





Impact of Policy Implementation on Ecosystems and Water Quality in South Africa



Stanley Liphadzi
Water Research Commission
South Africa
June 2012



Challenges for environment & water

- Like many developing nations, RSA has to strike a balance between water resource **use** and **protection**. 
- In pursuit of its **development agenda**, the country has encountered several water challenges. 
- The challenges are not only wicked but also get complicated by the ever increasing **socio-economic demands** from previously marginalised societies. 
- South Africa is a **water scarce country**, that is mainly semi-arid.
- The most concern of them all is **water Quality**, which cannot be separated from Water Quantity in South Africa 
- Everybody *‘lives downstream’*

What used to bring relief as solutions..... are now of little use! 

Use of Legislations

- 💧 National Water Act,
- 💧 National Environmental Management Act,
- 💧 National Water Service Act,
- 💧 etc.



Have we achieved much using these instruments?

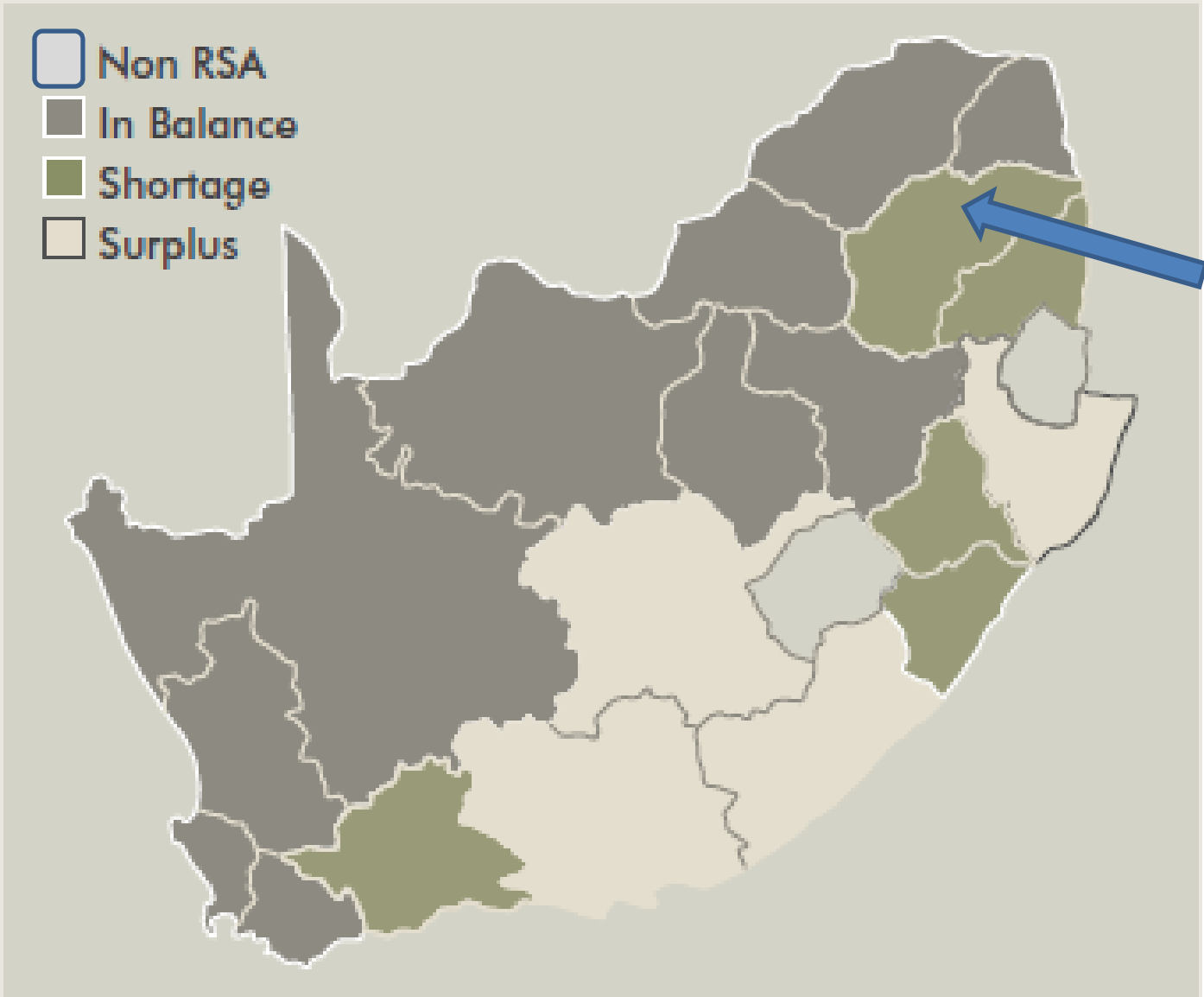


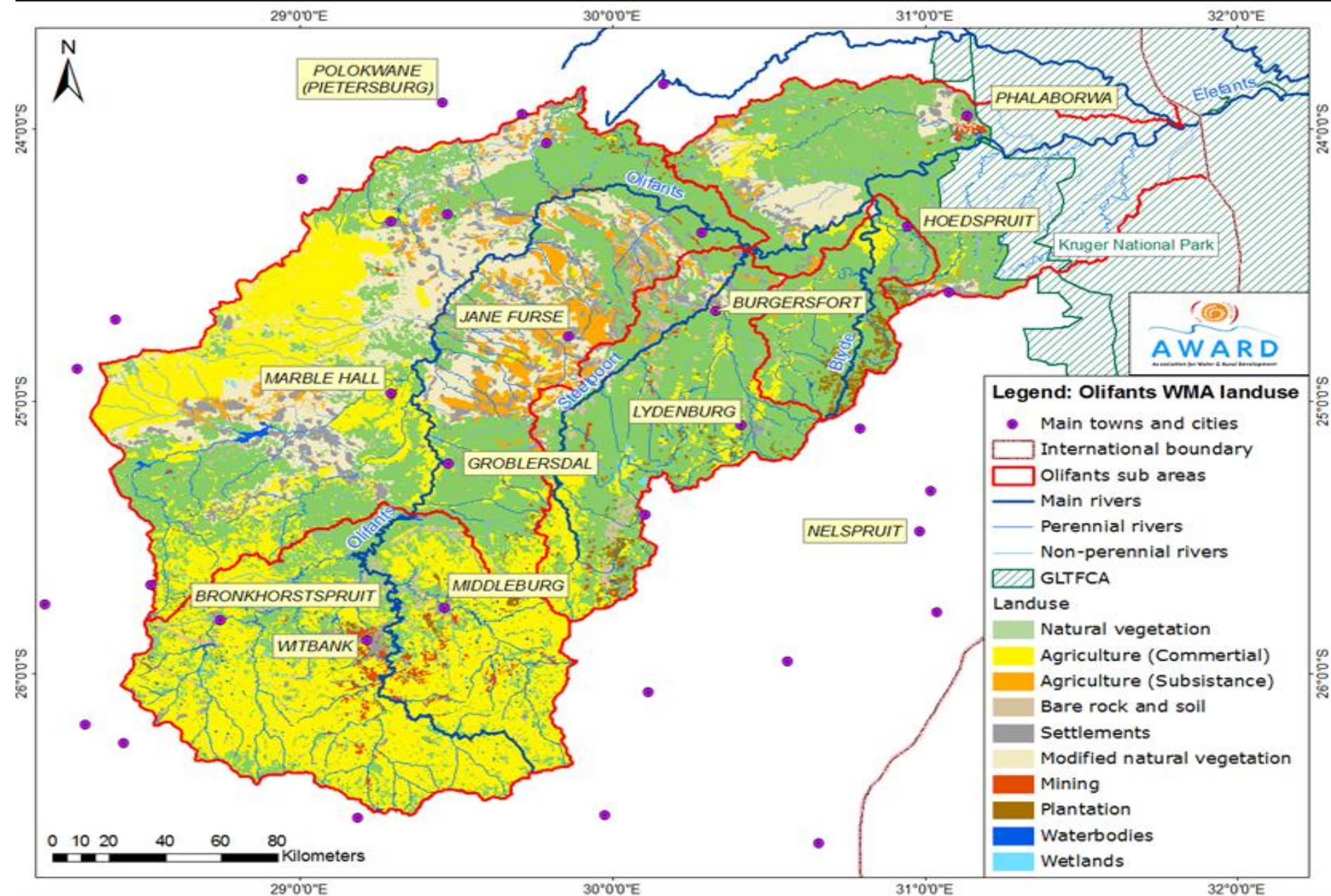
Target Area of Dept's Legislations

National Departments

	WA	EA	LA	Agric	M&E	LG
H₂O Quality & Quantity	4	2	0	0	1	1
Ecosystems & Biodiversity	4	3	0	0	0	0
Land Care	3	1	1	1	0	2
Env. Pollution	1	2	0	0	3	1

The Olifants Water Management Area





Conditions of Water Resources

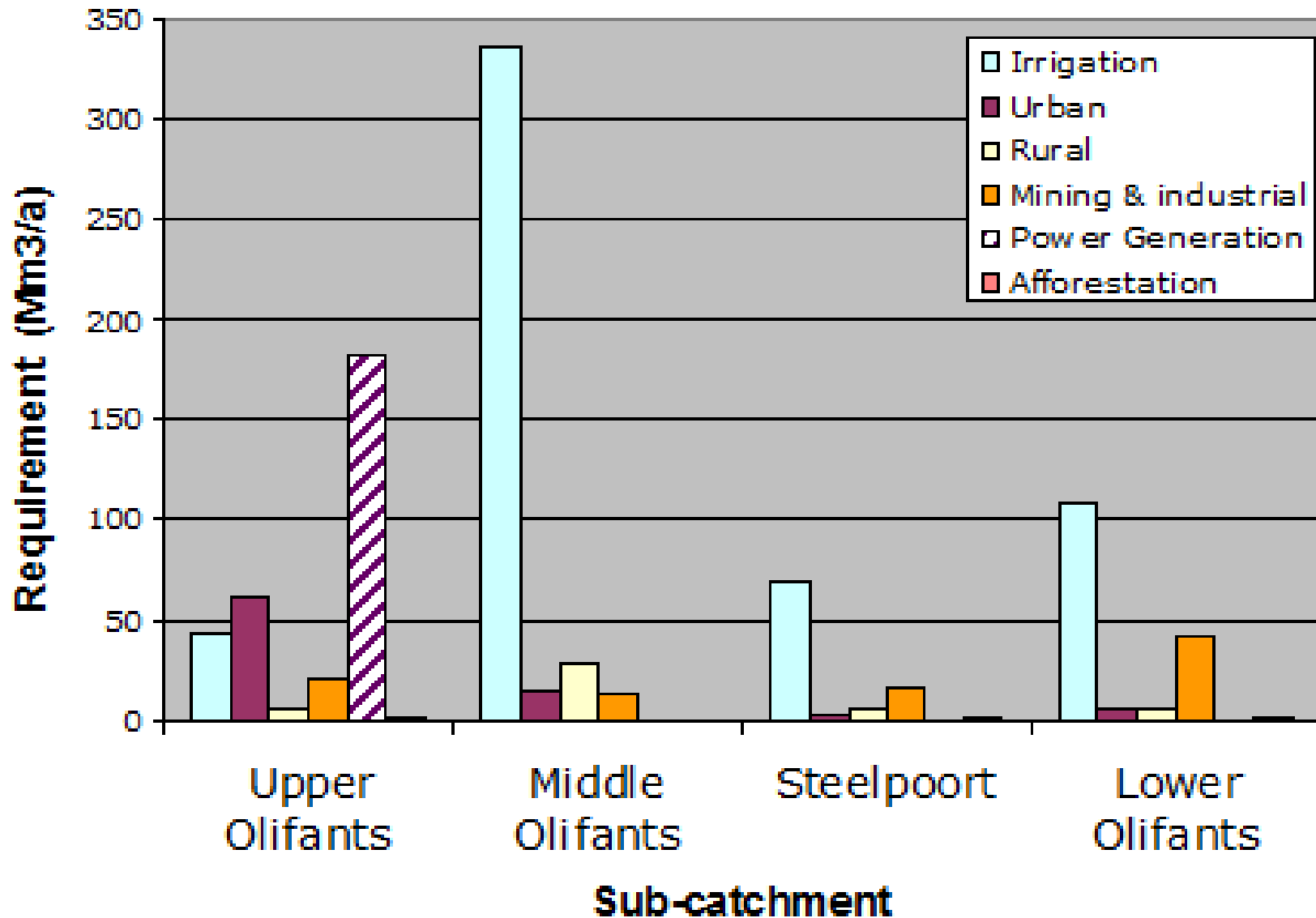
- Reduced Flows / over-abstraction (quantity)
- Pollution (quality)



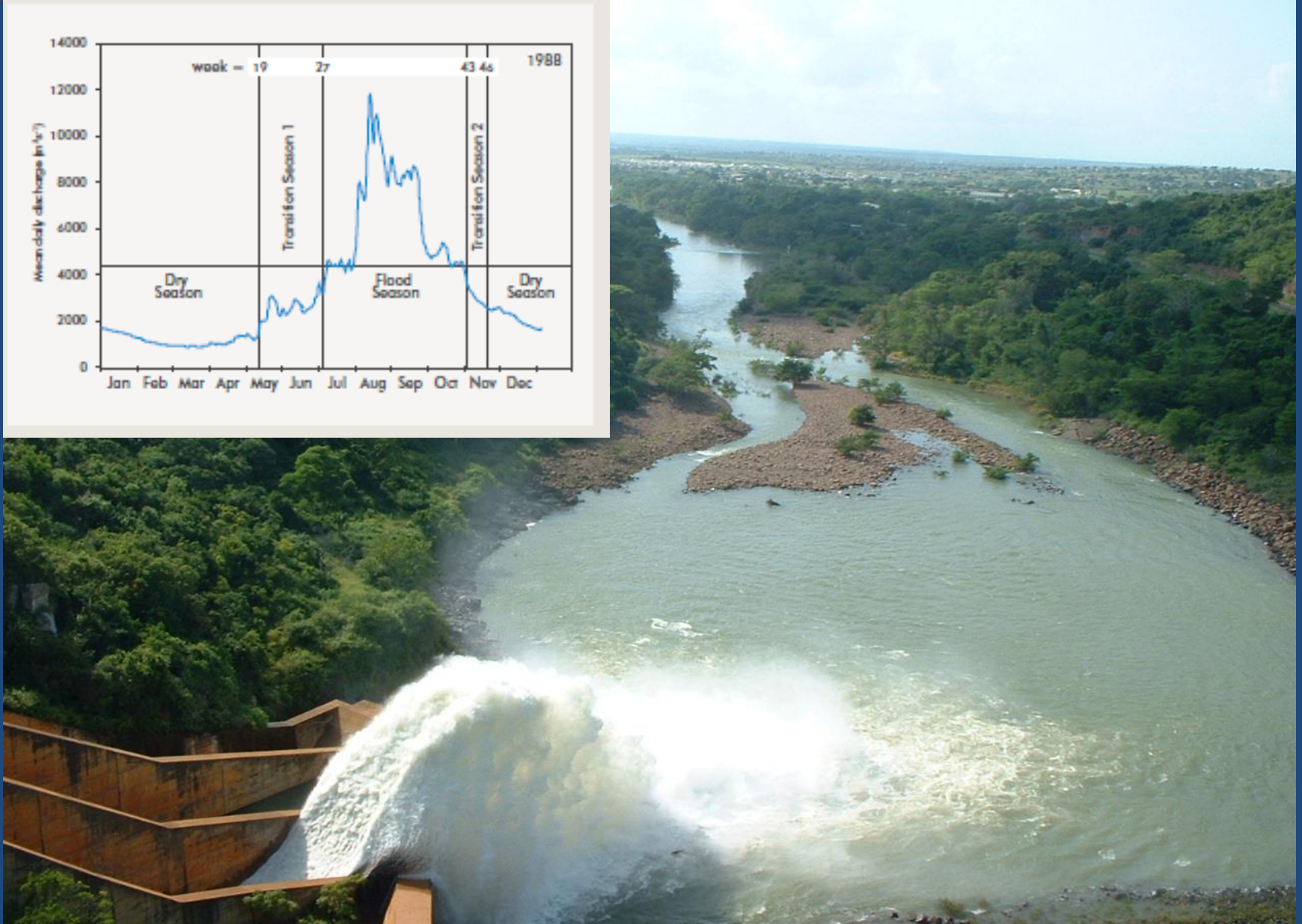
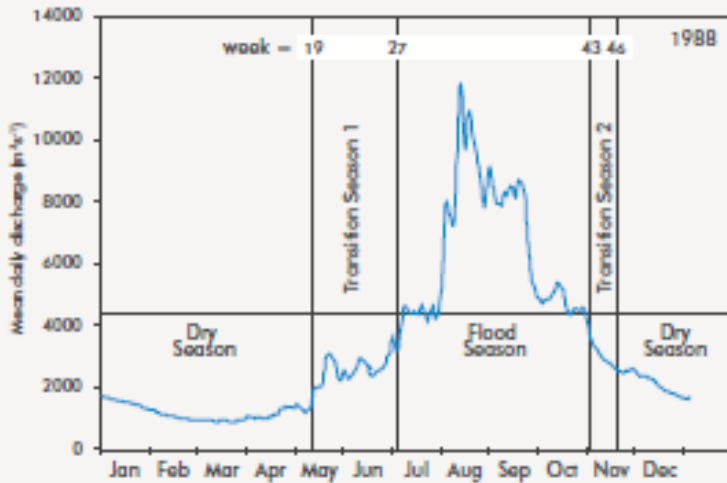
Quantity & Reconciliation

	Upper Olifants	Middle Olifants	Steelpoort	Lower Olifants	Total
Availability/ Use					
Total local yield	238	210	61	100	609
Transfers in	171	92	0	1	264
Grand Total Water Availability	409	302	61	101	873
Use					
Irrigation	44	336	69	108	557
Urban	62	15	3	7	87
Rural	6	28	6	5	45
Mining and industrial	20	13	17	43	93
Power Generation	181	0	0	0	181
Afforestation	1	0	1	1	3
Total requirements	314	392	96	164	966
Transfers out	96	3	0	0	8
Grand Total	410	395	96	164	974
Balance	-1	-93	-35	-63	-192

Water requirements



Environmental Flow Requirements



The Reserve & Health of Water Resource



.. Issue of life & death to some people

- The declining water quality in the Olifants WMA is related to:
 - **Increased mining activity** in the upper catchment,
 - Acid-mine drainage.
 - **Poor waste-water and sewerage treatment plants.**
 - **Agric's Return flows**

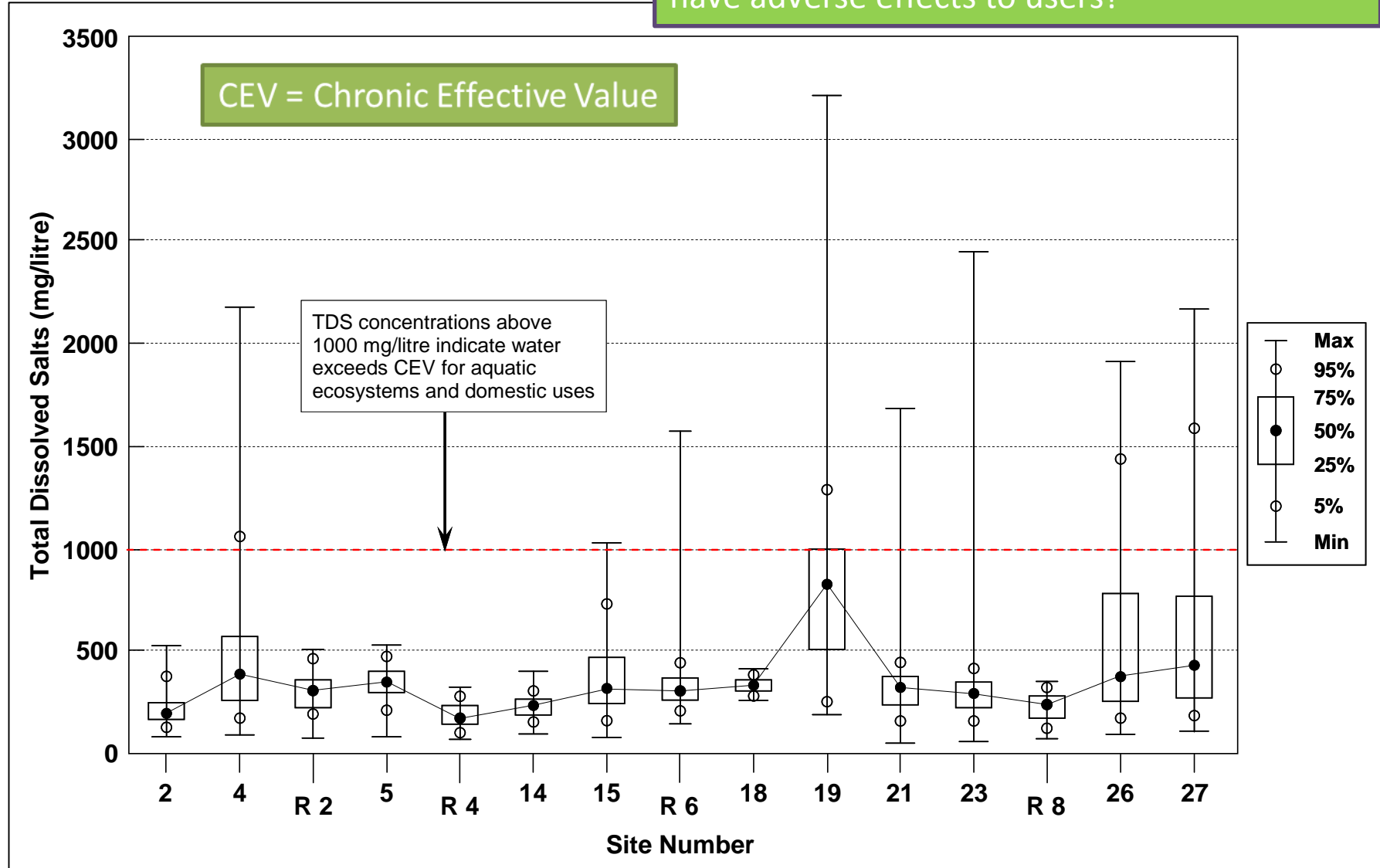


FOCUSING ON
10 YR
TREND



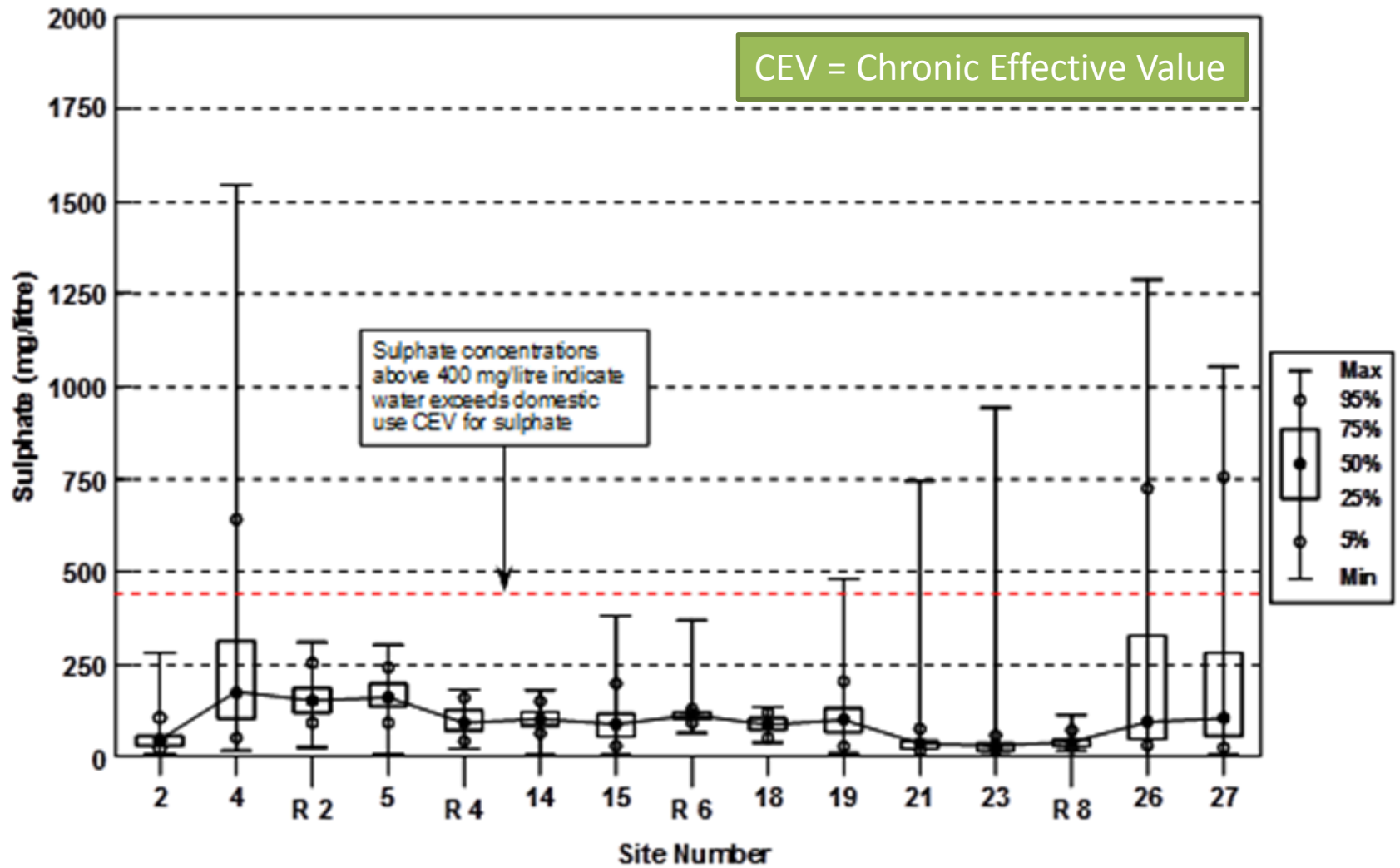
TDS conc.

Will long term exposure to H₂O of this quality have adverse effects to users?

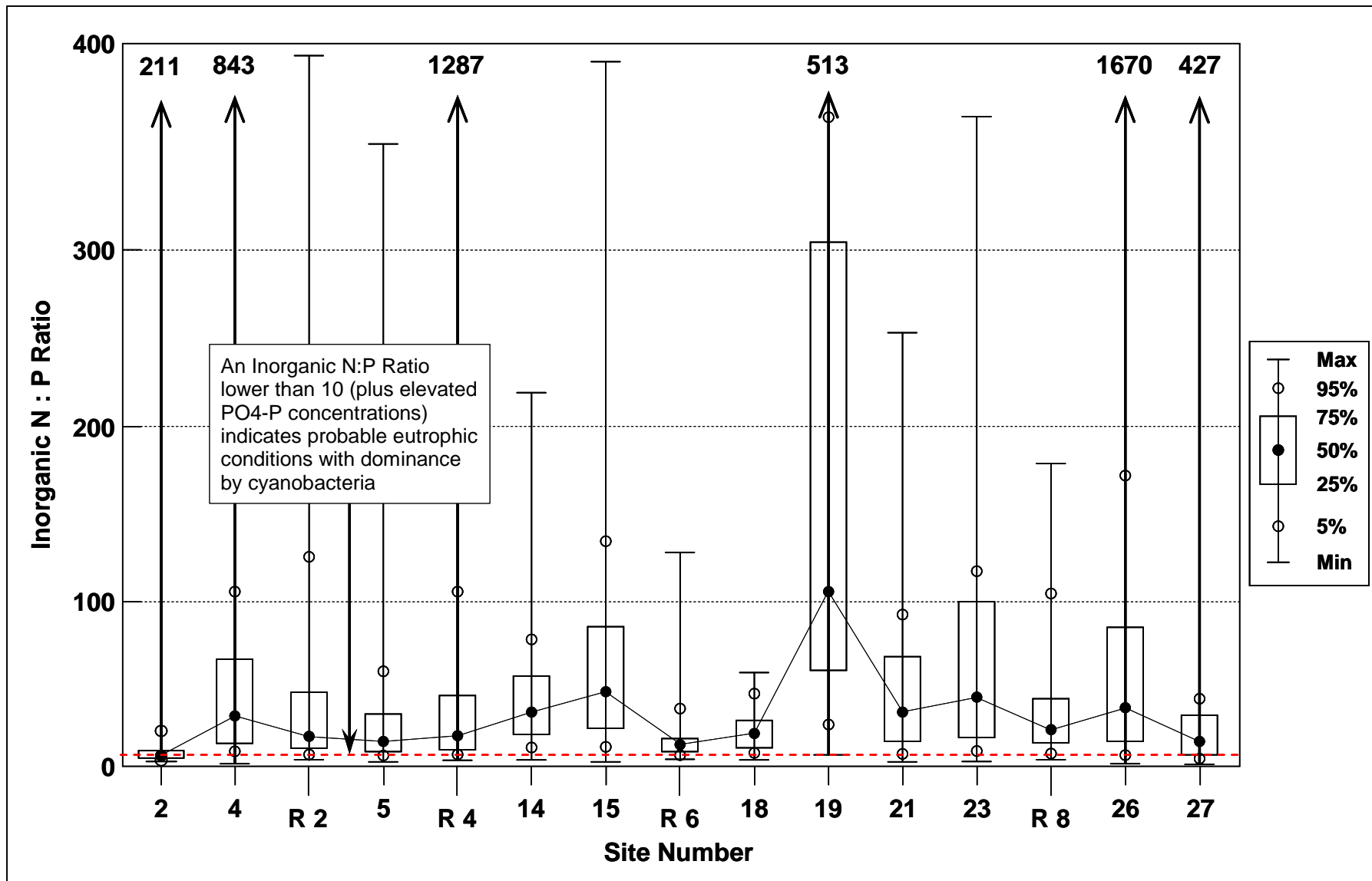


Sulphate conc.

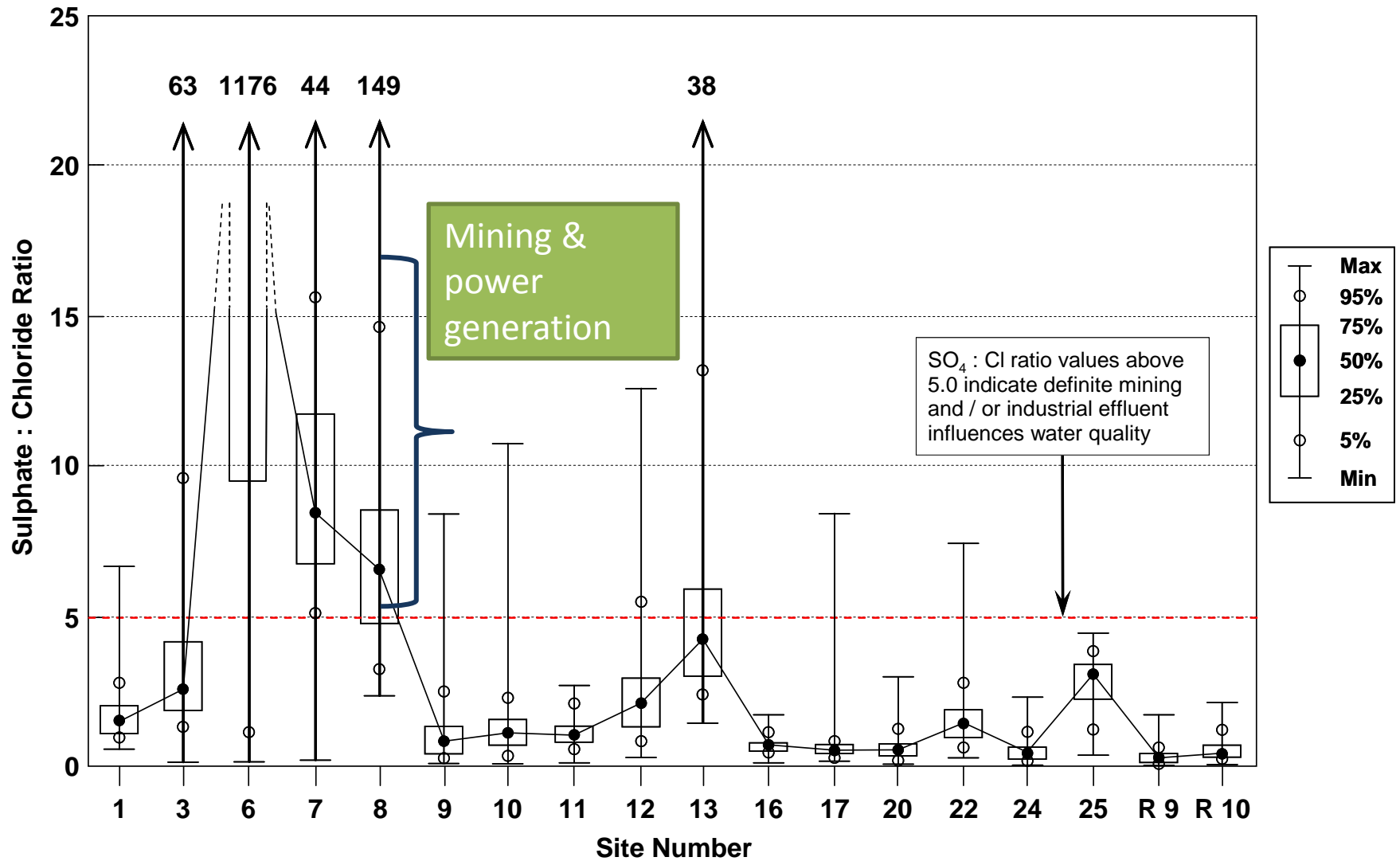
CEV = Chronic Effective Value



N:P ratio



SO₄:Cl ratio



Biota Response



....where is the Leverage Point?

ARE POLICY INSTRUMENT (STILL) APPROPRIATE?

- Relevancy
- Reliability
- Science

IMPLEMENTATION PLAN?

- HR?
 - Monitoring and Evaluation
 - Compliance
- Transforming structures
- Legal system
- Political will



Key Success Areas

Strengthen Implementation

- Have sufficient **HR capacity**
- Have required **tools** for the job
- Strengthen knowledge **uptake capacity**.

Improve understanding

- **Operationalization** of knowledge.
- Strengthen **catchment management**;
- Improve **monitoring** and reporting systems
- Enforce **compliance** all the time

Conclusions

- We cannot continue to approach natural resources management from a **single-domain perspective**.
- **Poorly implemented Policies** and Strategies (although attractive) are as good as not having them.
- **Investment** in R&D and capacity building is insufficient.
- **Partnership** with the regional and global community is a necessity.



Thank you

Acknowledgement

This presentation is based on research conducted by:

1. **Pollard, S. and du Toit, D. 2010.** WRC report TT477/10
2. **Ashton, P. 2011.** WRC report (in press)

