

NATURE AND CLIMATE NEXUS

Nature-Based Solutions for Urban and Rural Landscapes

Lecture Series + Project Design Clinic

17–19 September 2024 • ADB Multifunction Halls 2 and 3 • Hybrid

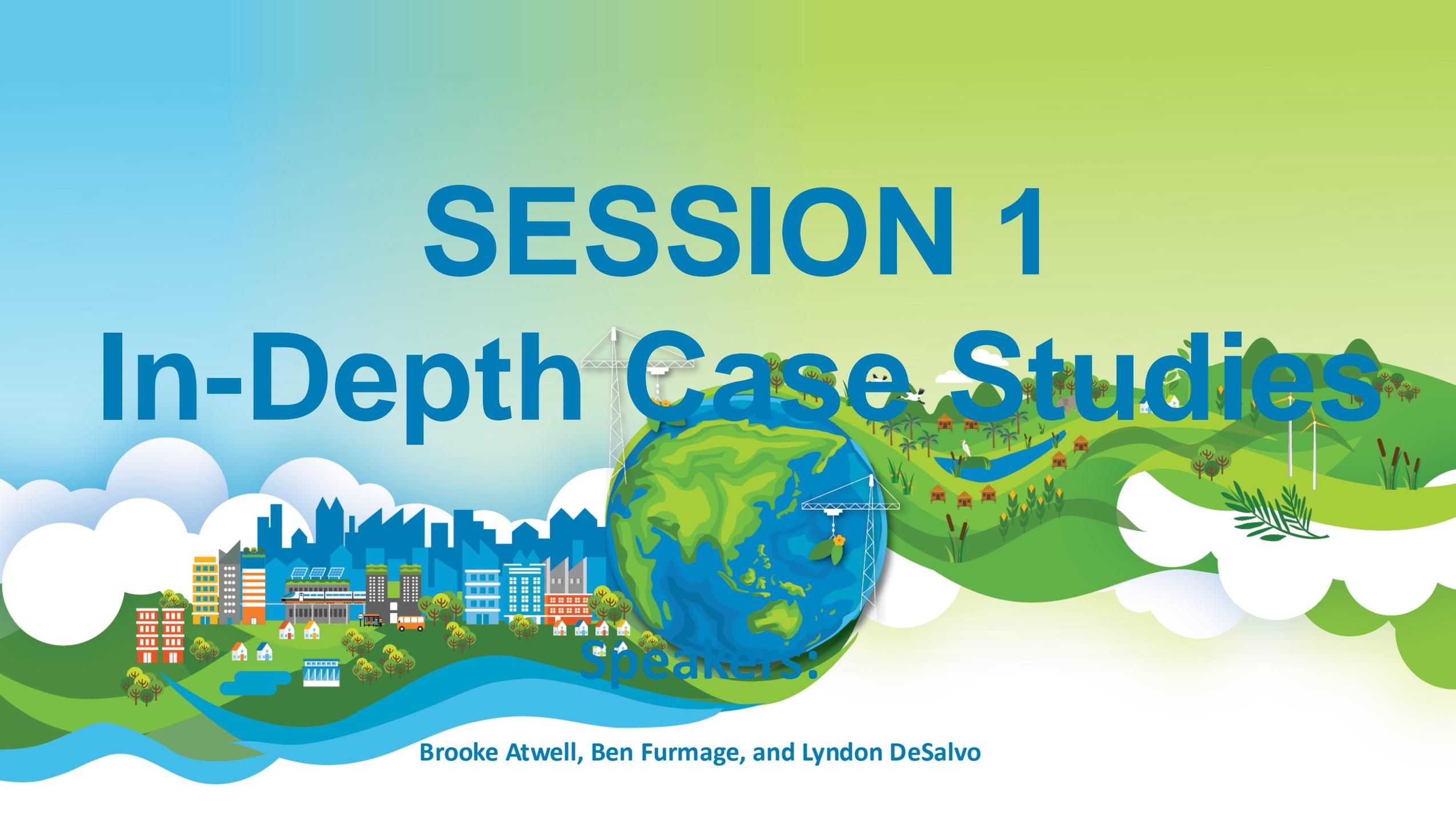


This training is organized by the **ADB Environment Group** together with the **Water and Urban Development Sector Group**, and the **Agriculture, Food, Nature, and Rural Development Sector Office**.

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SESSION 1

In-Depth Case Studies



Speakers:

Brooke Atwell, Ben Furmage, and Lyndon DeSalvo

DAY 2

CASE STUDY: THE GREATER CAPE TOWN WATER FUND



In 2018 Cape Town Faced a Water Crisis



Water demand management

2013: 3.8 M citizens
2023: 4.8 M citizens

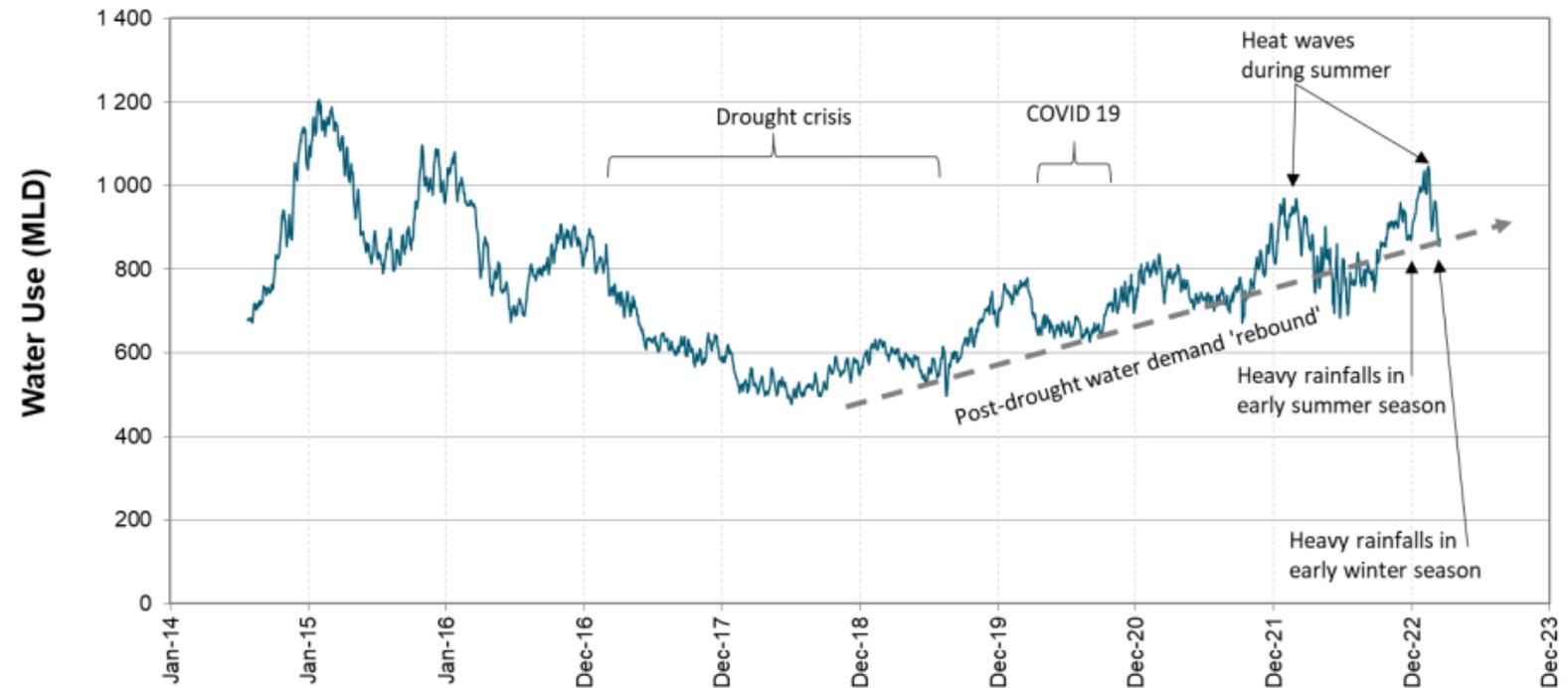


Figure 5

Overall Water Use by the City of Cape Town (Million litres per day)

https://resource.capetown.gov.za/documentcentre/Documents/City%20research%20reports%20and%20review/Water_Outlook_March_2023.pdf

Response to predictions - Cape Town's Water Demand to Exceed Supply by 2021

Water Demand Management



Waste-water Reuse



Seawater Desalination



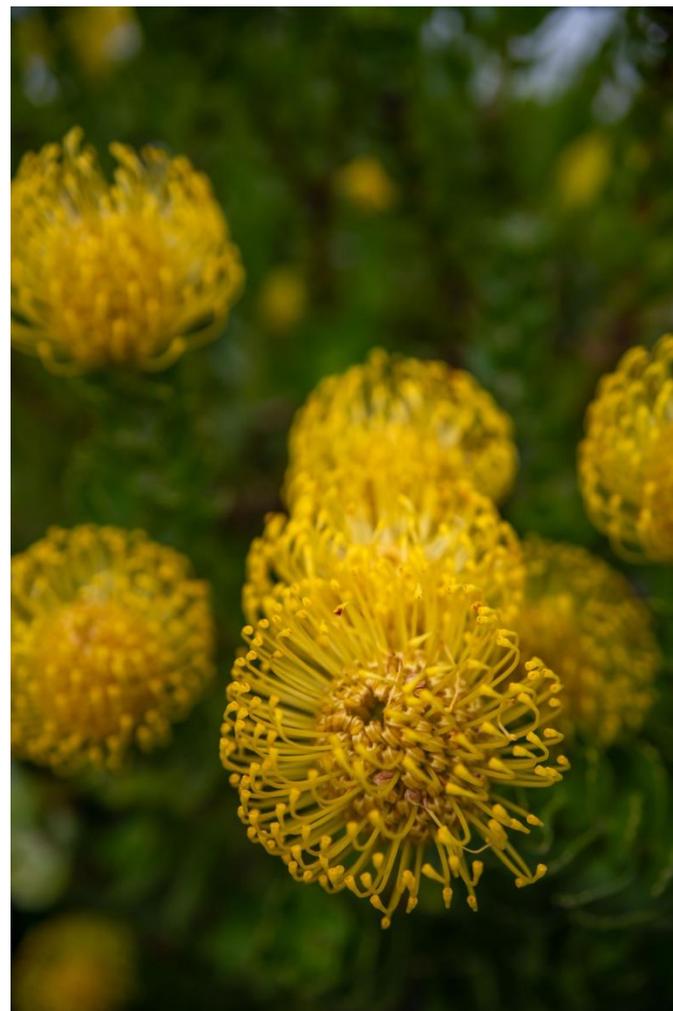
Deep Aquifer drilling (TMGA)



Where Does Cape Town's Water Come From?



Water-Friendly *Fynbos*

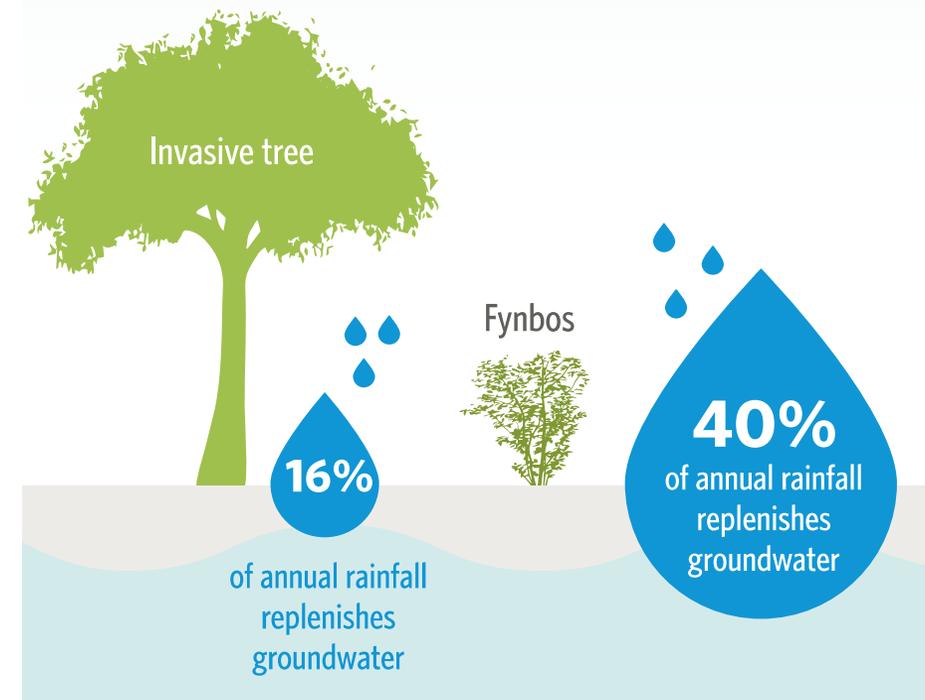


Water-Thirsty Invasive Alien Plants



What the science tells us

Thirsty invaders vs water wise fynbos



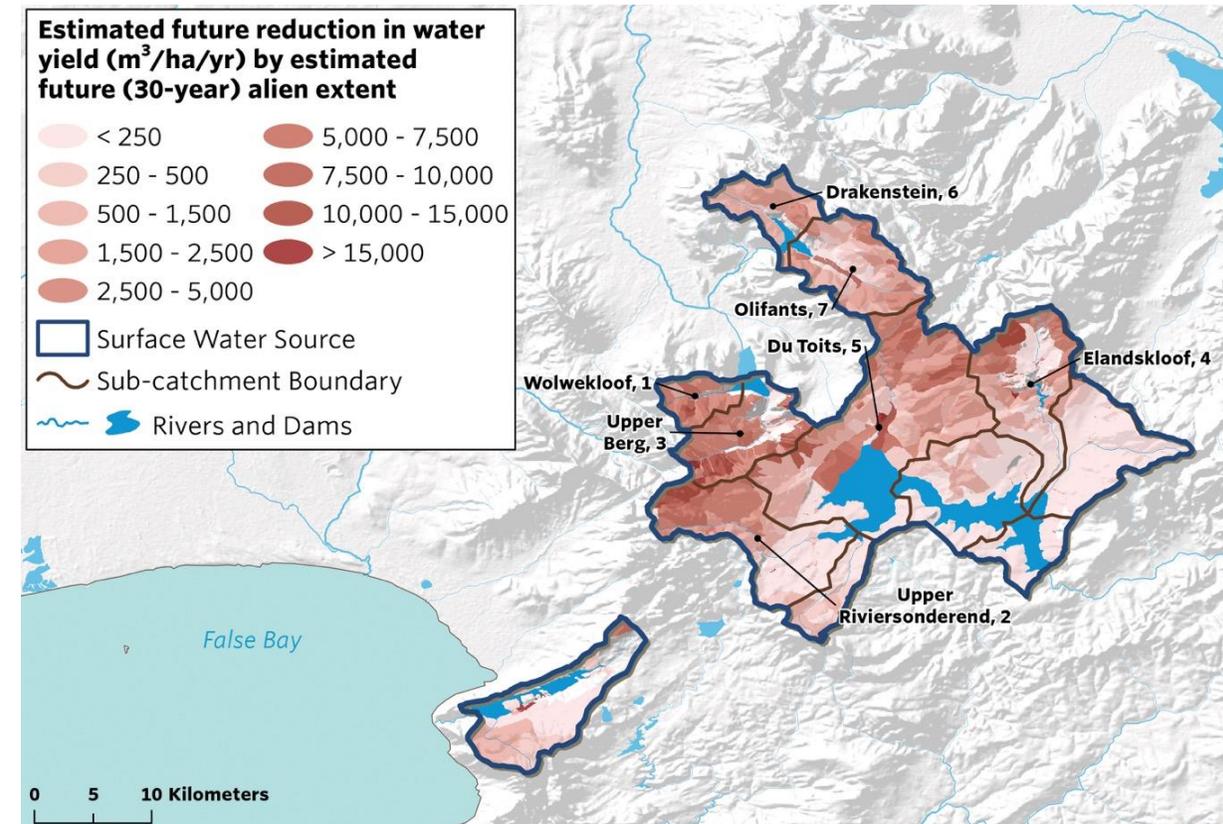
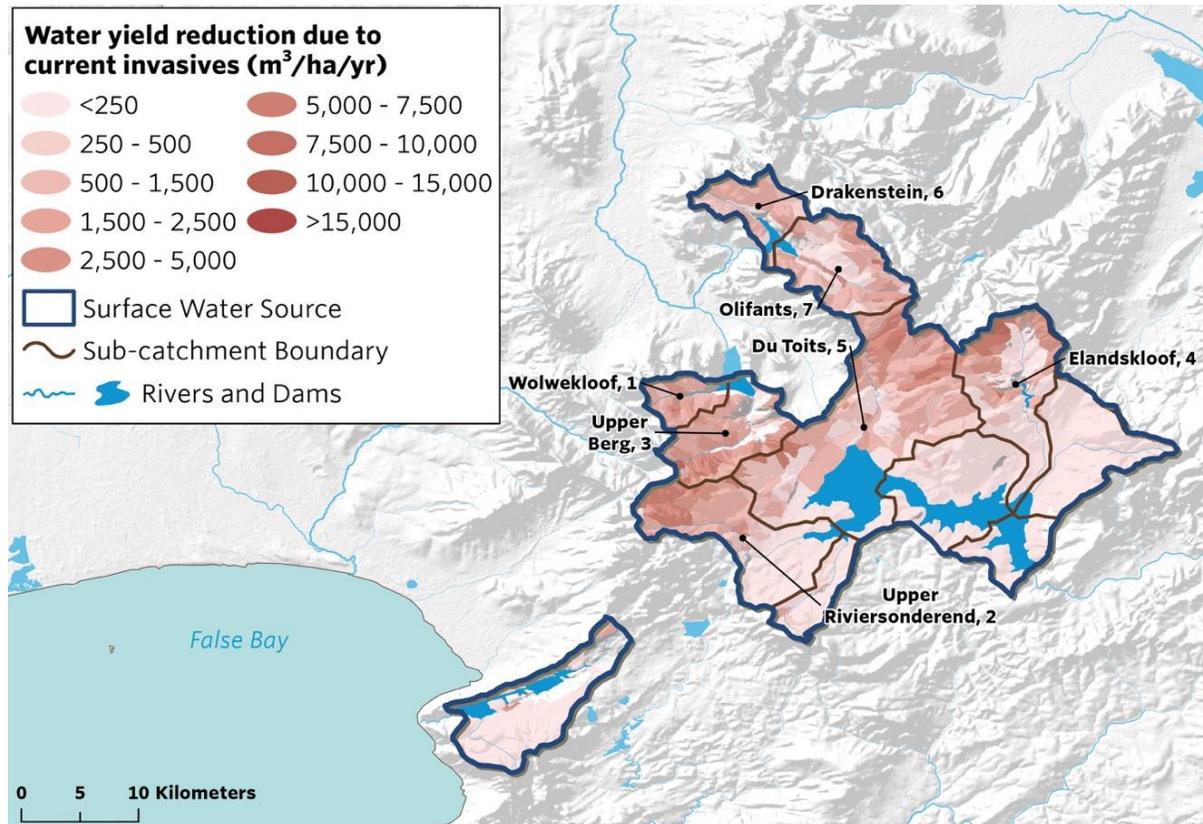
Two-thirds of the region's catchments are invaded by alien trees



Water Loss Could Double

Current State: 55 Billion liters lost per year

Prediction: 100 Billion liters lost per year by 2045



A combination of funding, implementation, and governance barriers are driving expansion of IAPs despite intervention



FUNDING

- Reliance on Government
- Inconsistent funding
- Insufficient funding
- Unclear Cost – Benefit
- Bureaucracy – delays, stop start

IMPLEMENTATION

- Fragmented, institutions working in silos
- Lack of prioritizing & focus
- Cleared areas not maintained
- Not working in High Altitude areas
- Absence of clear strategy
- Lack flexibility

ADAPTIVE MANAGEMENT

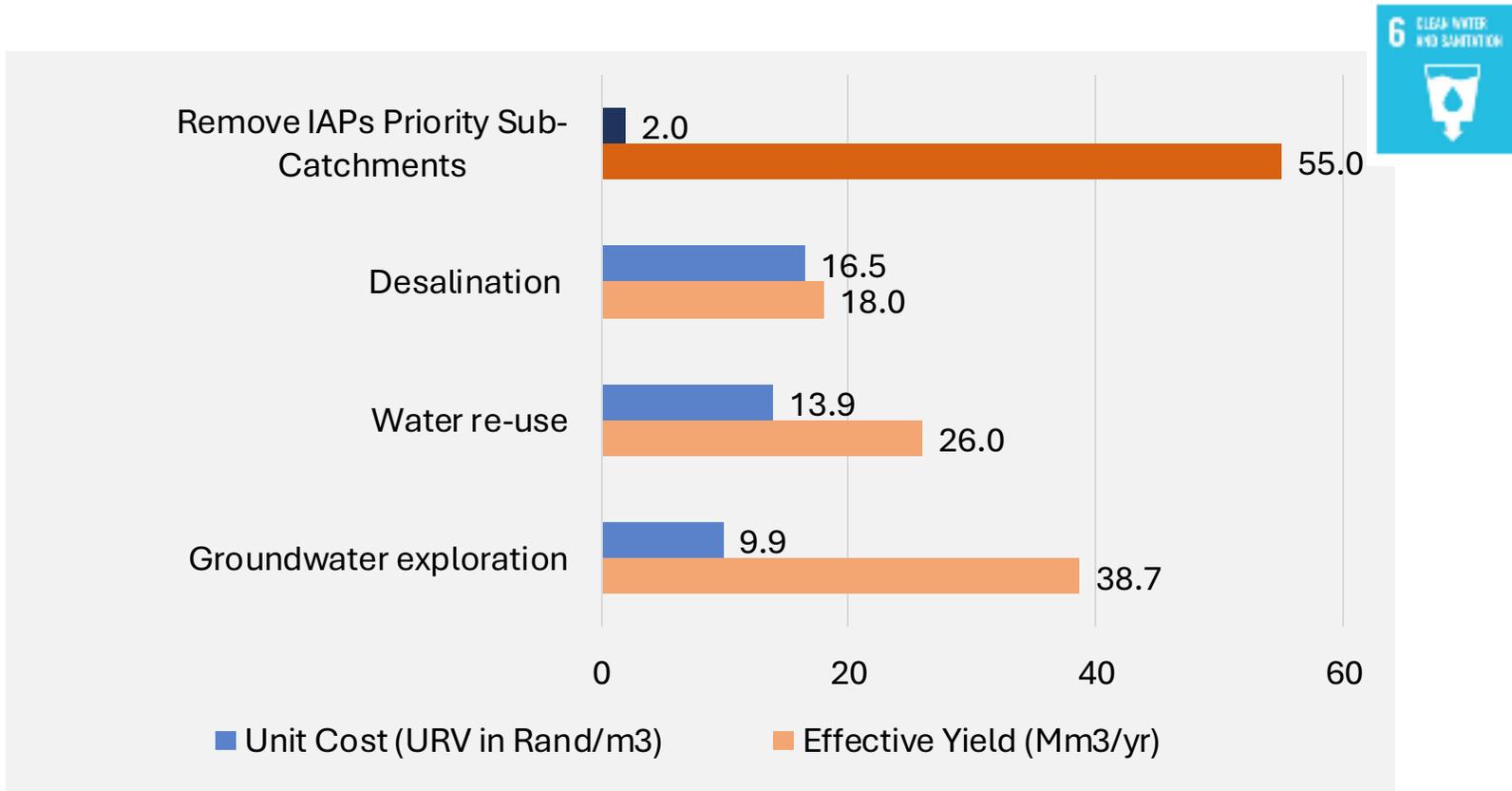
- Not tracking impact
- Absence/insufficient M&E

Watershed Investment Programs bridge governance, implementation, and funding challenges to restore catchments

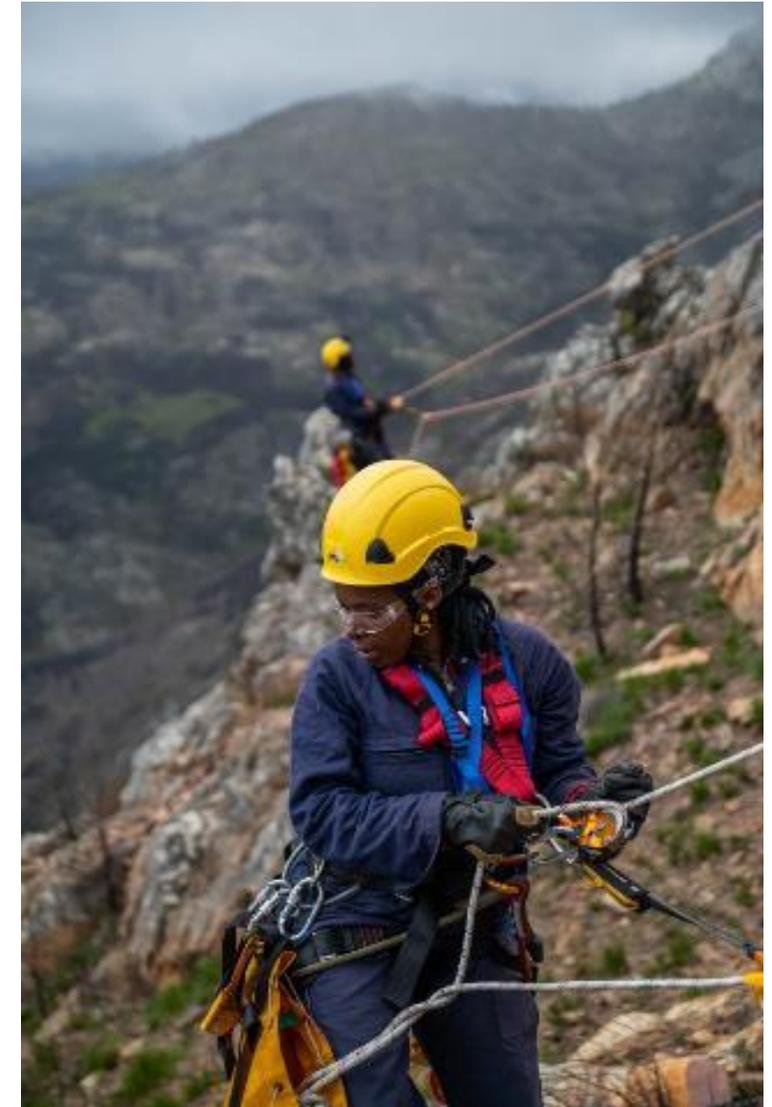
Could NBS be cost-effective for Cape Town?



30-year planning shows Nature-Based Solutions cheapest water augmentation option

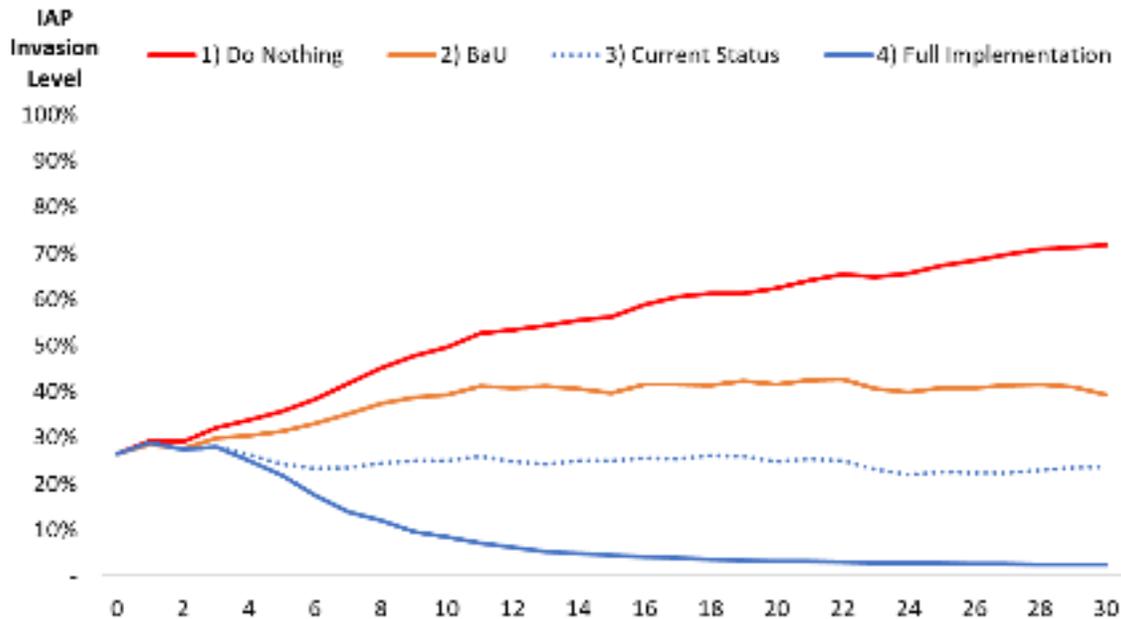


Increases dry season water availability by **24%**

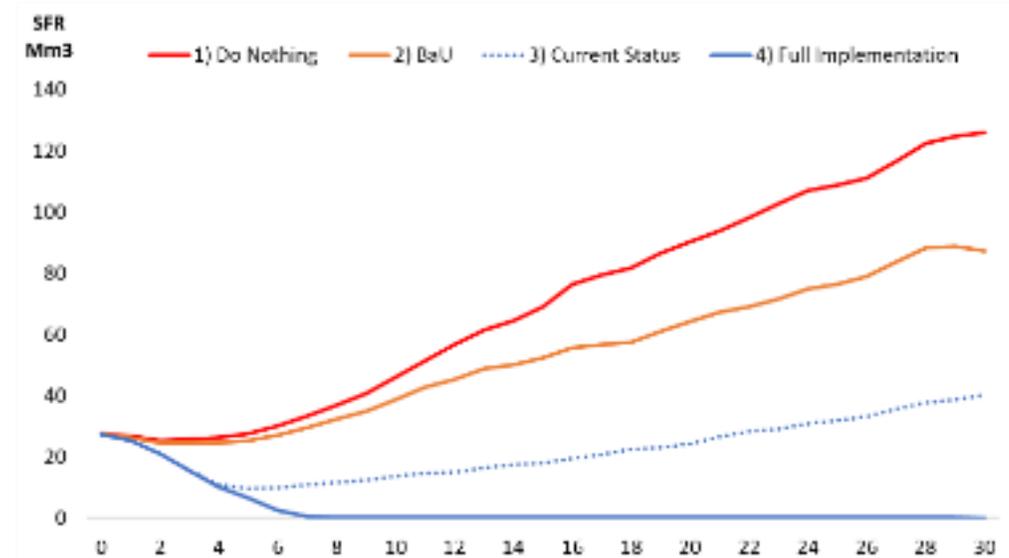


GCTWF modelled different scenarios to see a future with and without NbS implementation

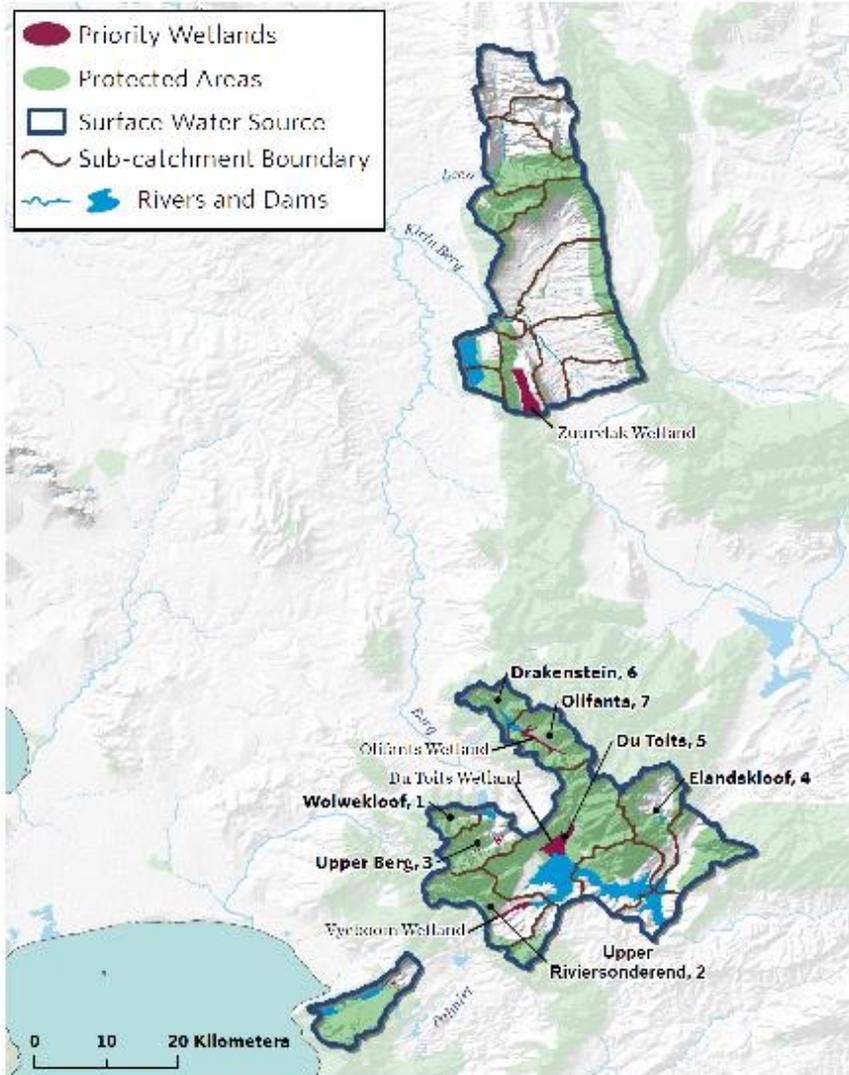
Invasion level (% of area)



Annual Streamflow Reduction (SFR, in Mm³)



Focused on 7 priority catchments responsible for providing the majority of Cape Town's water

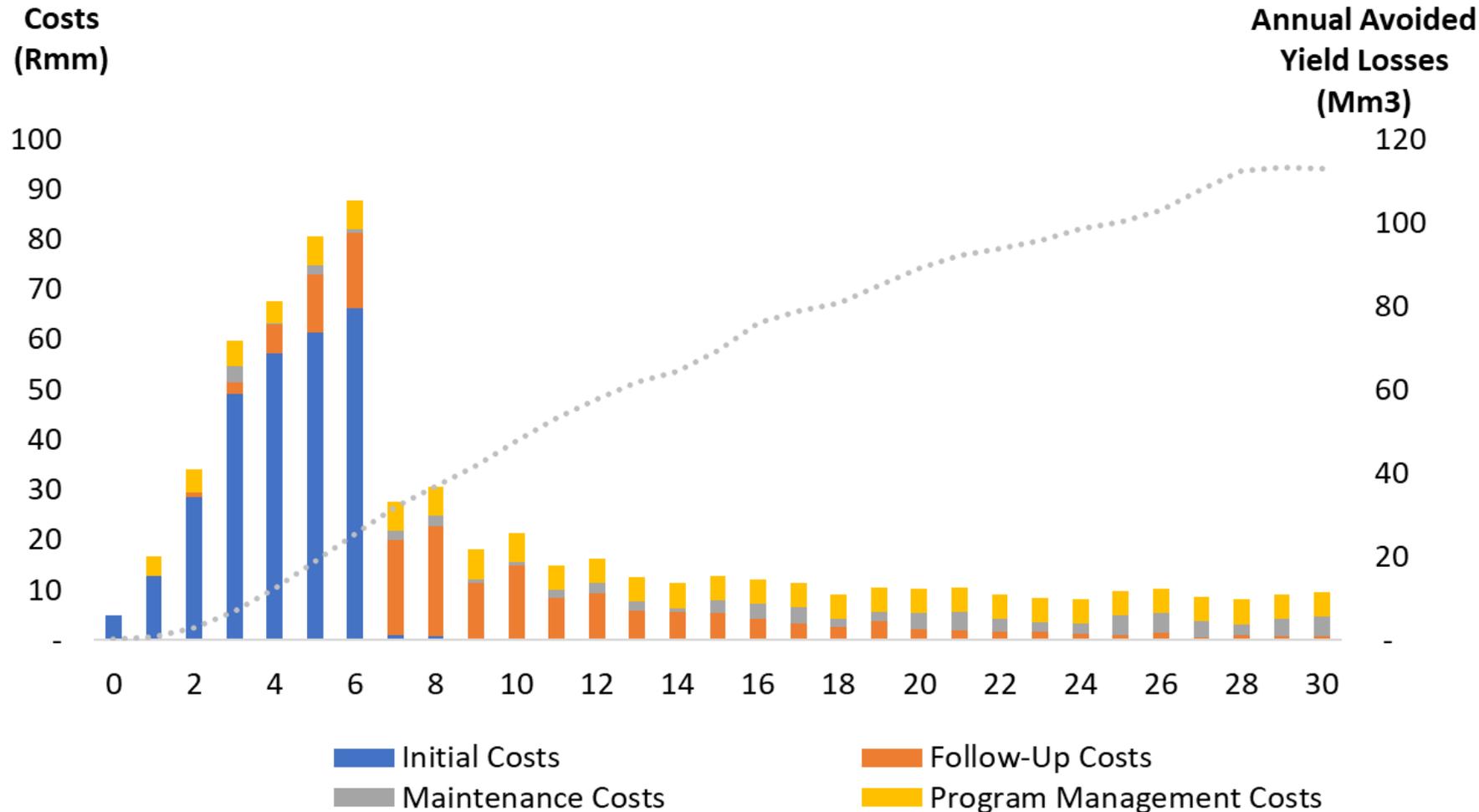


The city could reclaim 74% of the current water losses by focusing on only 36% of the Western Cape Water Supply System



GCTWF: 7 Priority sub-catchments

Full cost Implementation \$50M (USD)



GCTWF “Full Implementation”: Who benefits and how much?



Avoided yield reduction by *dam catchment*



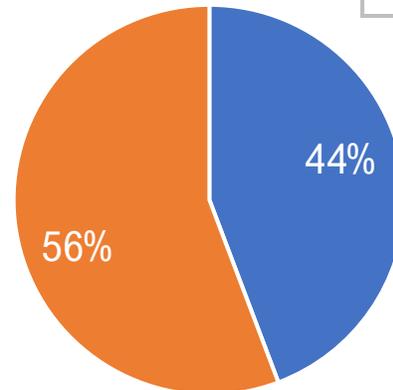
Avoided yield reduction by *user*



Greater Cape Town Water Fund was established June 2023 as a Public-Private Partnership



Advisory



■ City of Cape Town ■ Private sector

GCTWF: Public-Private Partnership



GCTWF: From Planning to Action

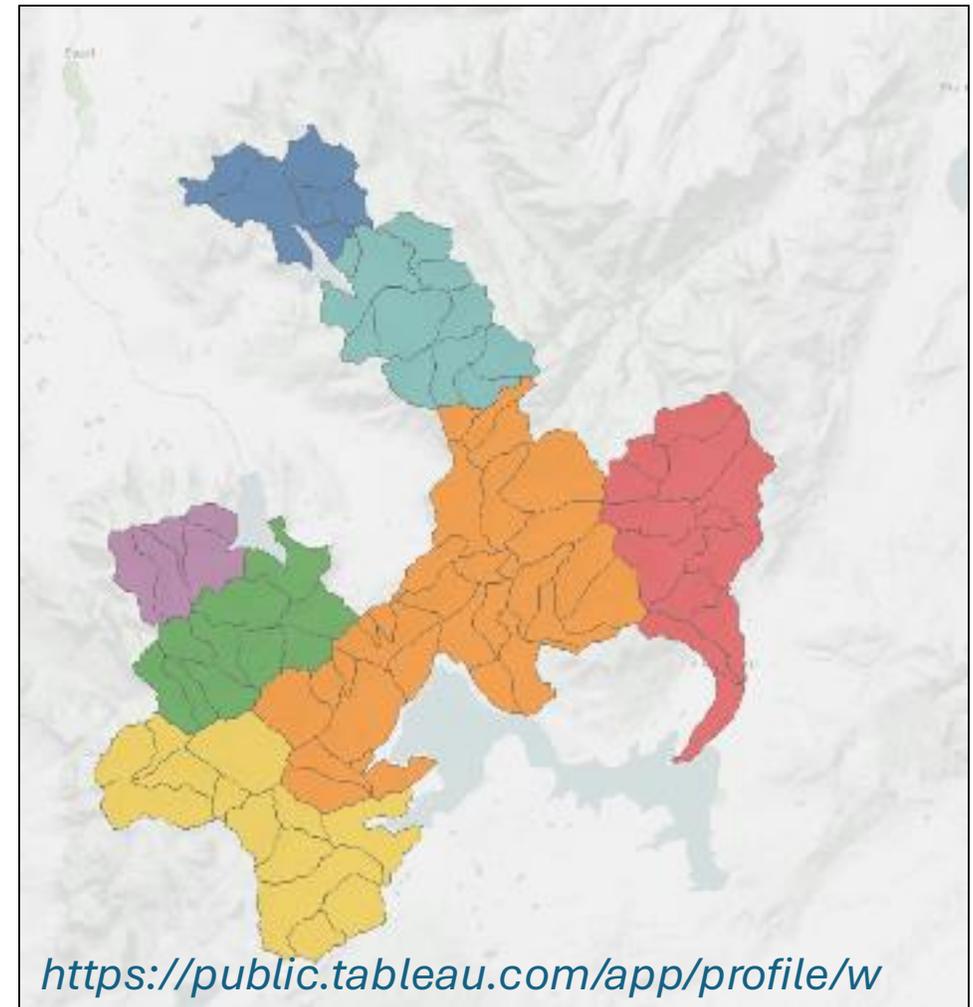
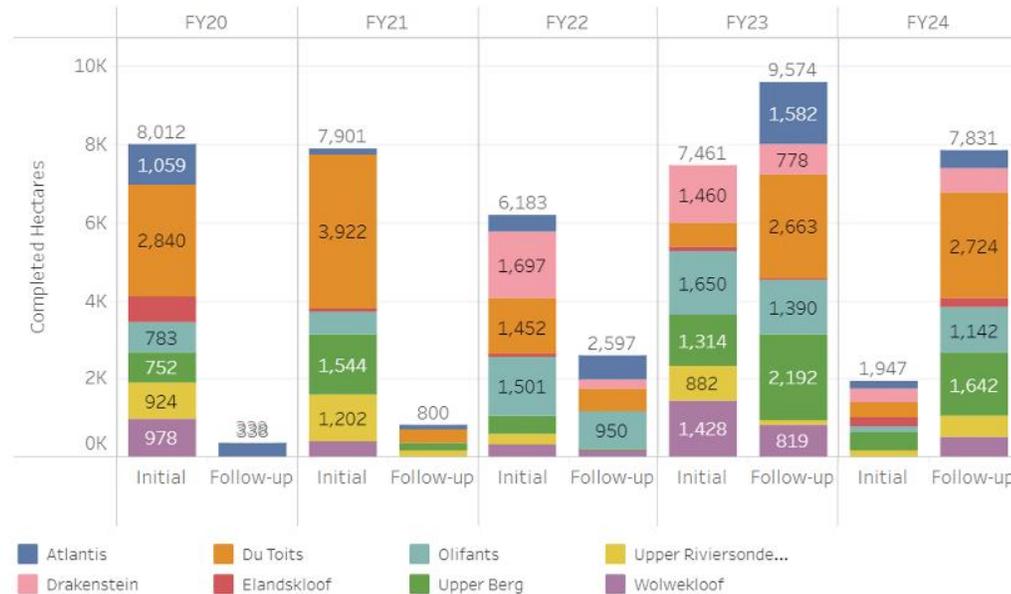


GCTWF makes investment decisions and monitors progress through their online Decision Support System



- Scenario modeler** estimates benefits and costs under different funding assumptions
- Financial model** incorporates program management costs and benefits monetization to arrive at full-cycle return on investment
- Online visual platform** ongoing implementation tracking and reporting of estimated realized benefits.

The Seven Priority Sub-Catchments were divided into Hydrological Management Units



From current to desired state

55 billion liters **lost** every year
= 2 months water for Cape Town



By 2026, **reclaim** 55 billion liters/year

