

Water resource challenges: management arrangements current and future

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Helicopter view ...

Beyond the farm fence

- 2009 DBSA review of water security
 - “Does South Africa face a water crisis?”
- National Water Resource Strategy v.2 preparations
 - plus
- International work ...
 - Water security, climate change, finance, information
 - Global Water Partnership:
 - UN World Water Assessment
 - Organisation for Economic Cooperation & Development
 - Australia, Monash University



Outline - Current water challenges

- Key water challenges
 - Quality
 - Quantity
 - Management
- Some responses: what can we do?
 - NWRS consultations – an opportunity to have your say
 - What Planning Commission can and can't do
 - What water users can do for themselves
 - WRC Project:- Stakeholder initiated management



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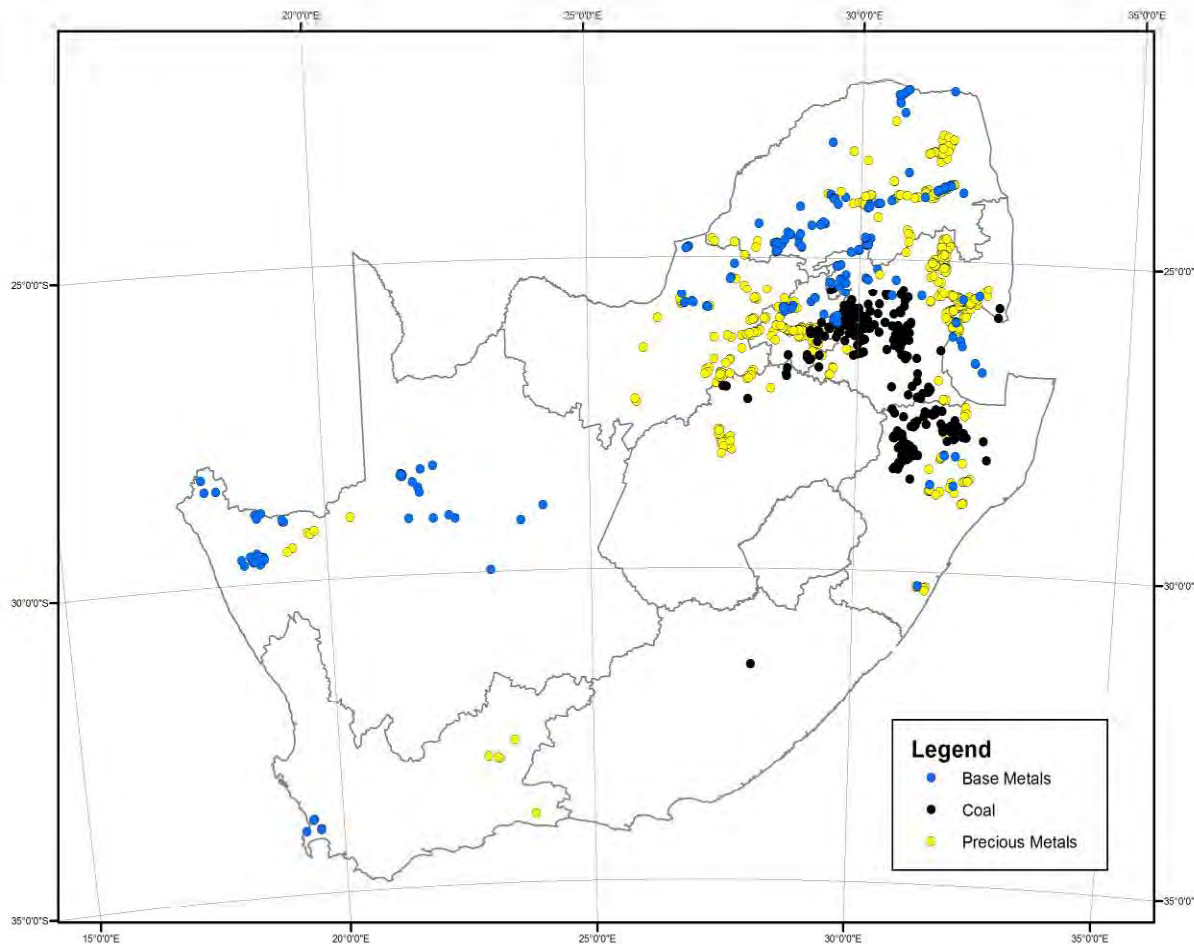
Water quality management

- **Water quality (usability) as important as quantity**
- **Deteriorating in many catchments e.g. Vaal, Olifants**
- **Key problems include:**
 - Salinity (from mining, agriculture and urban areas)
 - Microbial pollution and eutrophication (organic wastes, N & P)
 - “exotics” incl. pharma, endocrine disrupters, radioactives etc
- **Water quality imposes costs (treatment = 0.65%GDP)**
- **Action needed to fix failing municipalities**
- **Need economic analysis of remedial options**
 - Where to start, how much to spend, who should pay?
 - Can more regulation help ?

Is “Acid Mine
Drainage” in
Gauteng South
Africa’s biggest
water challenge?

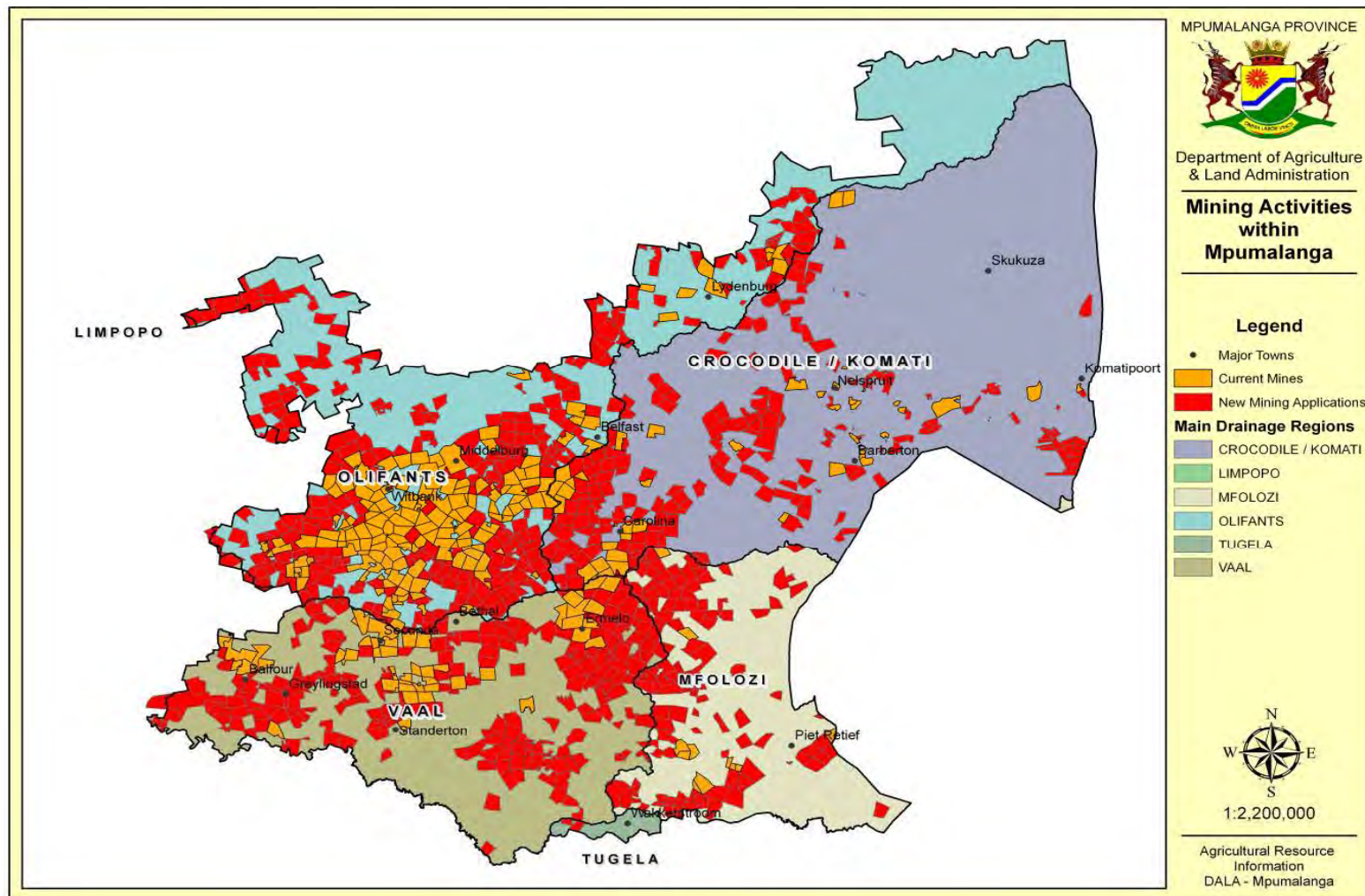


Potentially AMD Producing Mines in SA



- Affected industries
 - Gold
 - Coal
 - Base metals
- Affected areas
 - Witwatersrand and other goldfields
 - Coalfields (Mpumalanga, KZN)
 - O’Kiep Copper District

Farming/mining trade-off: Mining Activities – Mpumalanga





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Problem not too little water ...

- Internationally recognised that water *scarcity* does not determine the success or failure of national economic and social development
- *Variability*, and its management, more important
- Countries should recognise the limits of their water endowments and “live within their means”
- Demonstrated at a global level:
 - Water-scarce Singapore has a booming economy and has grown water management competences to serve it, which it is now selling internationally

Reconciliation of water requirements and availability for year 2000 (million m³/a)

Water Management Area		Reliable Local Yield	Transfers In	Local Requirements	Transfers Out	Balance
	Limpopo	282	19	325	0	(24)
	Luvuvhu/Letaba	310	0	334	13	(37)
	Crocodile West and Marico	693	656	1 328	10	11
	Olifants	611	172	971	8	(196)
	Inkomati	943	0	1 048	148	(253)
	Usutu-Mhlatuze	1 010	32	693	114	235
	Thukela	738	0	338	497	(97)
	Upper Vaal	1 723	1 443	1 204	1 481	481
	Middle Vaal	201	791	389	605	(2)
	Lower Vaal	50	651	653	0	48
	Mvoti- Umzimkulu	527	34	828	0	(267)
	Mzimvubu to Keiskamma	855	0	375	0	480
	Upper Orange	4 557	2	968	3 105	486
	Lower Orange	(1 007)	1 886	834	54	(9)
	Fish to Tsitsikamma	437	571	902	0	106
	Gouritz	277	0	342	1	(66)
	Olifants/Doring	335	3	373	0	(35)
	Breede	868	1	637	203	29
	Berg	501	203	738	0	(34)
	Total Country	13 911	0	13 280	124	504

Reconciliation of water requirements and availability for year 2025 base scenario (million m³/a)

	Water Management Area	Local Yield	Transfers In	Local Requirements	Transfers Out		Balance	Potential for Development
1	Limpopo	281	18	347	0		(48)	8
2	Luvuvhu/Letaba	403	0	349	13		41	102
3	Crocodile West/Marico	805	901	1 594	10		102	0
4	Olifants	630	210	1 075	8		(243)	239
5	Inkomati	1 073	0	1 088	148		(163)	114
6	Usutu to Mhlathuze	1 011	32	700	114		229	110
7	Thukela	742	0	347	497		(102)	598
8	Upper Vaal	1 818	1 743	1 440	2 042		79	50
9	Middle Vaal	205	775	400	580		0	0
10	Lower Vaal	48	648	645	0		51	0
11	Mvoti to Umzimkulu	555	34	1 012	0		(423)	1 018
12	Mzimvubu to Keiskamma	872	0	413	0		459	1 500
13	Upper Orange	4 799	2	1 022	3 496		283	900
14	Lower Orange	(1 001)	1 931	883	54		(7)	150
15	Fish to Tsitsikamma	452	595	979	0		68	85
16	Gouritz	278	0	353	1		(76)	110
17	Olifants/Doring	335	3	371	0		(3)	185
18	Breede	869	1	639	203		23	197
19	Berg	506	203	829	0		(120)	210
	Total for Country	14 681	0	14 486	124		68	5 576

Problem not too little water ...- 2

- SA uses high proportion (31%) of available water (32nd/163)
- But there is enough to meet needs until 2025 and beyond
- Present problems and future challenges related to:
 - limited financial resources and
 - institutional capabilities, rather than
 - limitations of the resource
- ***Potential water crisis if***
 - right investments, management decisions, interventions and innovations are not made at right time
- Consequences will be:
 - Jobs, livelihoods foregone; dry taps, uncertain food costs
 - Agriculture has vital role in addressing the challenges



Water in rural transformation

- “Rural transformation” will remain a political priority
- Should focus on poverty, “inclusion” and production
- Land and water both key to rural transformation
- Challenges:
 - Access to water for production highly unequal
 - Focus on access to benefits (jobs) gives fairer picture
 - Water-focused efforts at transformation have foundered
 - Blyde, Limpopo & E Cape irrigation rehab, Orange River
 - Water Allocation Reform, limited progress
- Needed: a vision and institution for rural reform
 - Water, land, agricultural support and finance
 - ***Transformation must maintain water use efficiency***



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Avoiding water crises ...

“The wars of the next century will be for water”,
“*unless we change the way we manage water*”.

Ismael Serageldin, Alexandria Library,
Founder of World Water Council, 1996

**South Africa will face a water crisis,
unless we engage seriously with water management,
and recognise its local complexity.**



Water resource management - not just for government & technicians

- As available water becomes fully used,
- New water-using activities require difficult choices
- Water management must involve interested parties
- Water managers must ensure that
 - constraints are understood
 - coherent, technically feasible, approaches are adopted,
 - guided by broader social and economic priorities
 - trade-offs and impacts on others understood



Management approaches

- Agreed that water should be managed on a catchment-related basis with involvement of water users and other stakeholders
- Where possible, users in a locality should manage day-to-day issues themselves (e.g. irrigation boards/water user associations)
- South Africa's policy and water law provide for Catchment Management Agencies to perform a range of water resource management activities and provide frame for local management
- Progress in establishing Catchment Management Agencies has been limited, for a range of reasons including
 - lack of capacity in government as well as
 - reluctance to delegate functions to external agencies and users



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- **Current challenges : summary**
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Some key water security issues 2009 - 2019

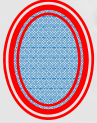
Indicative list illustrating the diversity of issues



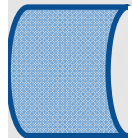
Pollution, diffuse



Pollution, point



Poor supply services



Bulk infra needed



Absolute shortage

Opportunities lost



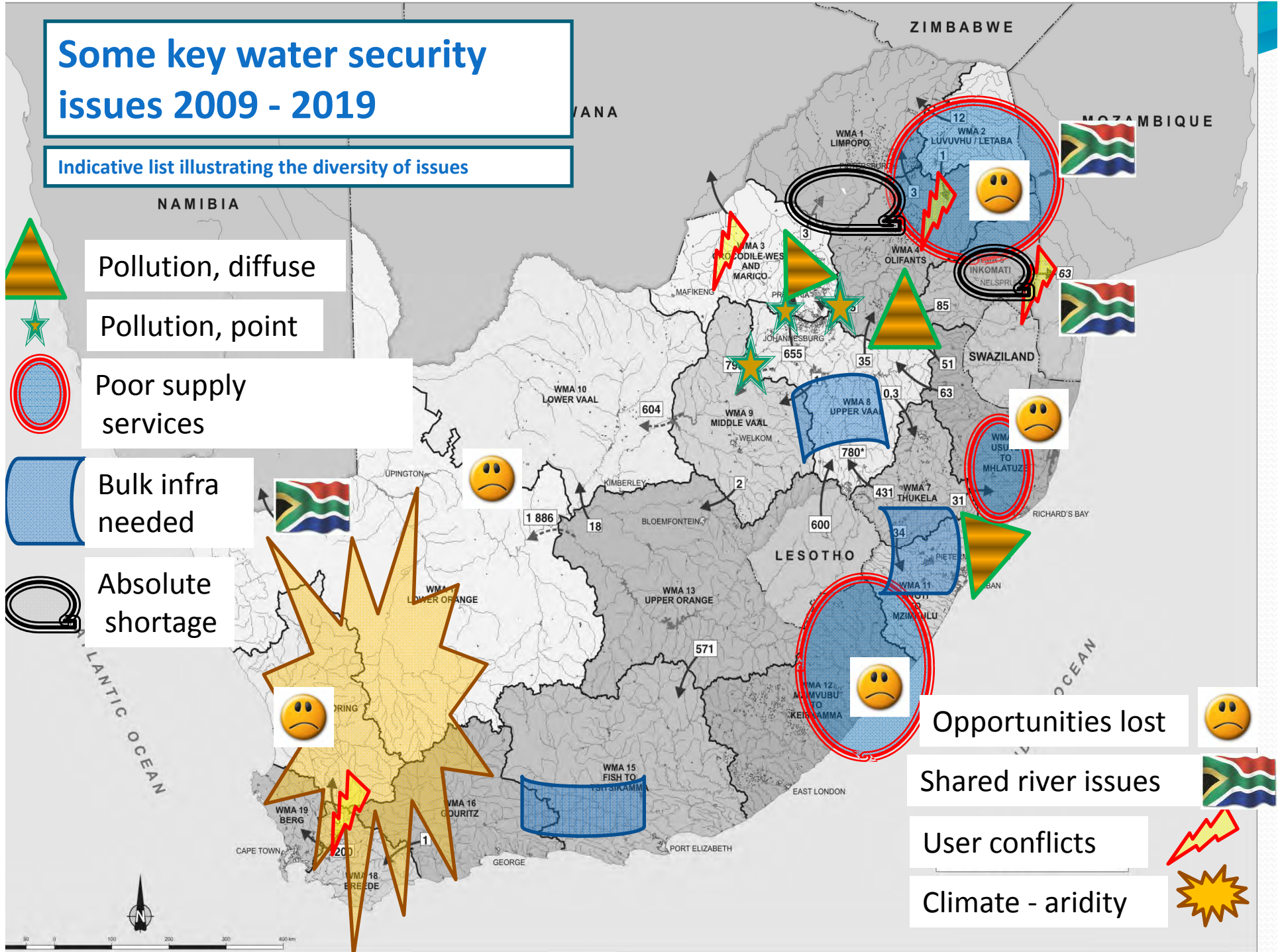
Shared river issues



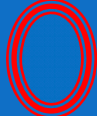








User conflicts



Climate - aridity



Diffuse Pollution 	Point Pollution 	Poor supply services 	Bulk infra needed 	Absolute shortage 	User conflicts 	Climate change - aridity 	Shared river issues 	Dev opps lost 
Upper Vaal	Vaal & other municipalities	Limpopo, Mpum.	Lesotho Ph. 2 for Gauteng	Olifants/ Limpopo	Olifants/ Limpopo	W.Cape	Komati	Irrigation: Upper Orange, Blyde, Makatini
Crocodile West	Highveld mines	E Cape (Transkei)	Ethekwini augmentation	Komati	Crocodile West		Olifants/ Limpopo	Umzimvubu hydro
Mgeni CMA		KZN (esp northern)	PE and CT next augmentations		W.Cape		Lower Orange	W.Cape Clanwilliam Dam



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What can we do?

- **Opportunities for engagement:**
- **National Water Resource Strategy (NWRS)**
 - Sets programme for DWA for next 5 years
 - Consultation starting now
 - Must address all challenges and prioritise action
 - Key issues will include allocation and management
 - Engage! Can't hide behind the farm fence



What can we do?

- **Opportunities for engagement:**
- **National Planning Commission (NPC)**
 - Confirms importance of agricultural sector
 - Taking a spatial focus
 - Recognises that rural areas are critical for jobs, welfare
 - How to decide balance between farms, mines environment?
 - Has identified challenges, including water
 - Cannot/will not tell line Ministries what to do!
 - Will inform and support the NWRS process



What are you waiting for?

" a catchment management agency may be established for a specific water management area, after public consultation, **on the initiative of the community and stakeholders concerned**. In the absence of such a proposal the Minister may establish a catchment management agency on the Ministers own initiative."

National Water Act (1998)



Water Research Commission project:

The purpose of the proposed research is to investigate the knowledge and perceptions of the different stakeholders about:-

- Their rights, in terms of NWA to undertake CMA functions
- Potential advantages and disadvantages of initiating CMA establishment
- Once informed about the potential opportunity to establish a CMA, what would motivate different users and stakeholders to initiate and participate in (or oppose) such a process
- What measures would have to be taken to ensure that any stakeholder-initiated process addressed issues of equity effectively

Look forward to engaging with representatives of organised agriculture, at all levels, in target regions



Thank you, and good luck!