

Duquesne University

Duquesne Scholarship Collection

Policy

Limpopo Resilience Lab

9-2016

Presentation 1

M Musariri

South Africa Department of Water and Sanitation

G Jager

AECOM SA (Pty) Ltd

J D. Rossouw

AECOM SA (Pty) Ltd

Follow this and additional works at: <https://dsc.duq.edu/limpopo-policy>



Part of the [Environmental Law Commons](#), and the [Water Law Commons](#)

Recommended Citation

Musariri, M., Jager, G., & Rossouw, J. D. (2016). Presentation 1. *Review, Evaluation and Optimisation of the South African Water Resources Monitoring Network*. Retrieved from <https://dsc.duq.edu/limpopo-policy/>
16

This Supplemental Material is brought to you for free and open access by the Limpopo Resilience Lab at Duquesne Scholarship Collection. It has been accepted for inclusion in Policy by an authorized administrator of Duquesne Scholarship Collection.



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

SANCIAHS 2016, Durban, 14 September 2016

Review, Evaluation and Optimisation of the South African Water Resources Monitoring Network

M Musariri¹, G de Jager², JD Rossouw²

¹ DWS, Chief Directorate: Water Information Management

² AECOM SA (Pty) Ltd

*“The National Water Act (1998) requires the establishment and management of **national monitoring programmes** to facilitate the continued and coordinated monitoring of **water resources** in South Africa by collecting relevant data and information”*

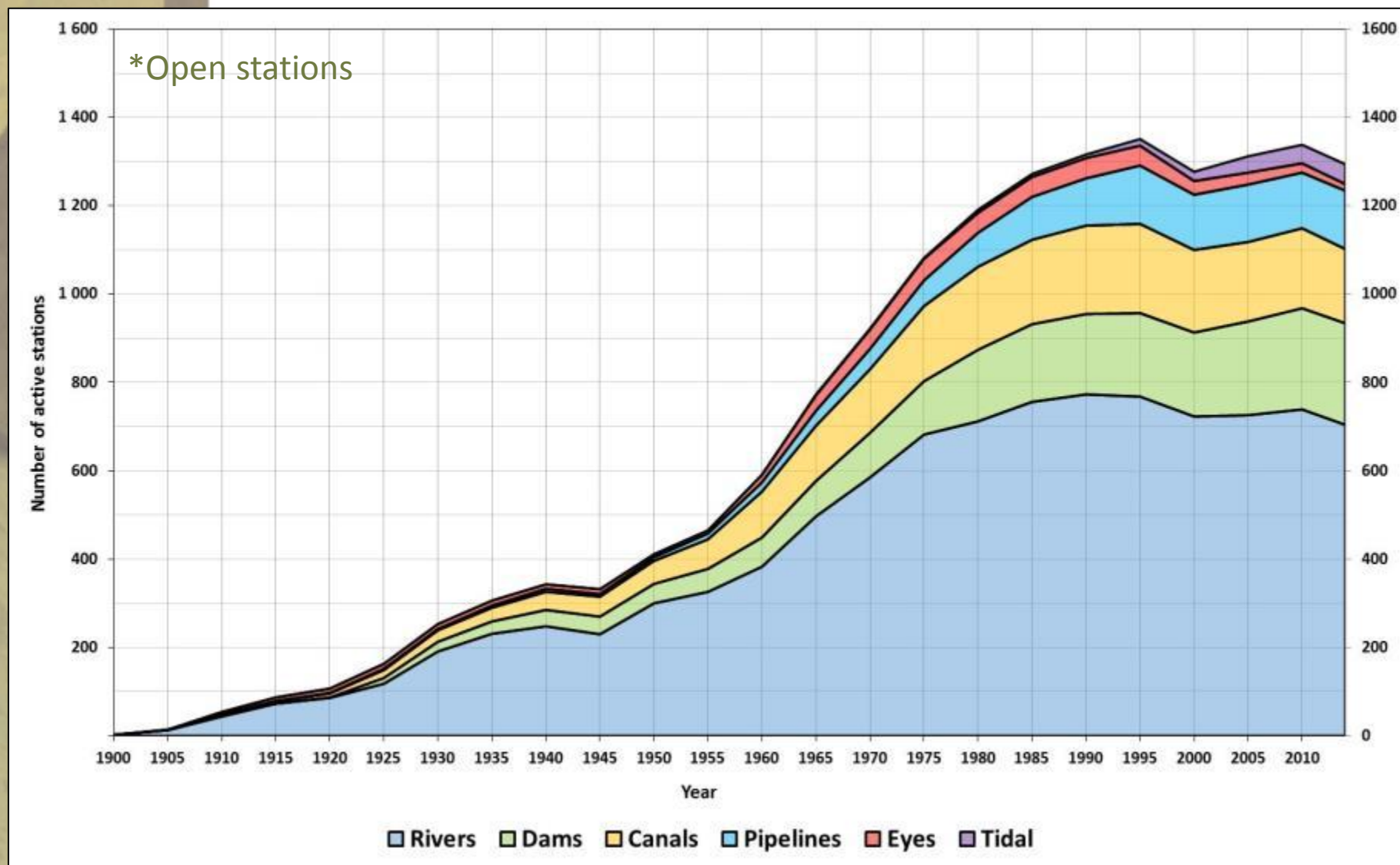
Priority	Objective	Description
1	Resource and infrastructure planning	Provide adequate monitoring data for determining availability and quality of current and future water resources. Aim to provide strategic decision support for the equitable and sustainable allocation of resources to population, environment and other economic sectors of society through planned infrastructure development and other interventions
2	Resource operations and management	Provide timely monitoring data for efficient operation and management of water resources to ensure protection of resources and water users and allocate water equitably and sustainably
3	Early warning systems	Provide timeous data for early-warning systems to mitigate negative impacts on humans, infrastructure, economy, riverine and coastal ecosystems
4	Compliance and auditing	Provide water quality and quantity data to ensure compliance and auditing functions required for water use licensing, etc.

The challenge

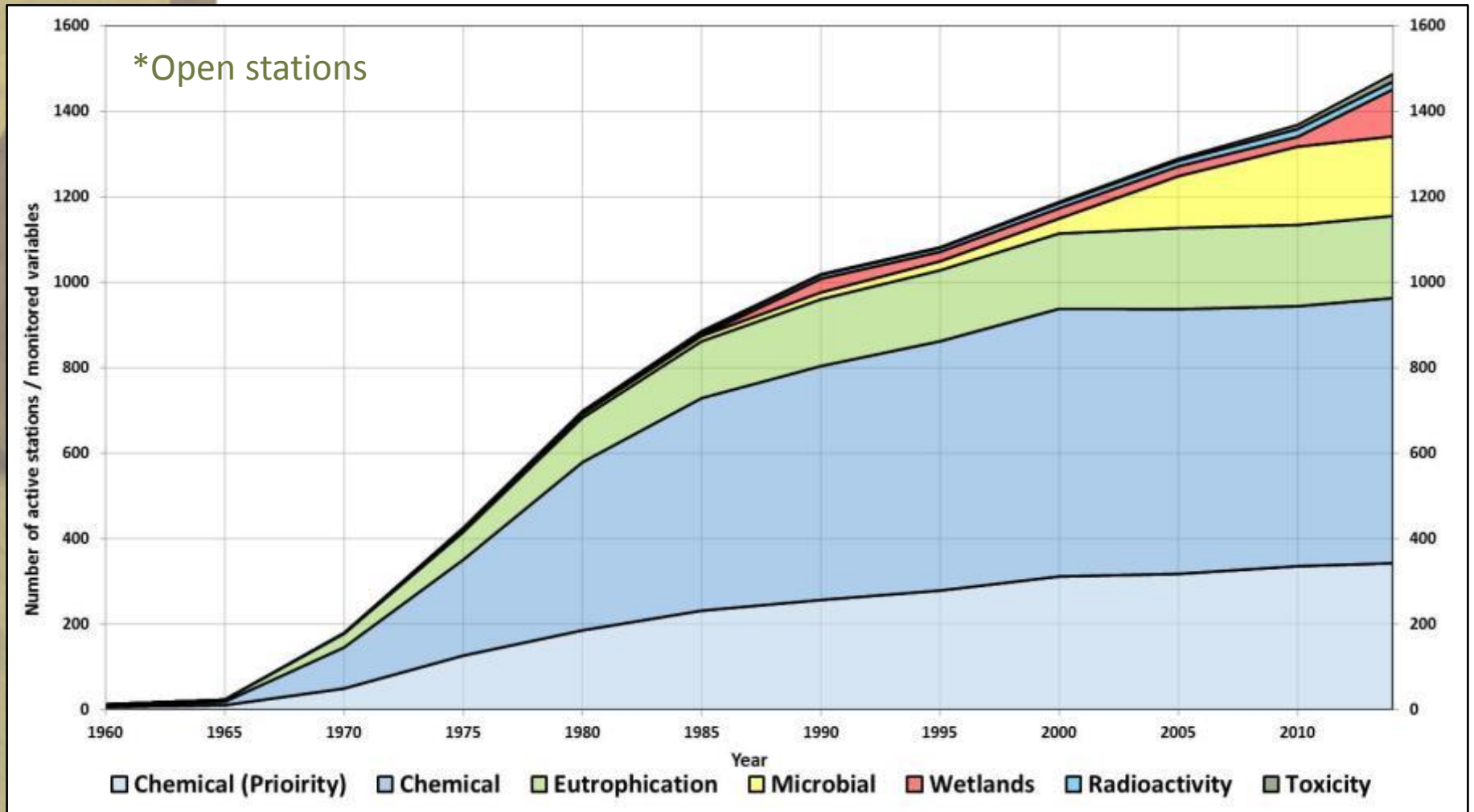
- What do we need to do?
- How do we prioritise
- How do we optimise?
- How do we implement it?
- What will it cost?

Let's look at some trends...

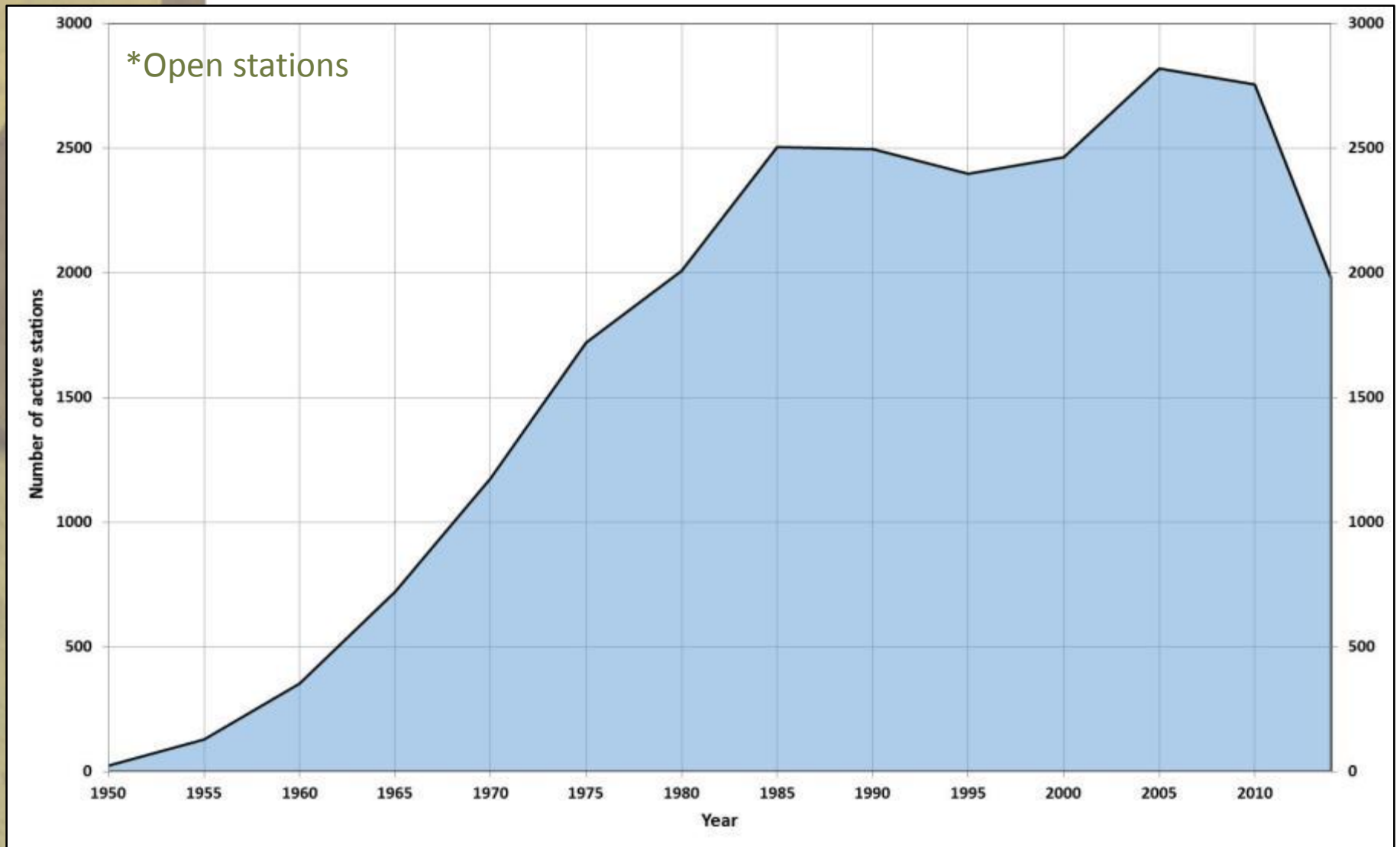
Surface water quantity



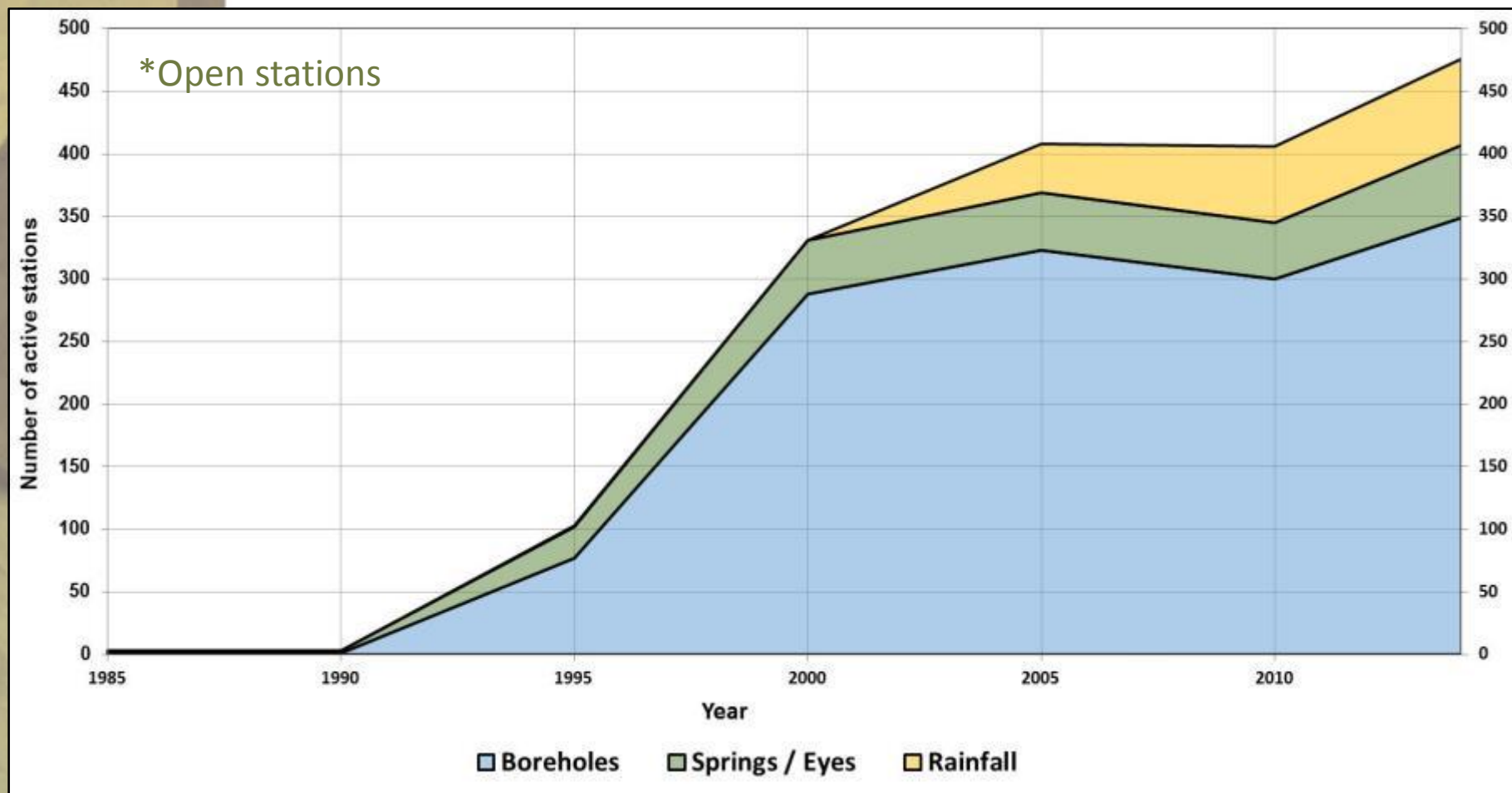
Surface water quality



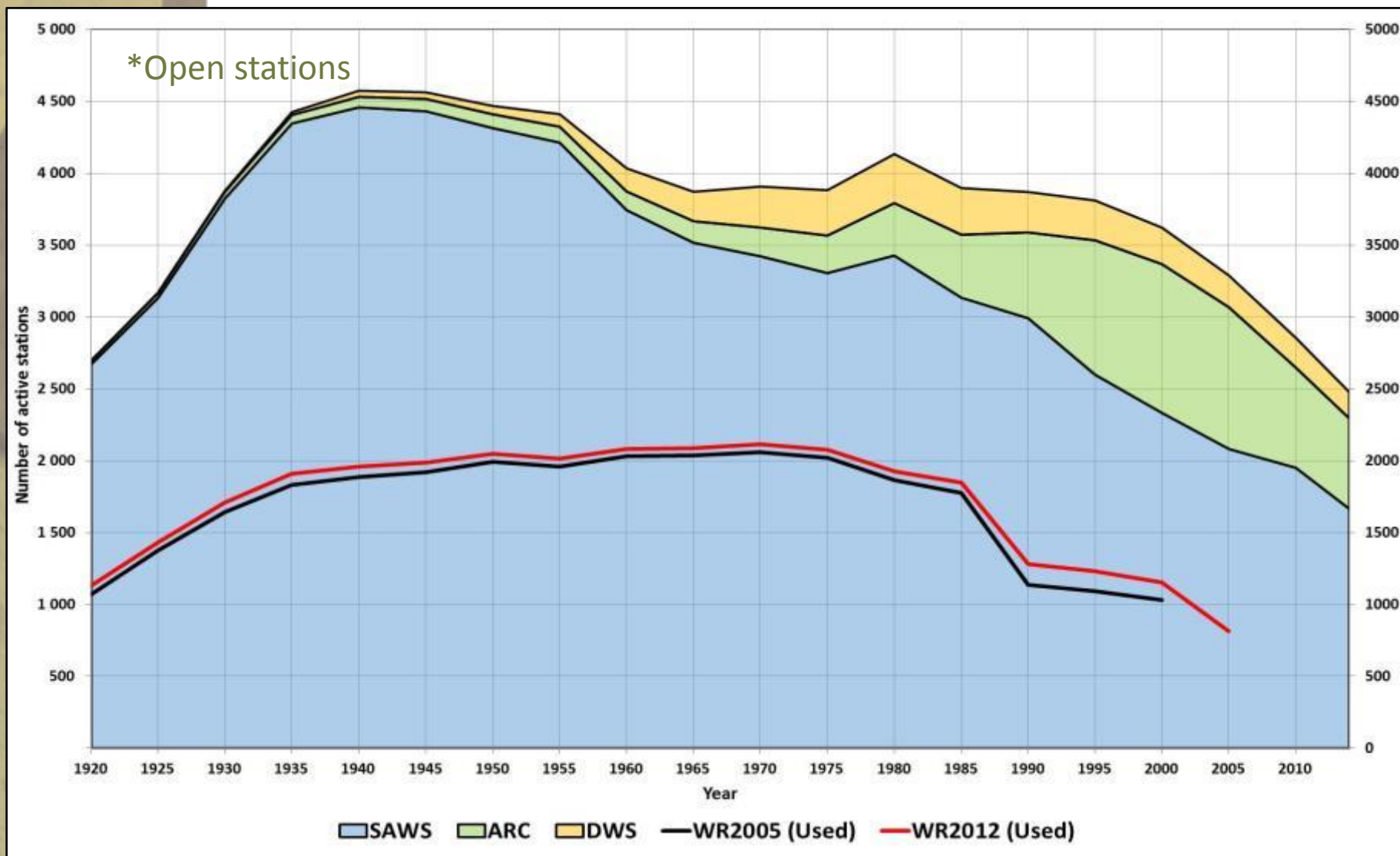
Groundwater levels



Groundwater and rainfall quality



Rainfall



So what can we do?

- What are we monitoring now?
- What do we actually need?
(where, what, when)
- How do these compare?
(gaps/redundancies)
- How do we get there?
- What resources do we need?

Strategy

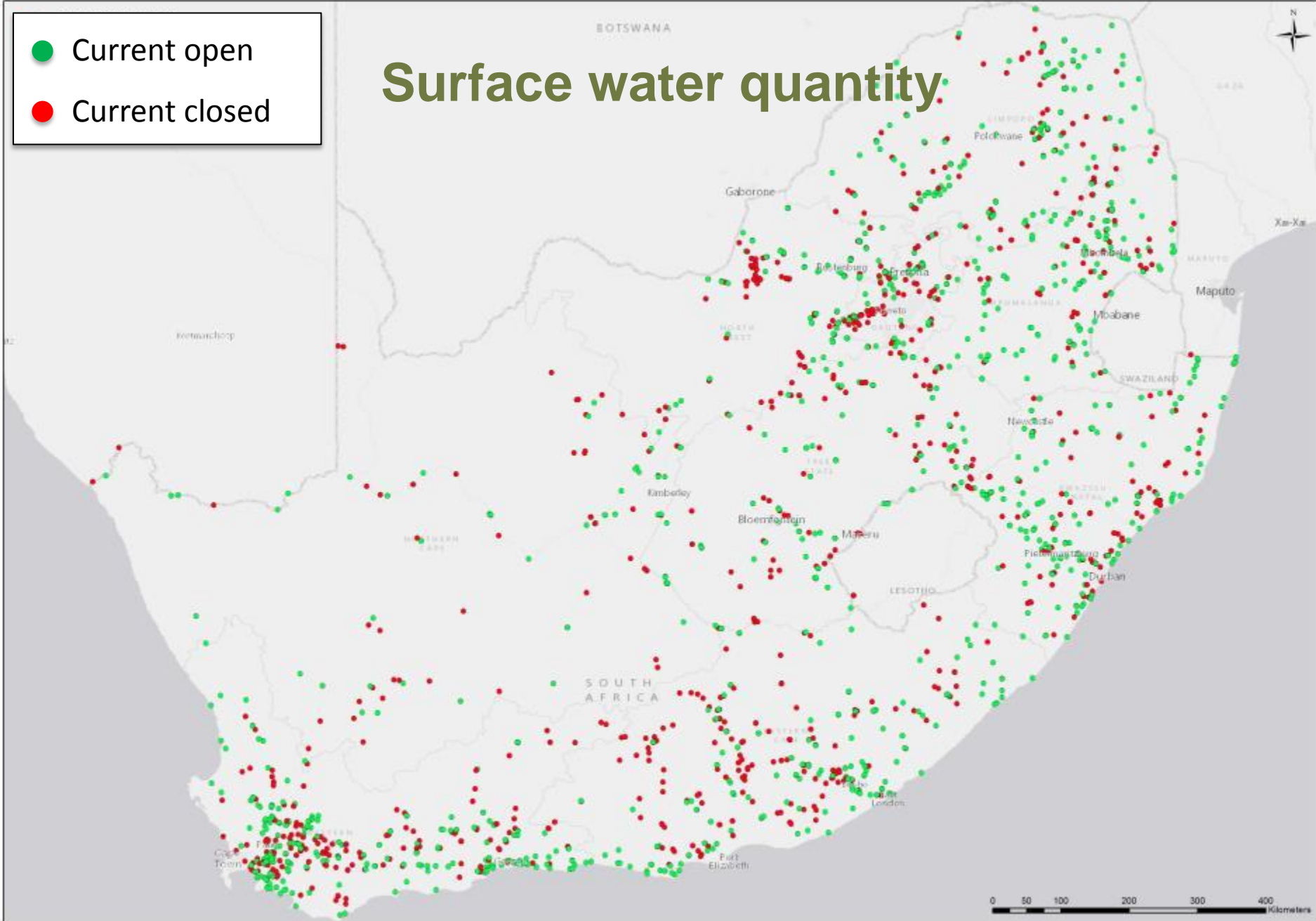
Motivation

The study boundaries

- 10 national DWS programmes:
Hydrology, geo-hydrology, chemistry, microbiology, eutrophication, radioactivity, toxicity, estuaries, wetlands and aquatic health
- Specialized monitoring needs:
Transboundary obligations, AMD, fracking and impacts of climate change

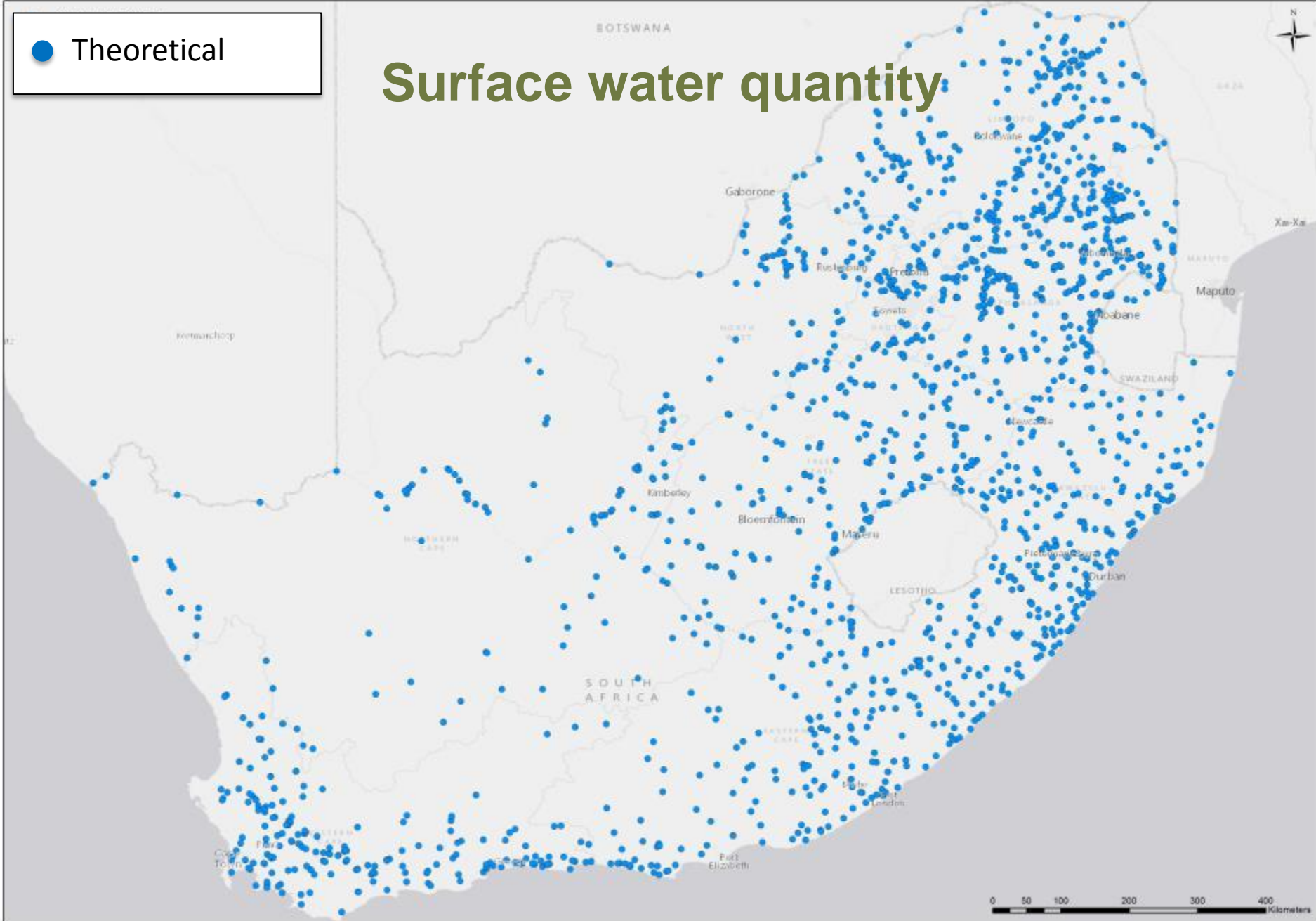
Surface water quantity

- Current open
- Current closed



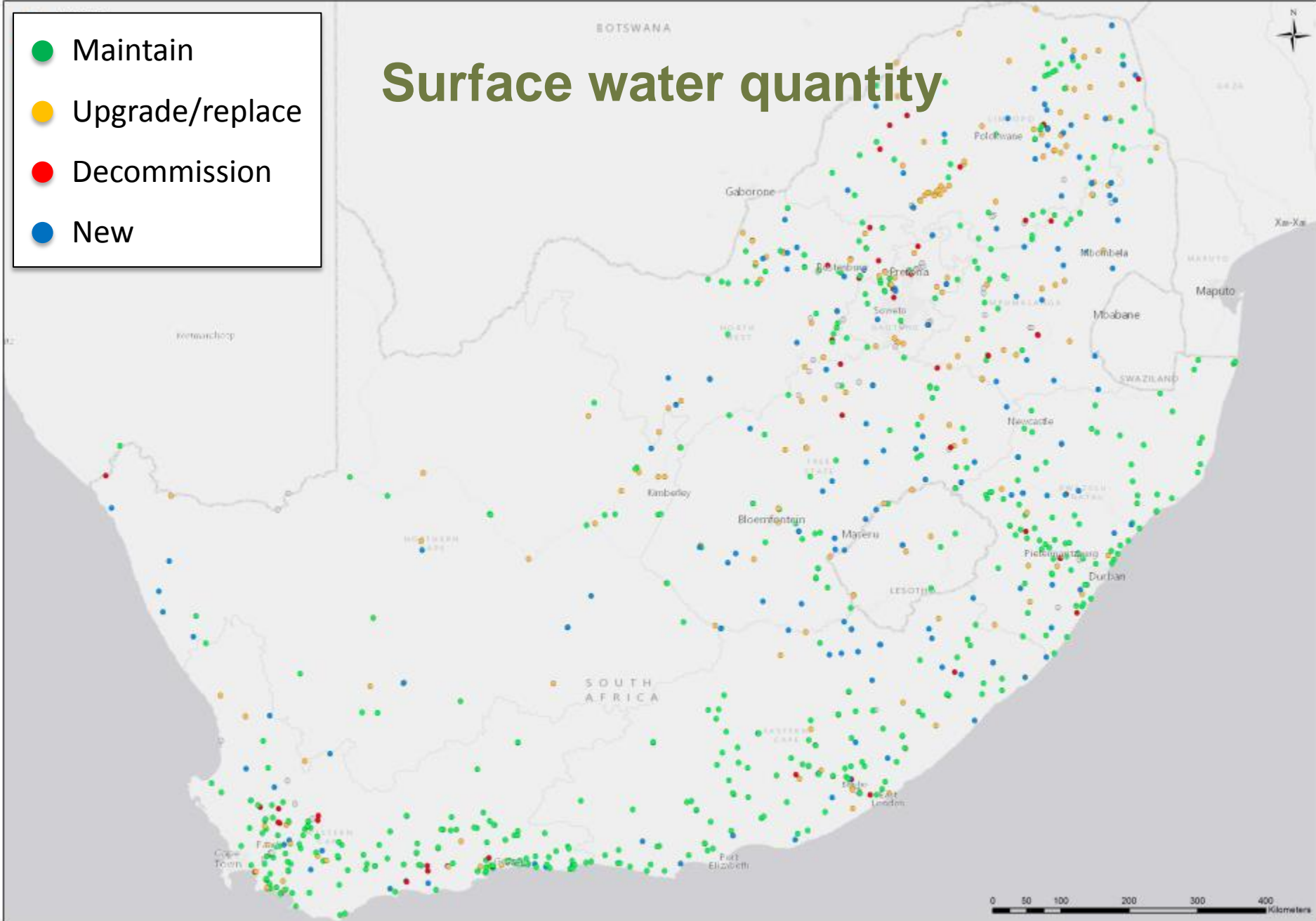
● Theoretical

Surface water quantity



Surface water quantity

- Maintain
- Upgrade/replace
- Decommission
- New



Surface water quantity

Recommendation	Number of sites
● Maintain	614
● Upgrade/replace	199
● Decommission	46
Current total:	859
● New	133
Net total:	946

Example from costing matrix

Activity	Total	Total	EIA	EIA	Eng + Impl	Eng + Impl
	Months	Cost (R mill)	Months	Cost (R mill)	Months	Cost (R mill)
New	48 412	60 648	18 088	28 728	30 324	31 920
Decommission	33 120	34 224	16 008	16 560	17 112	17 664
Upgrade	124 176	128 952	59 700	62 088	64 476	66 864
-	-	-	-	-	-	-
Total	205 708	223 824	93 796	107 376	111 912	116 448

Way forward

- Finalise study
- Formalise into Strategy
(what, where, when, programme,
estimate of projected resource needs)
- Implement Strategy
(10-year plan?)



Thank you

gerald.dejager@aecom.com