



CITY OF CAPE TOWN
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STAD KAAPSTAD

Cape Town Water Strategy

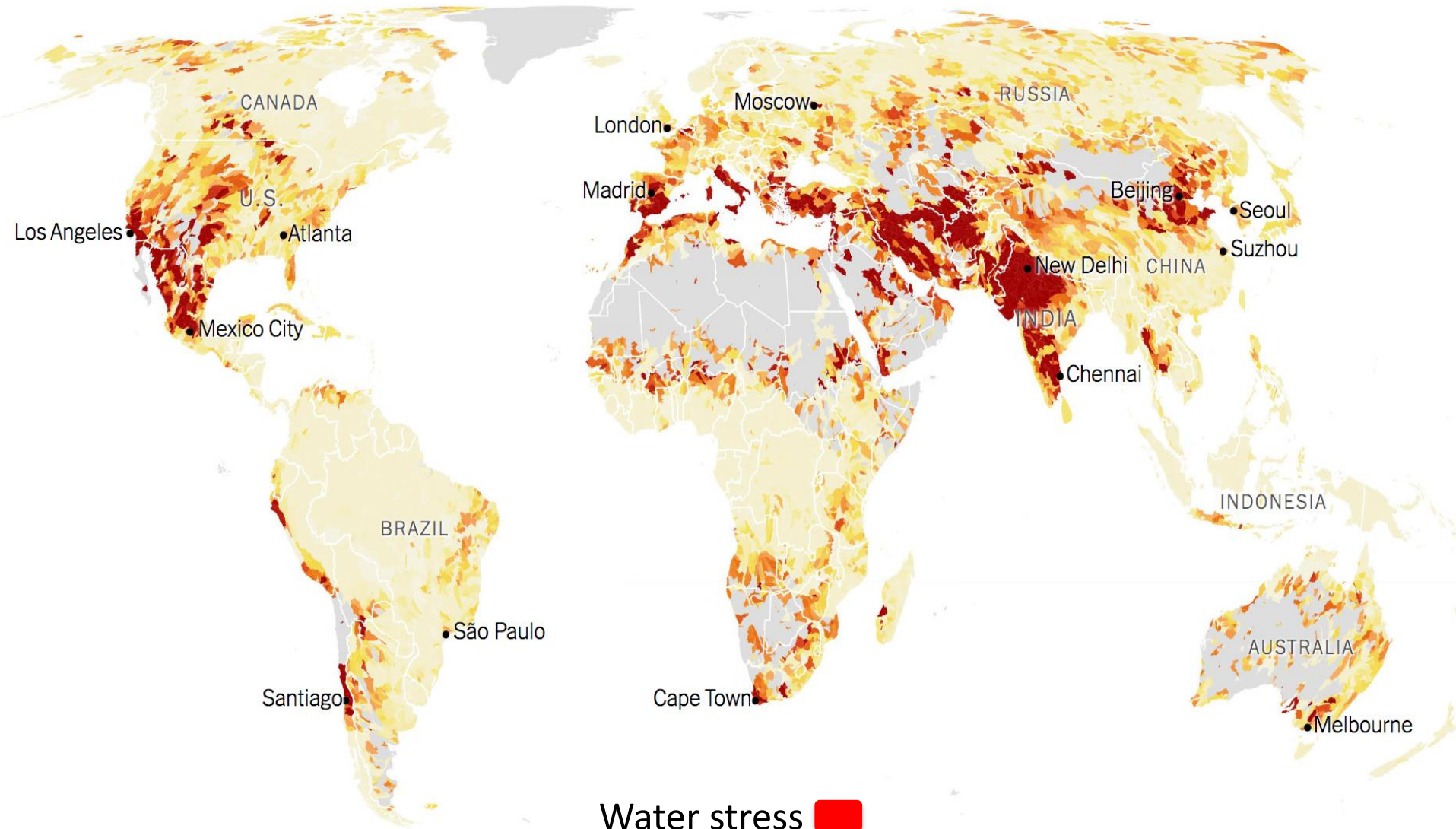
never waste a good crisis

Presentation at Public Launch

Michael John Webster – Executive Director, Water and Waste
19 February 2019

Making progress possible. **Together.**

Cape Town's water challenges are not unique, we are part of a global community facing significant climate-related challenges



Water stress 

A quarter of humanity face a looming water crisis.

Source: New York Times, 6 August 2019

Core goal: providing reliable, safe & affordable services to our 4 million customers

Formal areas

3.5 million people, 650,000 connections



Informal settlements

0.5 million people



**businesses,
industry &
institutions**
40,000
customers



Water and Sanitation Department:

- 12 branches; 4,800 staff; 63 Depots
- R7.5 billion opex; R3 billion capex

Water Supply:

- 6 large dams
- 12 water treatment plants
- 24 reservoirs
- 11,000 km of pipelines
- 1,400 million litres/day peak production

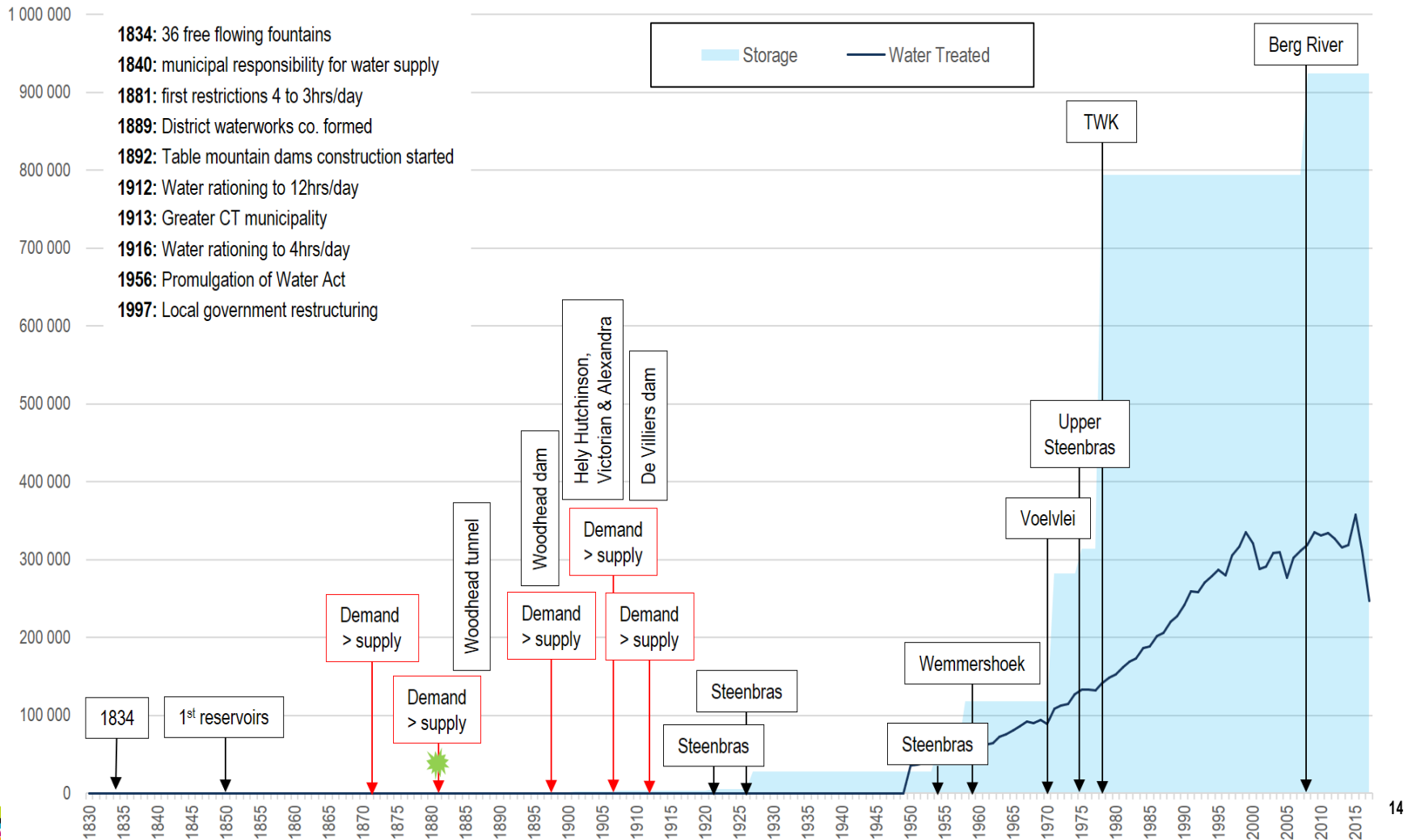
Sanitation:

- 9,000 km of sewers
- 26 wastewater treatment works
- 3 sea outfalls

Storm water drainage

R75 billion assets²

200 years of reliance on surface water sources



95% of Cape Town's water comes from a national government controlled regional surface water scheme



Six major dams:	Volume (million m ³)
3 national government dams	770
3 Cape Town dams	130
Total	900

The drought was a wake up call,
but things could become even more difficult in future



The experience of Perth offers a warning and a lesson:

Perth and Cape Town both rely on winter cold fronts for their rain

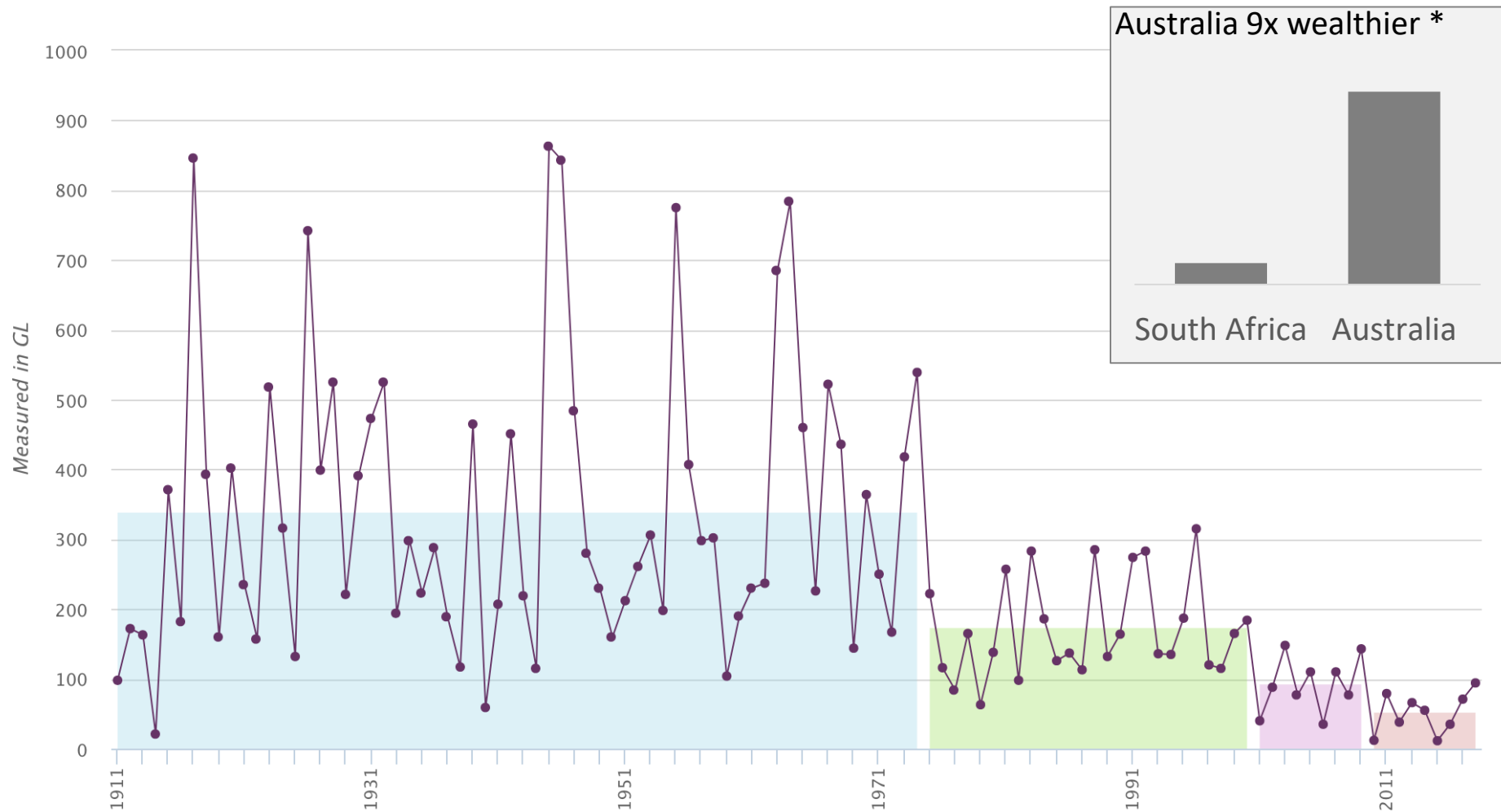


When fronts pass south of Cape Town, there is no rain



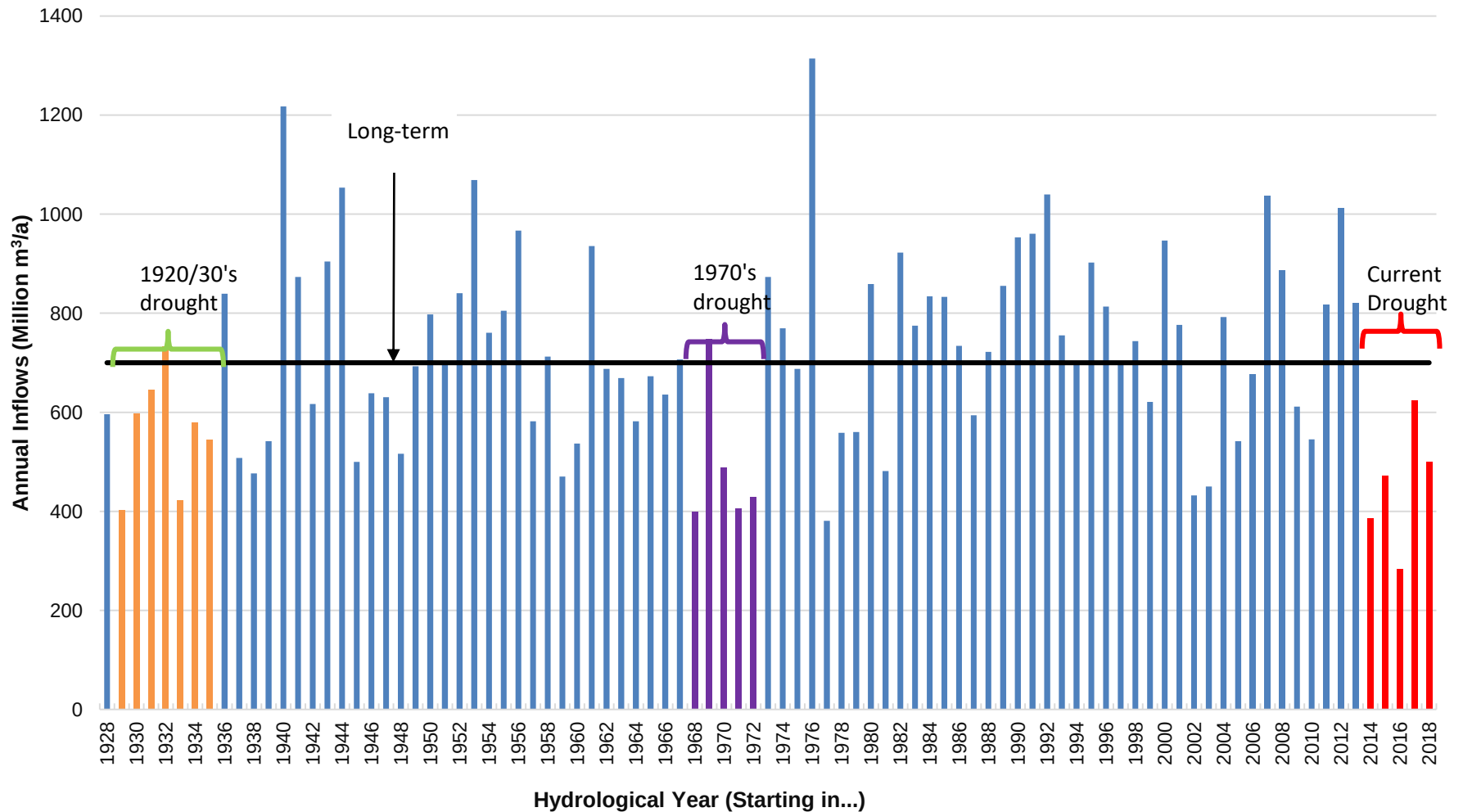
Perth is just 2 degrees north of Cape Town

Perth dam inflows have reduced by 85% and they have diversified their sources – ground water and desalination



* GDP per capita (World Bank data, 2019)

The drought is not over...



A strategic response: using the crisis to clarify priorities



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Five commitments in the Water Strategy

1. **Safe access to water and sanitation for all**

Inclusion

2. **Wise water use** through pricing, regulation, active citizenship, network management

Resilience
(drought response)

3. **Sufficient, reliable water from diverse sources:** surface, ground, desalination, reuse (Water resilient by 2030)

4. **Shared benefits & managed risks** from regional water resources

5. **Water sensitive city** by 2040

Sustainability

Singapore



Strong political leadership

- Prioritise water security
- Becoming water sensitive
- Excellence in execution

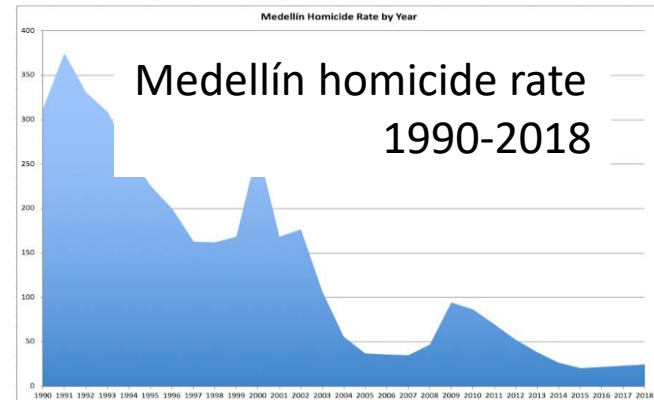


Singapore slums, 1965

Medellin, Colombia



- Prioritise social inclusion
- Integrated approach
- Innovation & adaptation



Time-frames to implement strategy

years

20

Becoming water sensitive

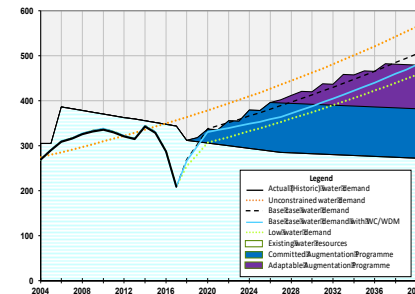
City-wide transformed relationship to water
Healthy water ways (inclusive and safe to use)
Stormwater as a resource



10

Becoming water resilient

Sufficient water from diverse sources
Robust regional water system
Wise use



3

Building capability

Creating the necessary capabilities to deliver on strategy commitments effectively

2020

2023

2030

2040

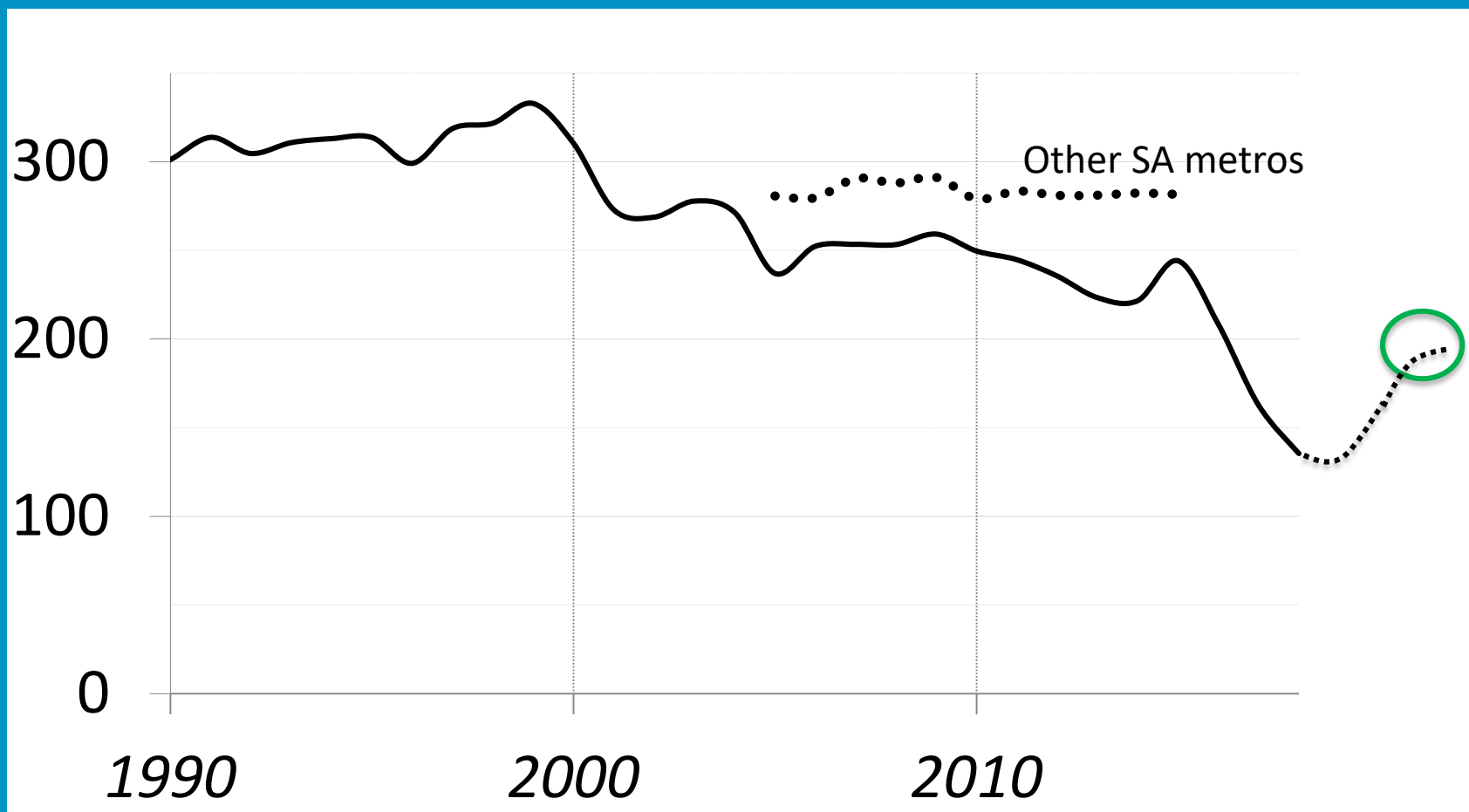
Improving the daily water & sanitation experience of half a million people living in informal settlements

Commitment 1



Commitment 2: Maintaining wise water use

Total water use in Cape Town in liters per person per day



#1 WATER-SAVING CITY IN THE WORLD

International Water Association award in May 2018 for a 55% reduction in water demand between 2015 and 2017, without resorting to intermittent supply.

**Awarded C40 Award for
Adaptation in 2015 for Water
Conservation and Demand
Management**

**C40
CITIES**



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Certificate of Excellence

awarded to

City of Cape Town

**for achieving 55% reduction in water demand between
2015 and 2017 without resorting to intermittent supply**



- Current and former chairpersons of the IWA Water Loss Specialist Group -

Ken Brothers
Ken Brothers
2002 - 2006

Bambes Charalambous
Bambes Charalambous
2006 - 2008

- May 2018 -

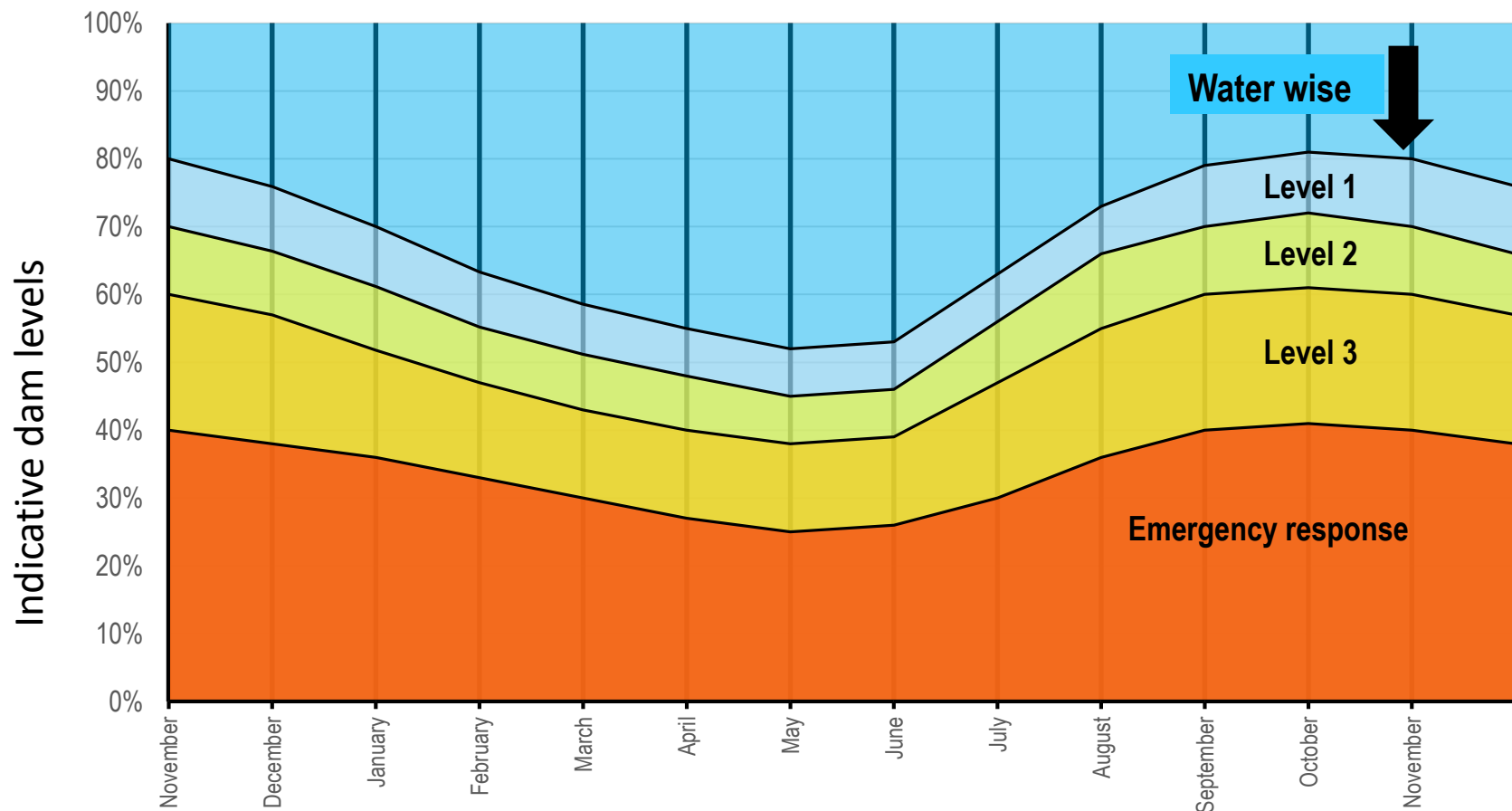
Stuart Hamilton
Stuart Hamilton
2018 ->

Ronnie McKenzie
Ronnie McKenzie
2016 - 2018

Tim Wallron
Tim Wallron
2008 - 2016

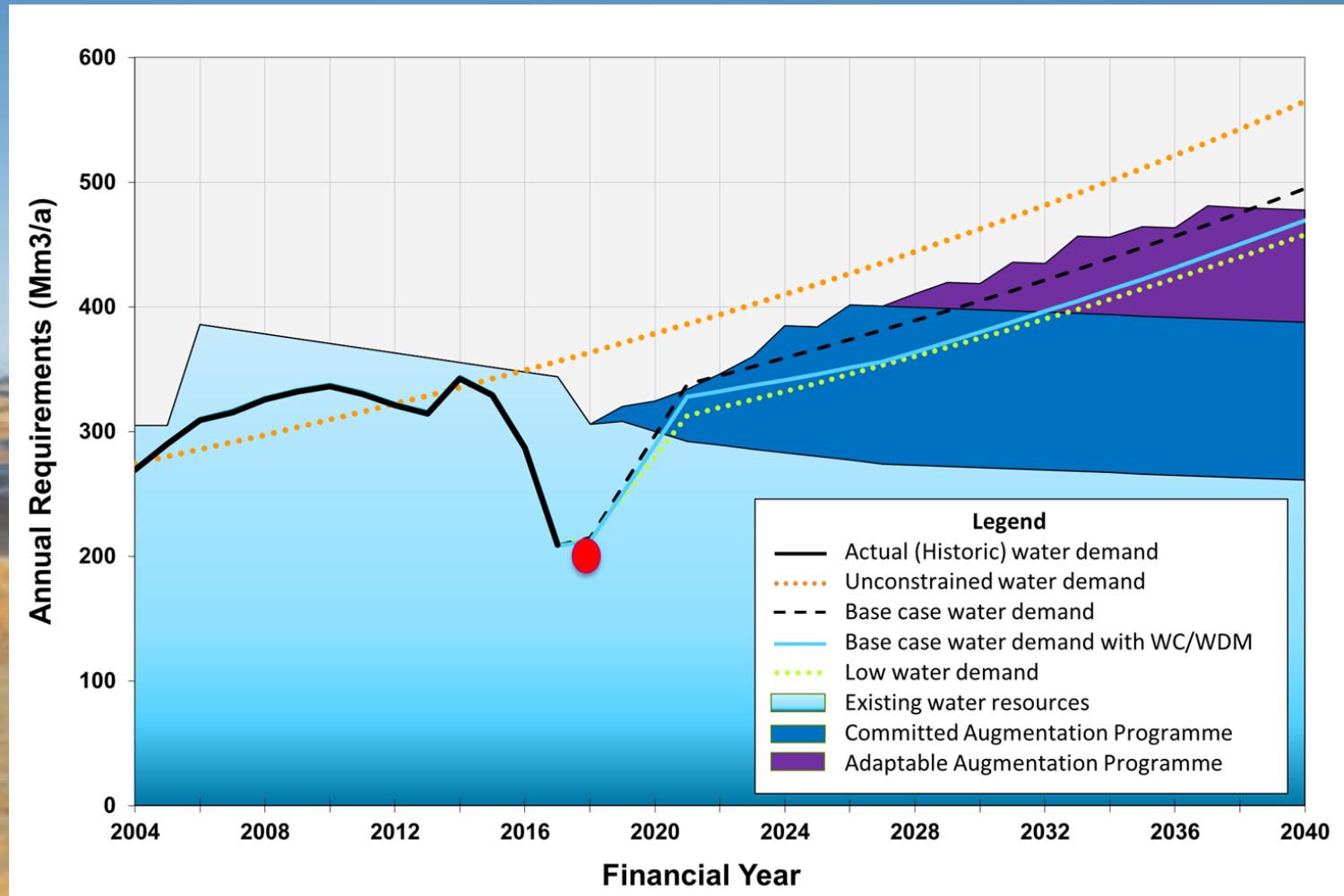


More predictable restriction levels



NOTE – these are indicative dam levels for implementing restriction levels at the beginning of the hydrological year (November each year). Flexibility may be required sometimes, particularly in relation to the overall operation of the Western Cape Water Supply Scheme

Commitment 3: Sufficient water from diverse sources



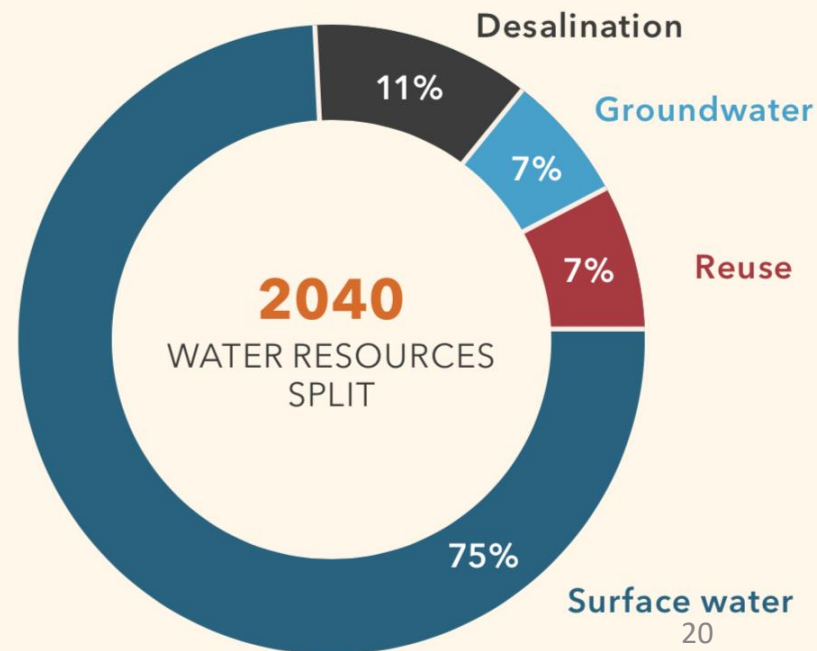
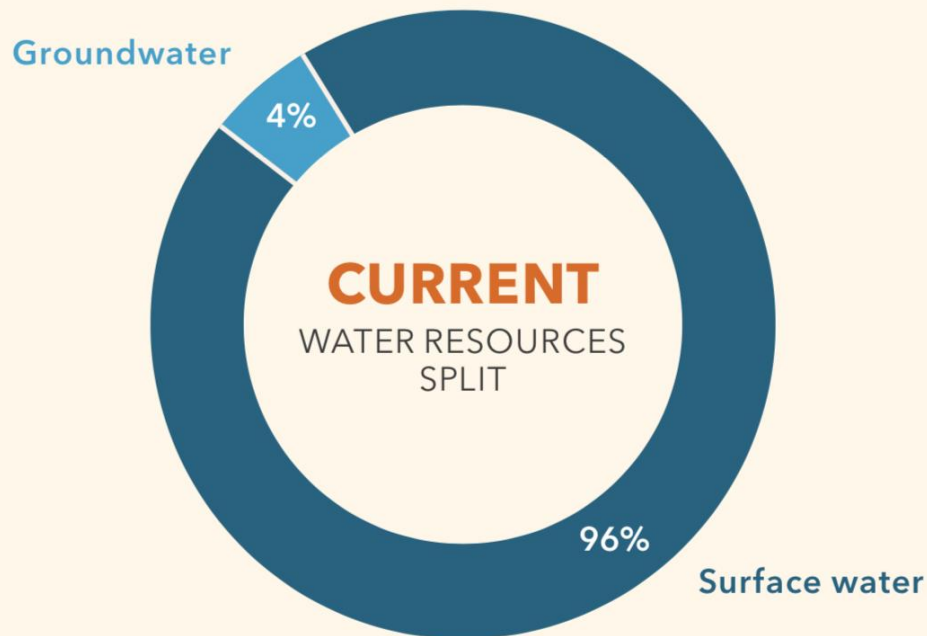
Capital programme of R6 billion over 10 years

TABLE 1: COMMITTED NEW WATER PROGRAMME OVER TEN YEARS - PROVISIONAL YIELDS AND COSTS

Intervention*	First water	Effective yield		Total capex	Unit capex**	Operation cost***
		Mℓ/day	Million kℓ pa			
Demand management	2019	70	26	410	6	3
Alien vegetation clearing	2019	55	20			~1-2
Management of WCWSS	n/a	27	10			~0,2-0,5
Cape Flats aquifer ph 1	2020	20	7,3	610	31	5
Table Mountain Group ph 1	2020	15	5,5	375	25	5
Cape Flats aquifer ph 2	2021	25	9,1	450	18	5
Atlantis aquifer	2021	10	4	290	29	8
Table Mountain Group ph 2	2022	15	5,5	335	23	5
Table Mountain Group ph 3	2022	20	7,3	326	16	2
Berg River augmentation	2023	40	15			~3-5
Water reuse ph 1	2024	70	26	1 360	20	5
Desalination ph 1	2026	50	18	1 650	33-40	9
Total, including WDM		417	154	5 806		
Total new supply		347	128	5 396		

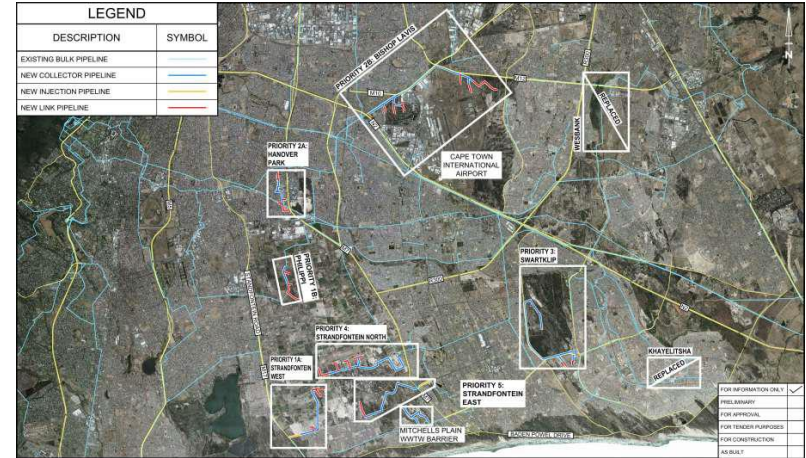
The City of Cape Town is committed to constructing over 300 MLD of additional capacity in the next 10 years to mitigate future droughts

Moving away from reliance on surface water



Groundwater implementation well underway

Cape Flats Managed Aquifer Recharge (20-48 MLD)



Atlantis Managed Aquifer Recharge Scheme (10 MLD Expansion)



Reuse Demonstration Plant

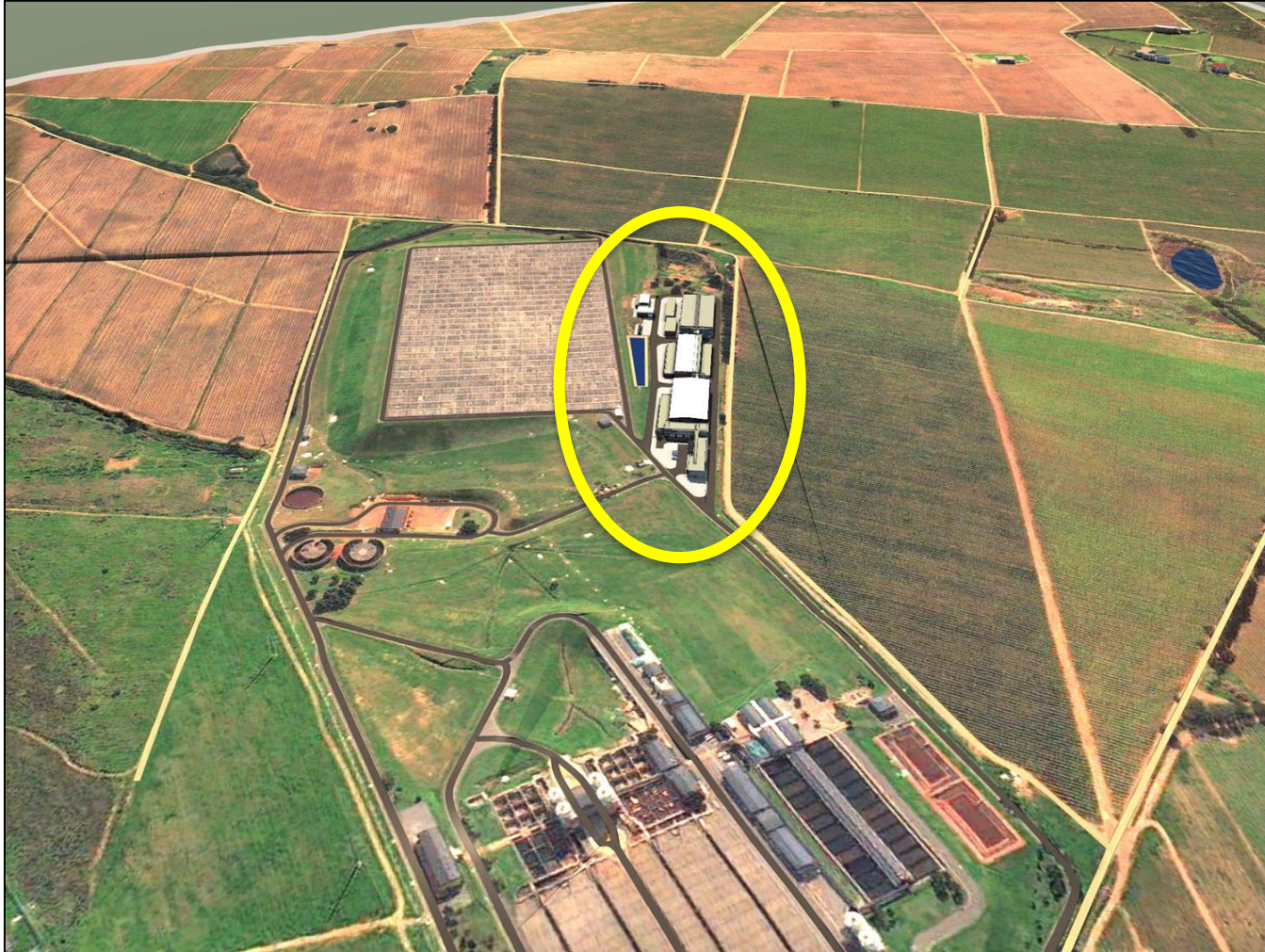
(10 MLD)



Faure New Water Scheme

(70 – 100 MLD / R1,6 b)

Commitment 3



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Temporary desalination plants

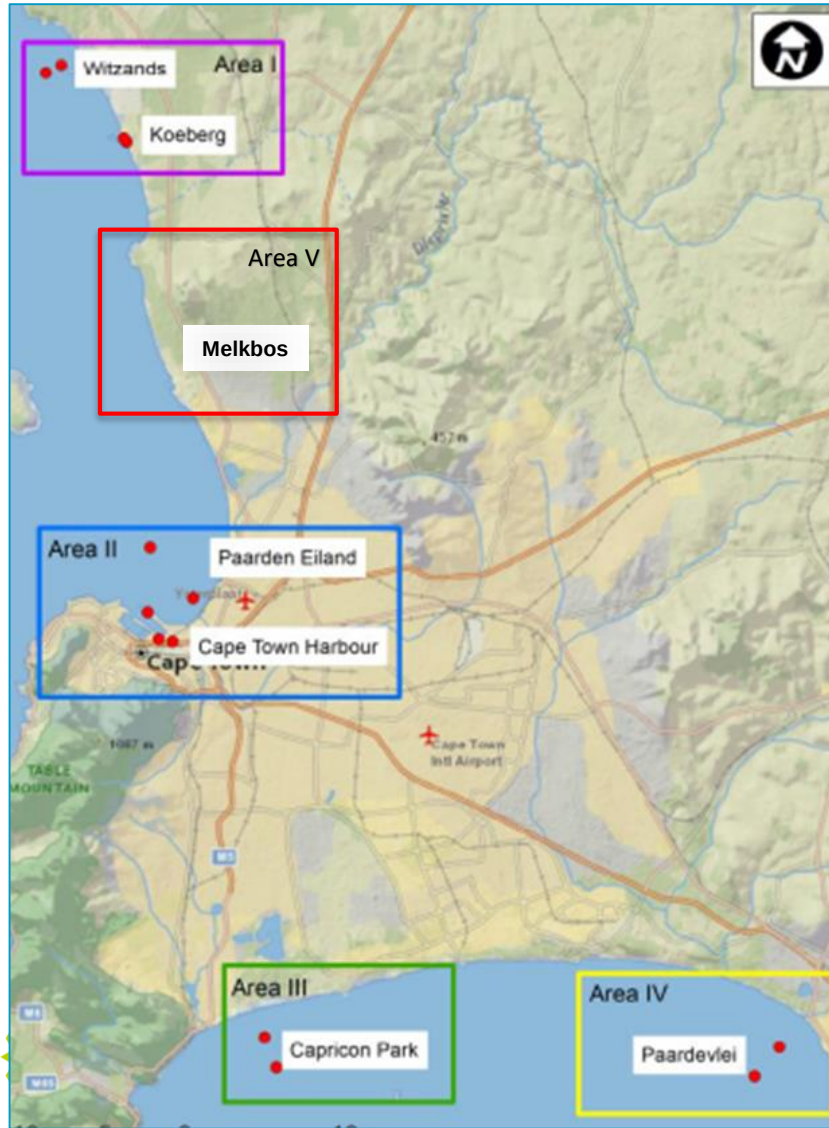
Strandfontein Temporary Desalination Plant (7 MLD)



Monwabisi Temporary Desalination Plant (7 MLD)

Permanent Desalination

(50-150 MLD / R 6-7 b)



- **Scoping and Pre-Feasibility Studies on sites completed.**
- **Feasibility studies in progress**
 - Detailed investigations
 - Conceptual designs
 - Preferred site selection
- **EIA process to be followed**
- **Committed to first water by 2026**

Refreshed Water Dashboard



WEEKLY WATER DASHBOARD

17 February 2020

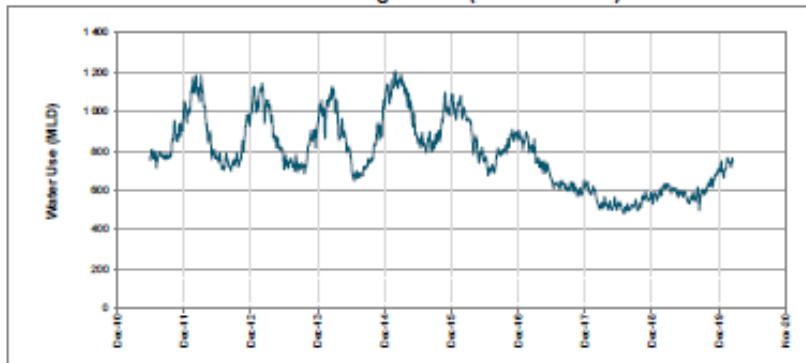
Headline Statistics



Water Production from Different Sources



Overall Water Usage Trend (2010 - Present)



The popular Weekly Water Dashboard has been refreshed to provide additional information on our various water sources

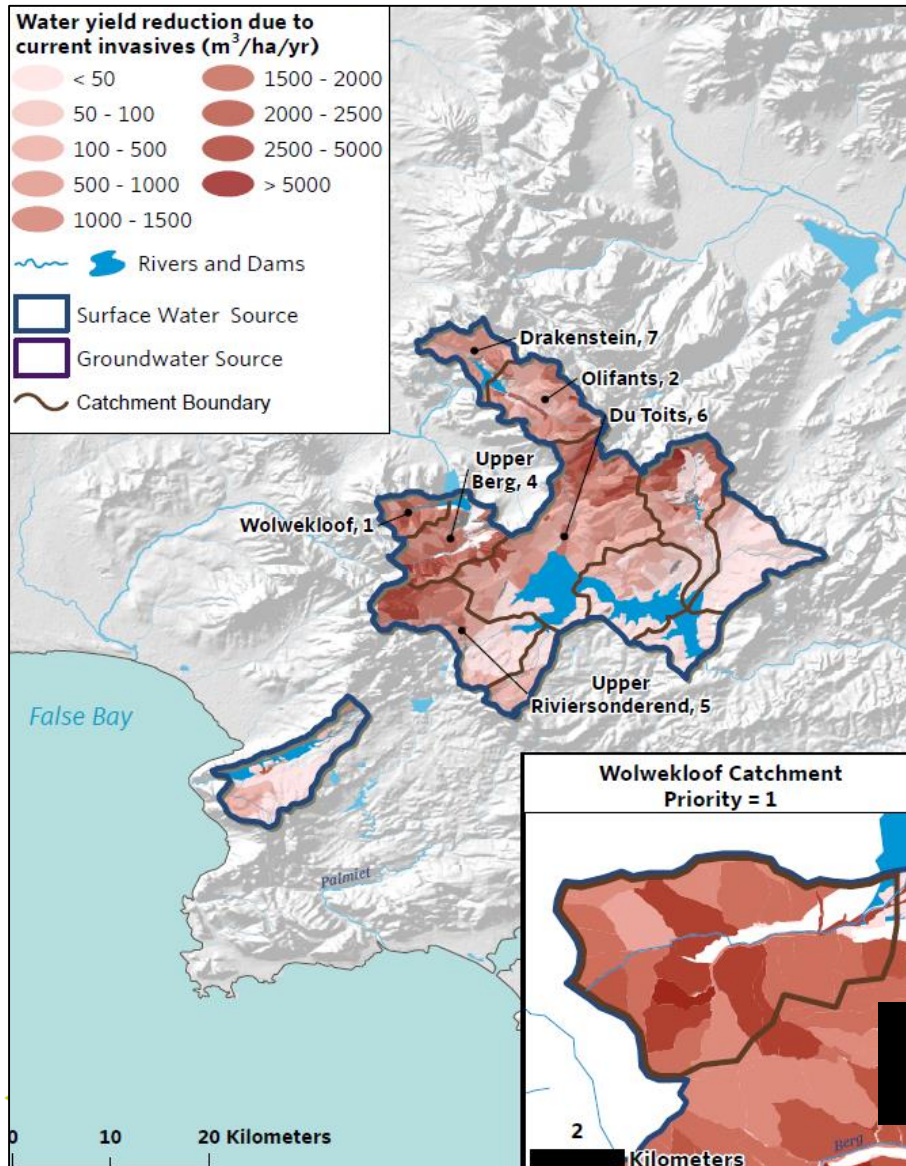
Additional ways to share more information under development

Commitment 4: Reducing regional water resource risks

City is working with key stakeholders and partners to reduce regional water risks and is managing an invasive plant clearing programme.



Clearing alien invasive vegetation



Removing thirsty alien vegetation in catchment areas increases water flow yields into our dams

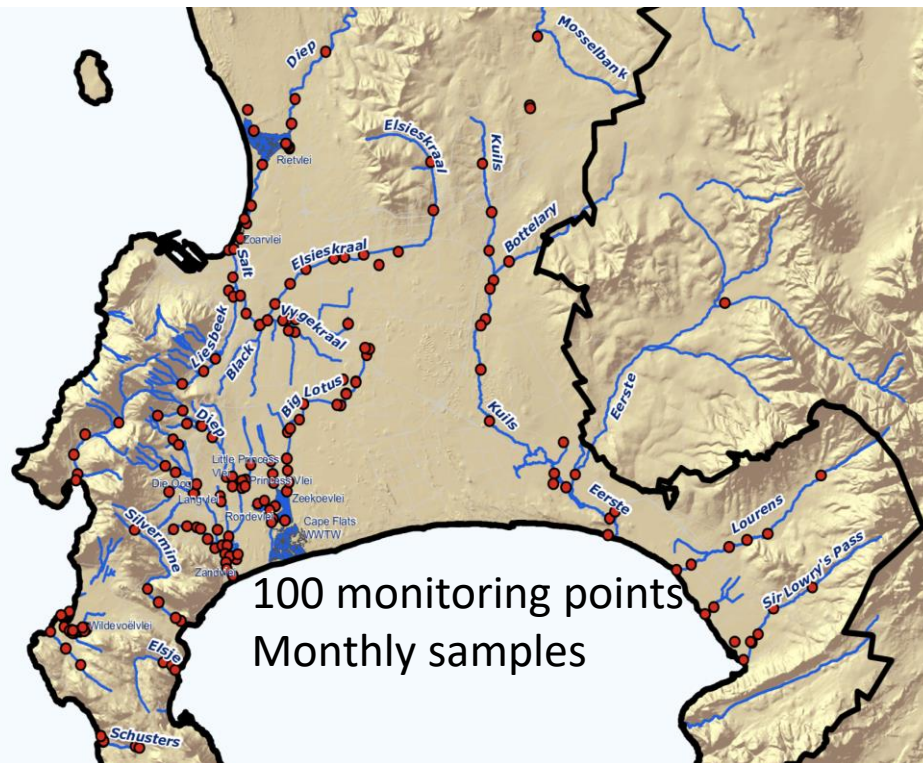
Commitment 5: Transition to Water Sensitive City

Cape Town will optimise and integrate the management of water resources to improve resilience, competitiveness and liveability for all of its people.

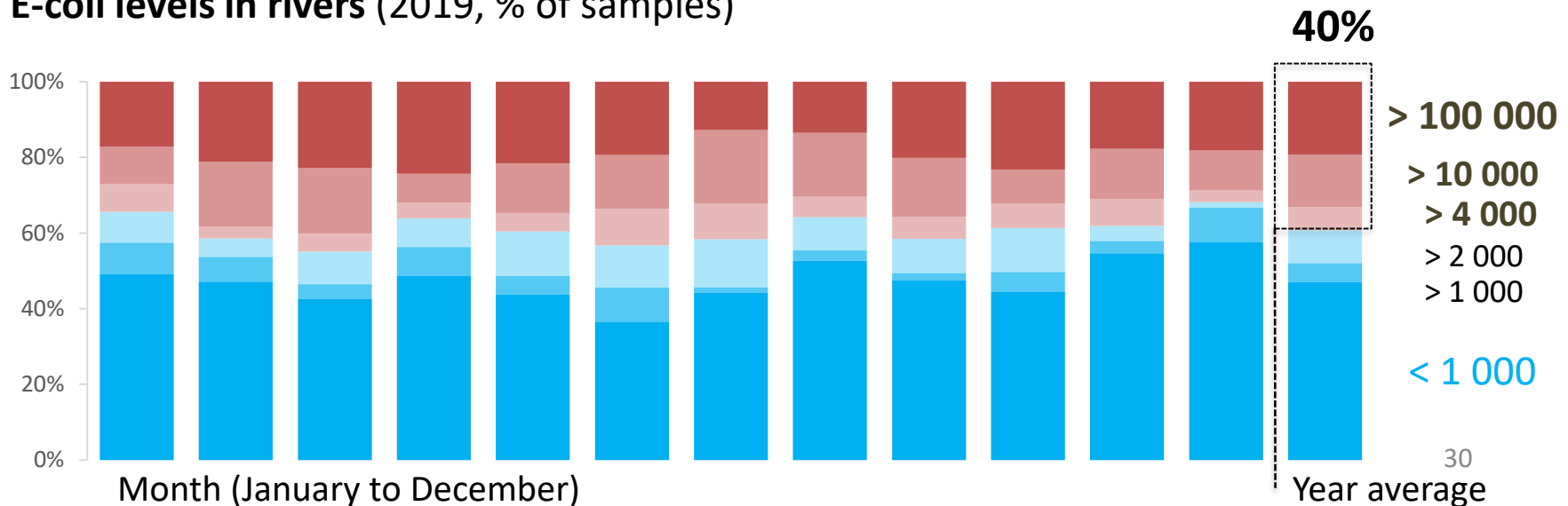


- **Optimises and integrates all water resources** (surface, ground, waste and storm water)
- **Values water and increases efficiency of use** through water sensitive urban design
- **Maintains healthy waterways and coastal waters: inclusive & safe use**

The state of our rivers



E-coli levels in rivers (2019, % of samples)



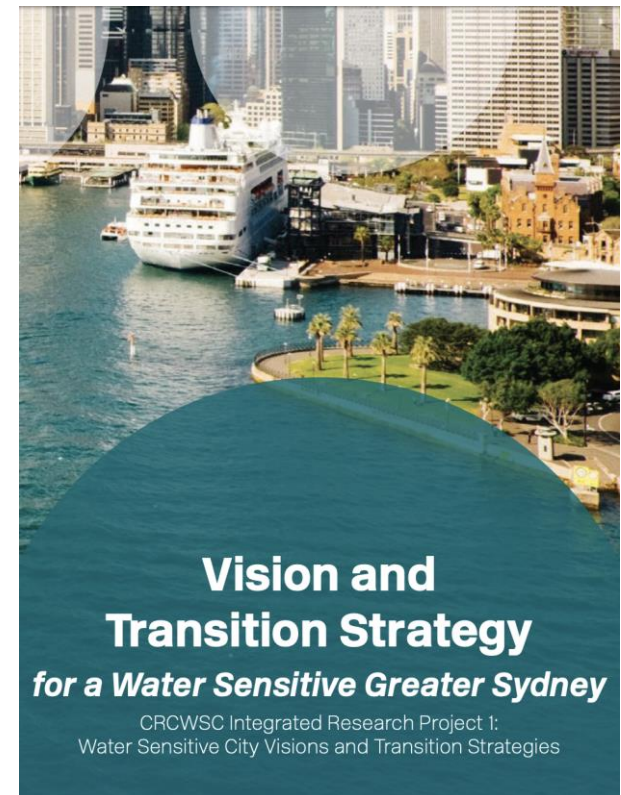
But moving towards a water sensitive city will take time...

SINGAPORE



Launched 2006
100 projects in 24 years
10x Cape Town resources

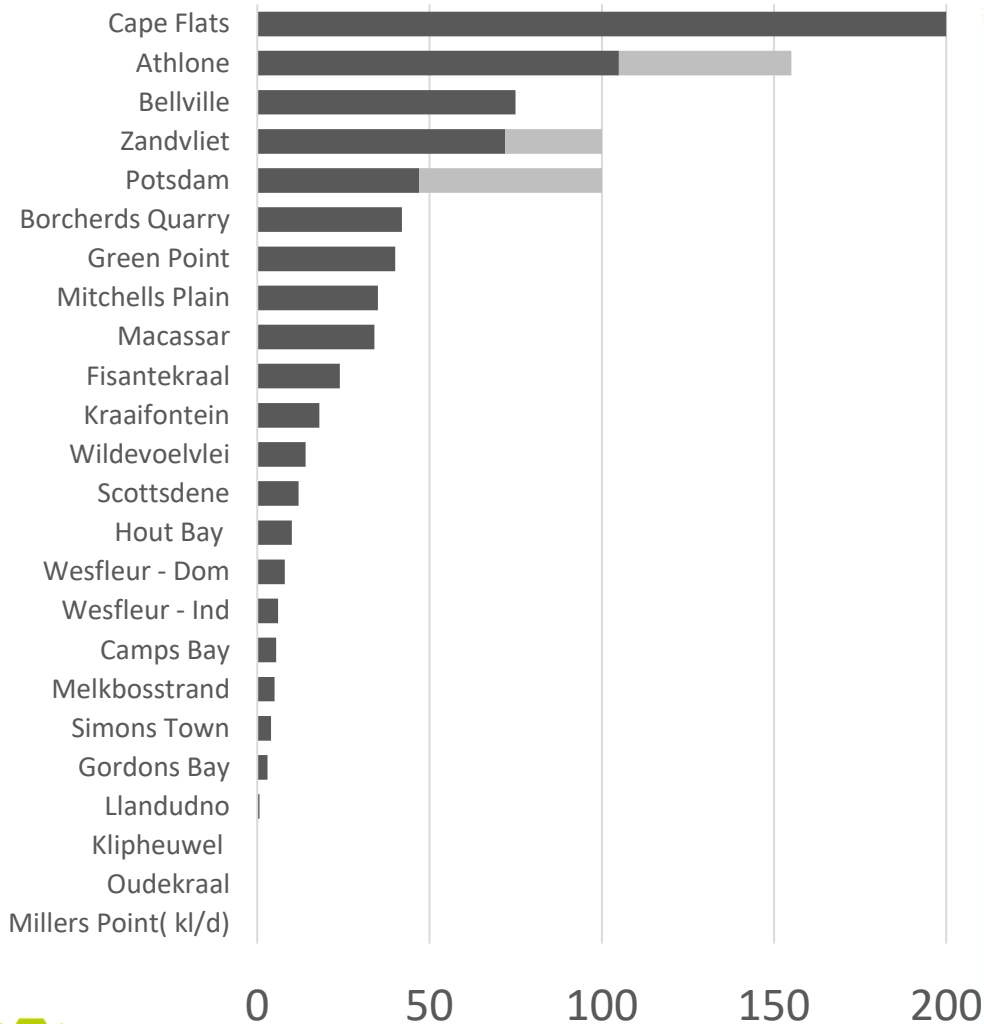
SYDNEY



Launched 2018
50 year vision
9x Cape Town resources

25 wastewater treatment works treating 497 million litres a day (ML/day)

Design capacity:
760 ML per day



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A major Wastewater Treatment capital program is underway

2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
R 850 m	R 890 m	R1 056 m	R1 590 m	R 1 407 m	R 1 012 m

Major expansion projects	Additional Ml per day	Completion date
Potsdam	53	2025
Athlone	50	2025
Zandvliet	18	2024
Macassar	36	2026
Other major projects		
Cape Flats mechanical rehabilitation		
Cape Flats Biosolids Beneficiation Facility		
Other smaller projects		

Creating capability for more effective implementation

Seven transitions to become a world class provider

1. **Water resilience:** sufficient water in context of climate change
2. **Water quality transition:** transformed water ways
3. **Customers:** developing trust
4. **Social inclusion:** expanding inclusion
5. **Finance:** becoming sustainable
6. **Product & processes:** improving integration, efficiency & compliance
7. **Staff:** developing pride and increasing motivation

Becoming a leading water provider in Africa and Globally

Cape Town has become a leader in water demand reduction.

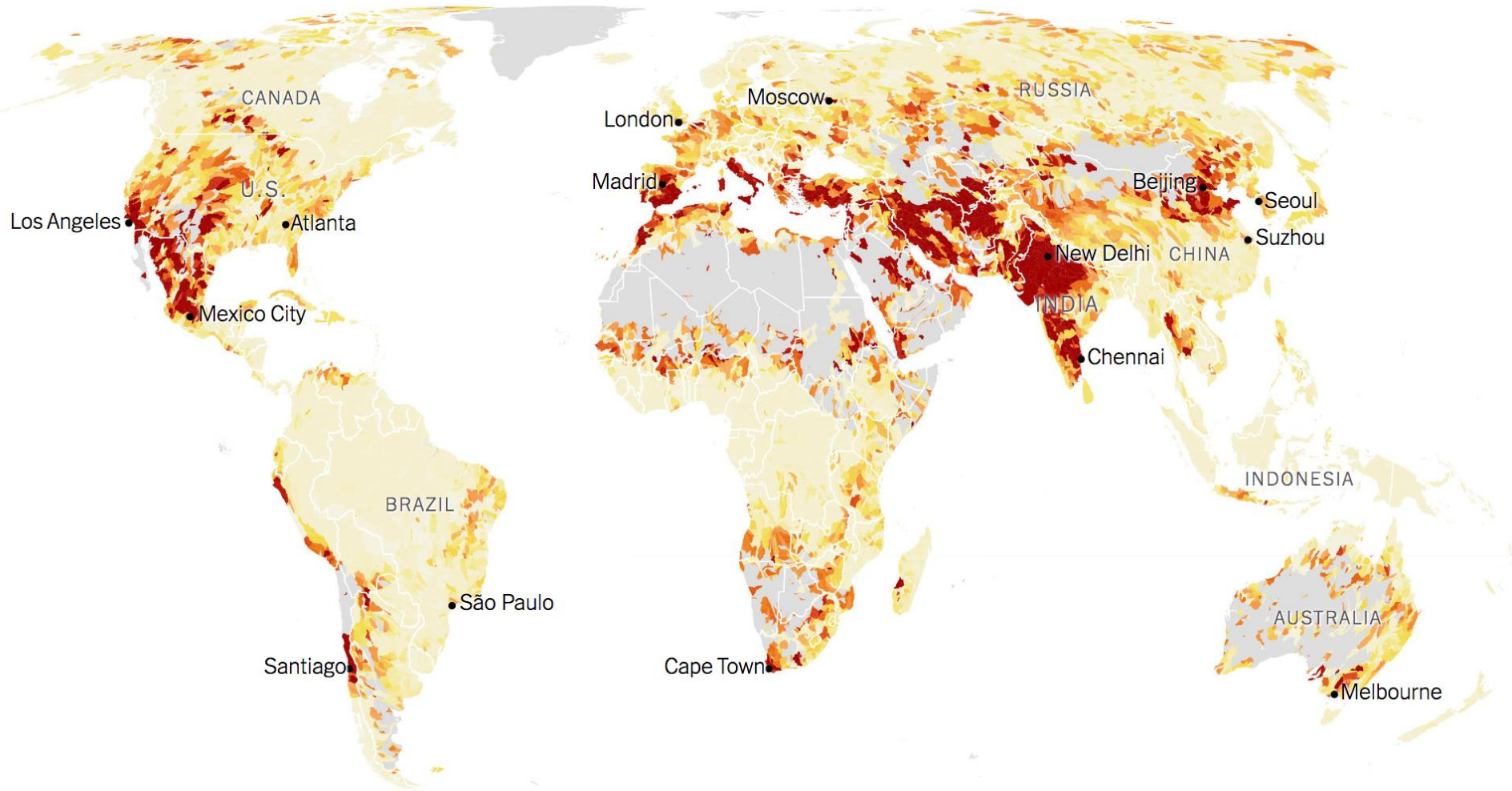
Can we demonstrate outstanding innovation in two other areas of utility management to become the first leading utility of the world in Africa?

41 leading utilities of the world



The **Gold Standard** of
water utility performance
& innovation

Cape Town is creating the capability to implement its strategy & become world class





Thank you



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