



the enhanced
urban cycle

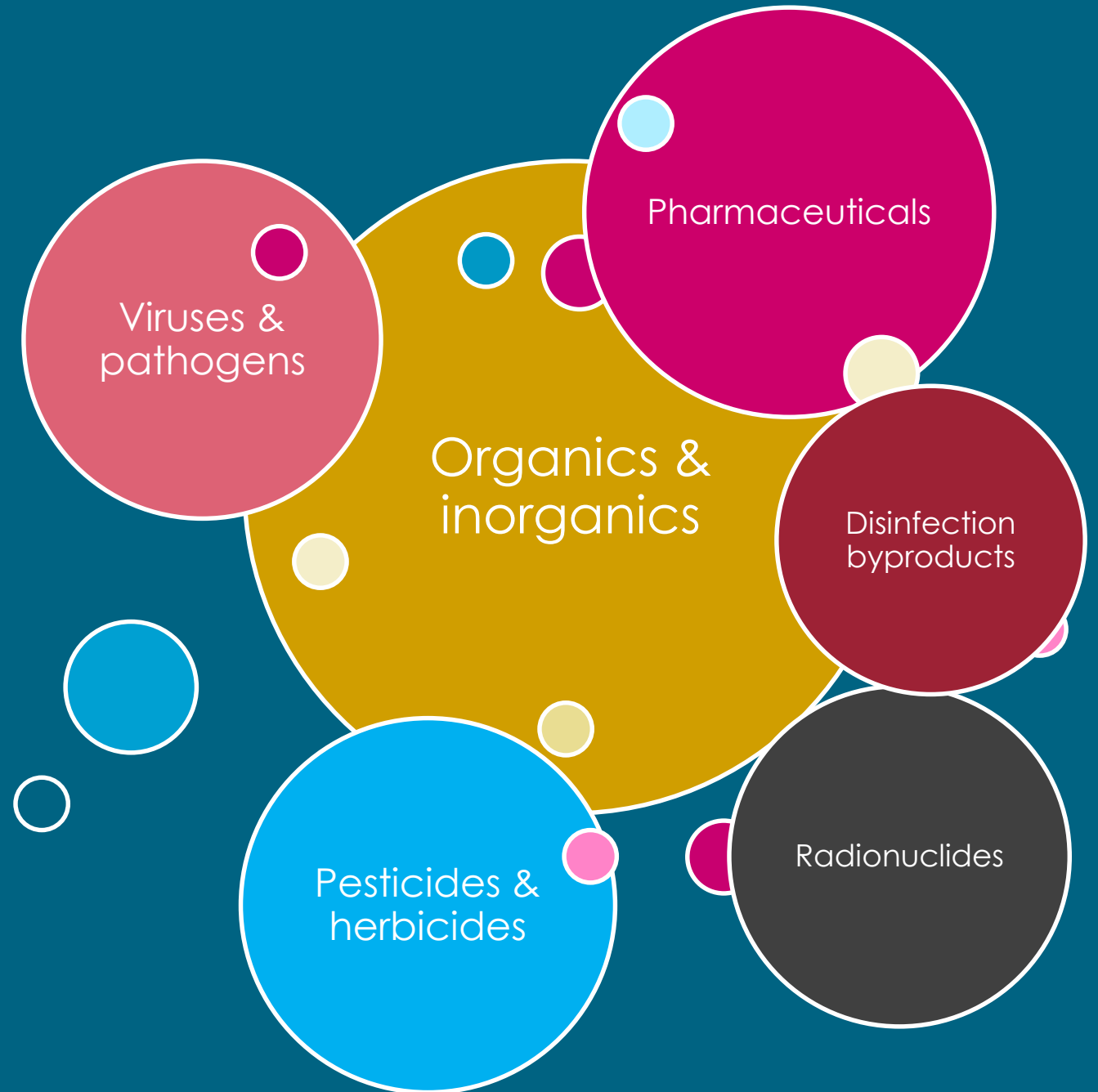
IT'S [^]WATER
Just

What's in it?

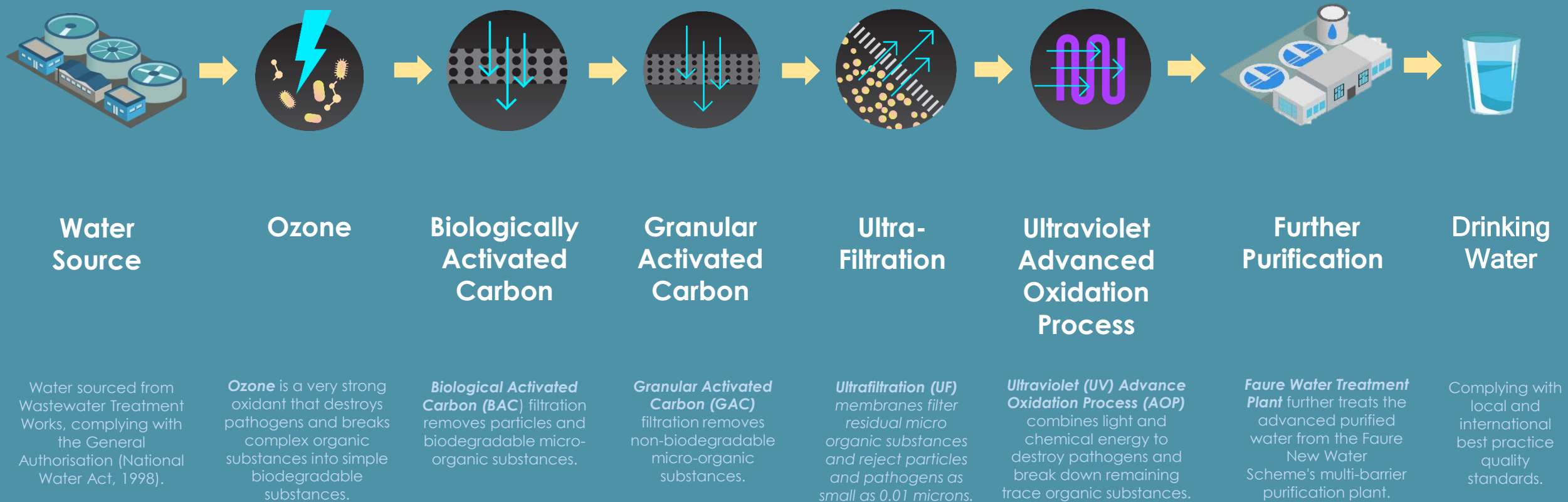


How do we restore it?

Identify Health Hazards and Limits



MULTI-BARRIER ADVANCED PURIFICATION PROCESS



HOW CAN WE TRUST THE PURIFICATION PROCESS?

Peer review

Identify health hazards and limits

Design & validate barriers

Critical control point monitoring system

Failure response

Prove monitoring system

Operate per protocol







DEMONSTRATION PLANT



WHY A DEMONSTRATION PLANT

High quality water meeting international standards

Technical training and testing in advanced technologies

Develop protocols

Establish local laboratory capacity

Develop and demonstrate City's capacity

Stakeholder outreach and education

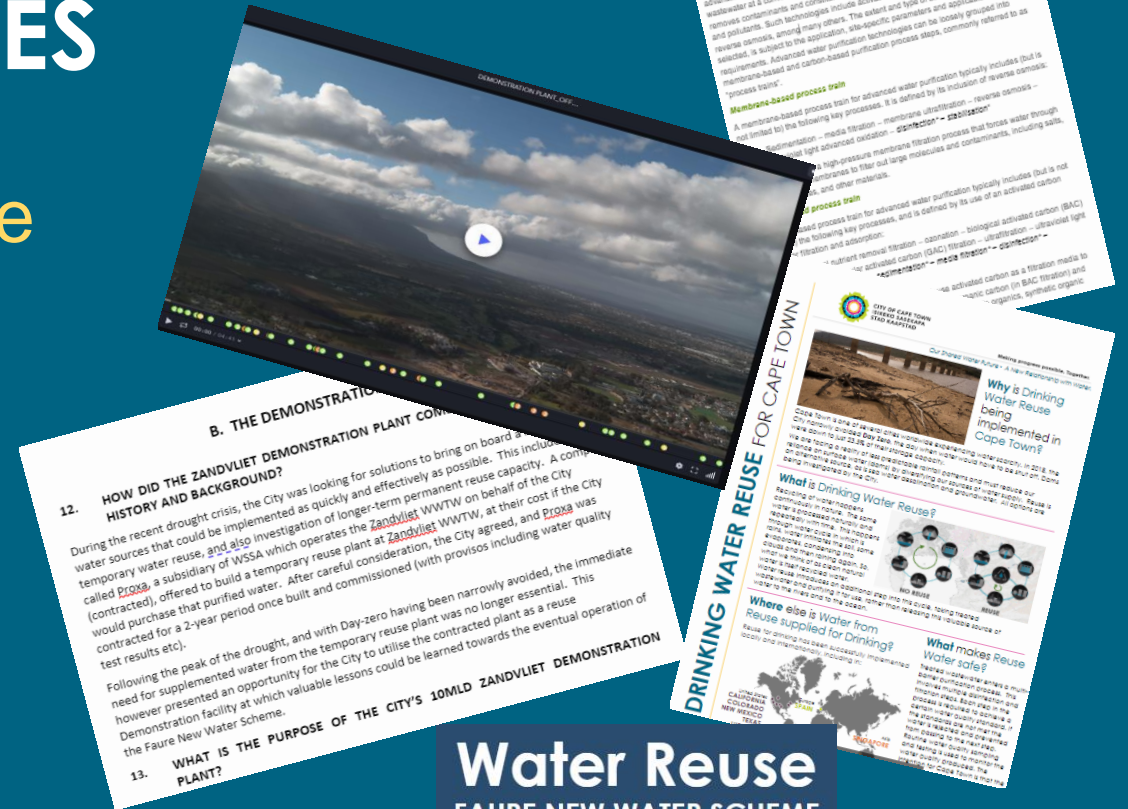
Establish partnerships for future



INFORMATION RESOURCES

www.capetown.gov.za/water-reuse

- Brochure & short leaflet
- Fact sheets
- Frequently asked questions
- Presentation
- Two videos



Water Reuse FAURE NEW WATER SCHEME





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WATER OUTLOOK 2020 REPORT

Updated October 2020

Produced by Department of Water and Sanitation

City of Cape Town

Making progress possible. Together.

Water Outlook is regularly updated.
See download at the bottom of this page
www.capetown.gov.za/thinkwater



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THANK YOU

