



2024

11th Southern African Water Loss Summit

Supported by:
The International Water Association
Water Loss Specialist Group



INTRODUCTION TO THE 2024 WATER LOSS SUMMIT

Presented by Ronnie Mckenzie

Supporting organisations:



: Acknowledgements

Debbie Besseling : SAICE

Kamohelo Potloane : Rand Water

Nompumelelo Hlele : Rand Water

Niel Meyer : WRP

Riana Swart : WRP

Purpose of the 2023 Water Loss Summit

1. To highlight status quo of water losses throughout SA
2. To provide guidance on how to assess and reduce water losses in Municipalities
3. To discuss new tools and resources that are freely available to water practitioners and municipalities to assist them in reducing water losses and Non Revenue Water

A Few Words of Welcome

Mr Stanley Lepadzi

Group Executive Manager : Water Research Commission



RECAP OF DAY 1

Presented by Ronnie Mckenzie

Some Points from Day 1

1. Copies of the various reports with all the tables and figures from Moloko and Zinzi will be provided on watersummit.co.za
2. The new WRC resource centre web site is up and running and will be populated with software, reports, papers, training materials etc etc over the next few months.
3. Drakenstein managed to reduce its water losses from around 40% to 10% over 20 years. It has risen to just over 20% more recently.

Some Points from Day 1

4. Total NRW in RSA is sitting at around 47% representing around R30billion in lost revenue.
5. Physical losses in Gauteng are around 400 million m³/a compared to Rand Water's total abstraction of 1 800 million m³/a
6. Average ILI for RSA has risen to around 7 meaning that Physical Losses are 7 times what they could be in theory
7. Average per capita use in RSA is around 220 litres/pp/day

Some Points from Day 1

8. The water audit results for 3 largest provinces (Gauteng, WC and KZN) represent 65% of overall water use (4 390 million m³/a) and are at a high level of confidence.
9. Drakenstein achieved per capita water use of around 150 litres/pp/day.
10. A cracked plastic pipe can result in leaks 10 times more than on metal pipes of similar diameter due to variable area.

Some Points from Day 1

9. If NRW is up at over 50% it is extremely unlikely to be meter error/apparent losses. The main issue is almost certainly physical leakage.
10. Minimum losses from a distribution system (UARL) running at 50m pressure will typically be around 55 to 60 litres/conn/day
11. Fix all leaks you know about BEFORE undertaking any new leak survey.

Day 1:

- 09:00 1. Welcome and opening : Ronnie Mckenzie and Stanley Lepadzi (WRC)
- 09:15 2. Status of Water Losses in SA Municipalities : Moloko Raletjena – DWS
3. 2023 No Drop Report : Zinzi Mboweni – DWS
- 10:30 >>>Coffee Break
- 11:00 4. WRC Water Loss Support Tools : Jayant Bhagwan (WRC)
- 12:00 5. Drakenstein Municipality Water Loss Reduction Overview : Andre Kowalewski
- 13:00 > Lunch break
- 14:00 6. Tips for Water Loss Reduction : Ken Brothers (Former Chair of IWA WLSG)
- 16:00 Close

Day 2:

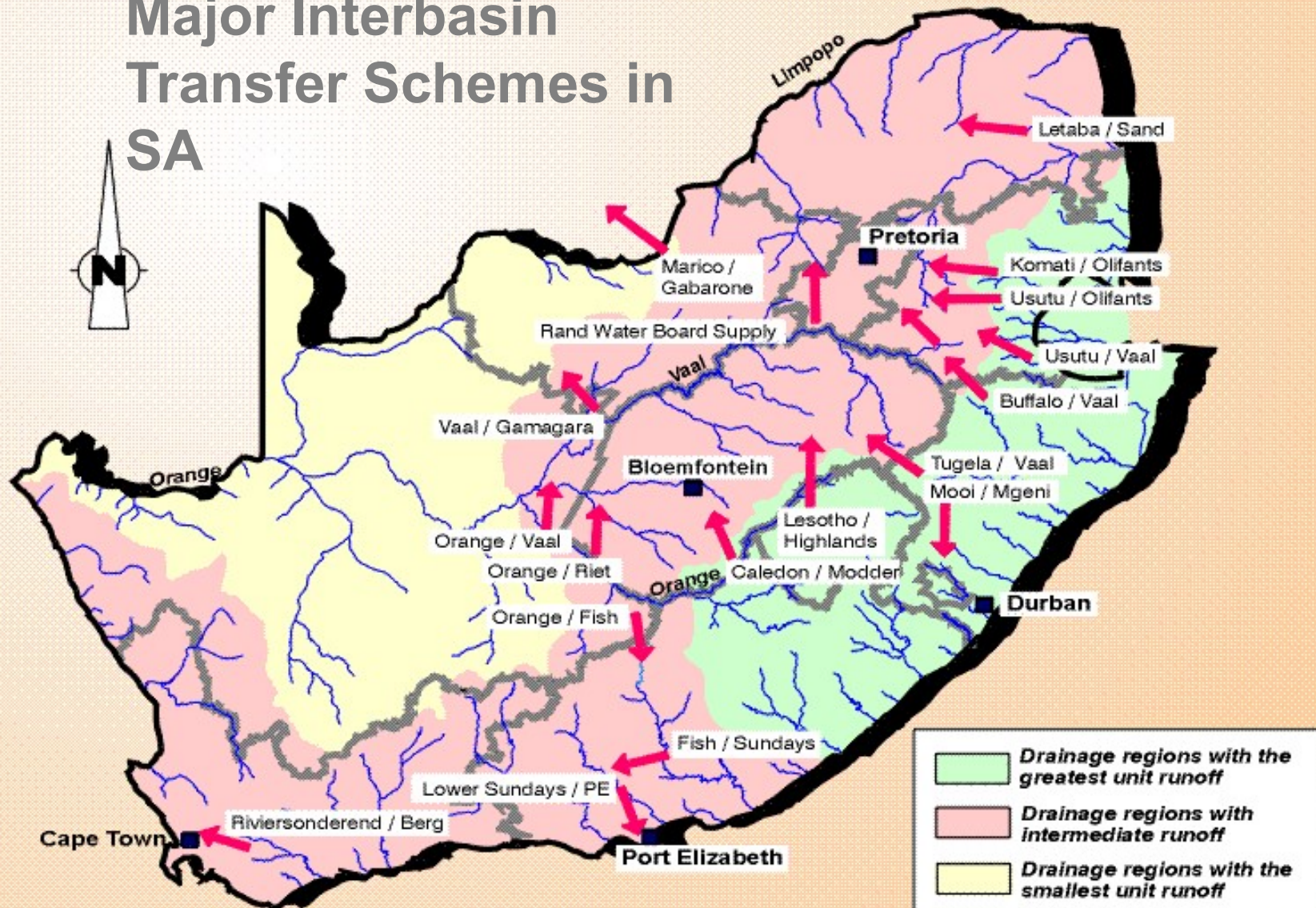
- | | |
|-------|--|
| 09:00 | 7. Recap of Day 1 |
| 09:30 | 8. Pros and Cons of Performance Based Water Loss Projects : Ronnie Mckenzie |
| 10:15 | >Coffee Break |
| 11:00 | 9. NRW in the Context of Rand Water : Sameer Morar |
| | 10. Key Water Demand Management initiatives by Rand Water : Mamorena Ramotsoeu |
| | 11. Outdoor water efficiency to support water conservation : Leslie Hoy (Rand Water) |
| 13:00 | > Lunch break |
| 14:00 | 12. Impact of Pressure Management on NRW : Jack Lepato Nakene (City of Tshwane) |
| 14:40 | 13. In-situ Verification to Reduce Apparent Losses : Keabetswe Lekalakala (WRP) |
| 15:20 | 14. City of Ekurhuleni Revenue Enhancement Project : Lebogang Mokoena (WRP) |

What's New ?

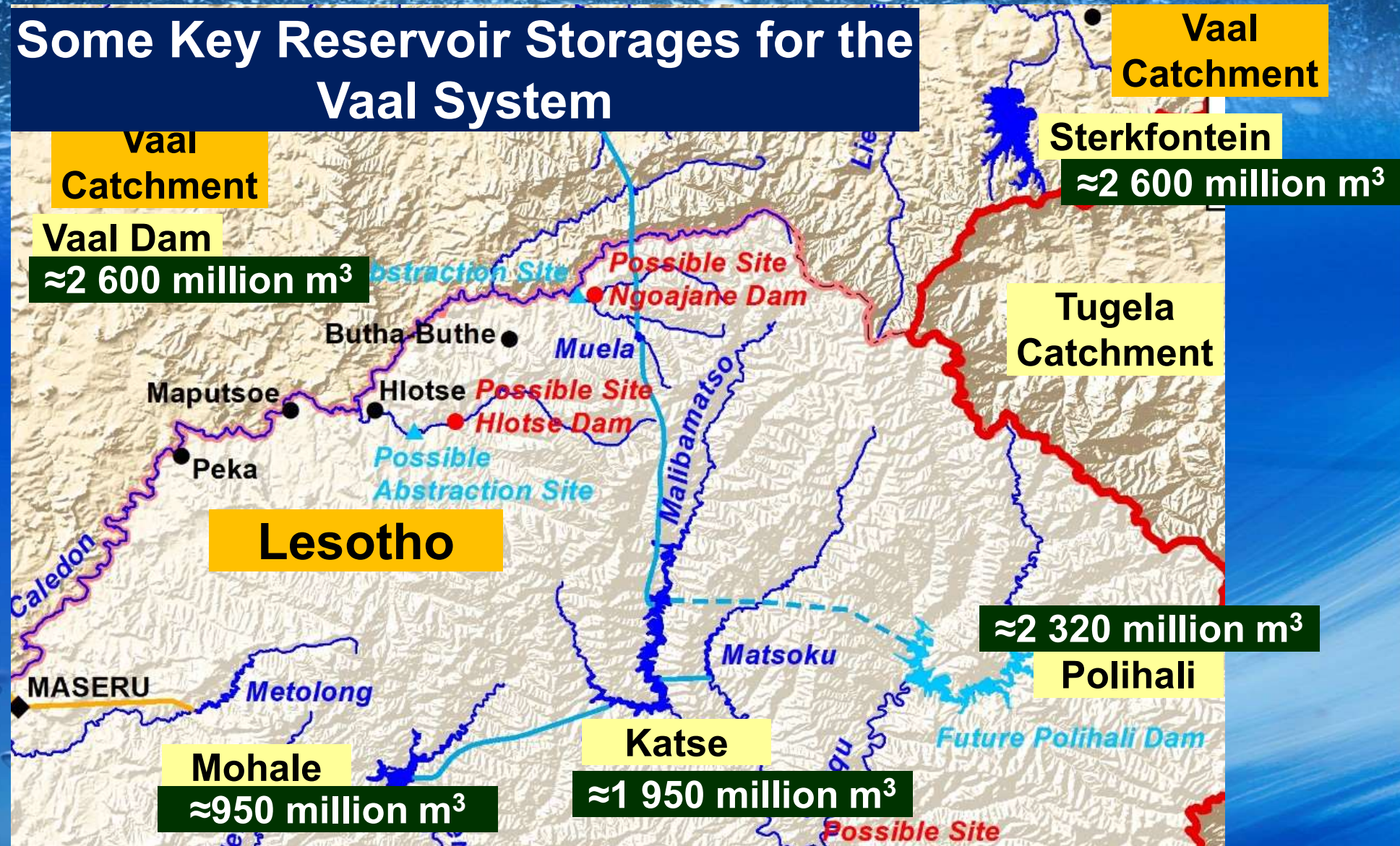
Lesotho Transfer Tunnel to be closed for
6 months for essential maintenance –
how will this affect Gauteng Water
Supplies ?



Major Interbasin Transfer Schemes in SA



Some Key Reservoir Storages for the Vaal System



Full Supply Areas (km²)

Vaal
Catchment

Sterkfontein

≈ 68 km²

Tugela
Catchment

≈ 50 km²

Polihali

Vaal Dam

≈ 322 km²

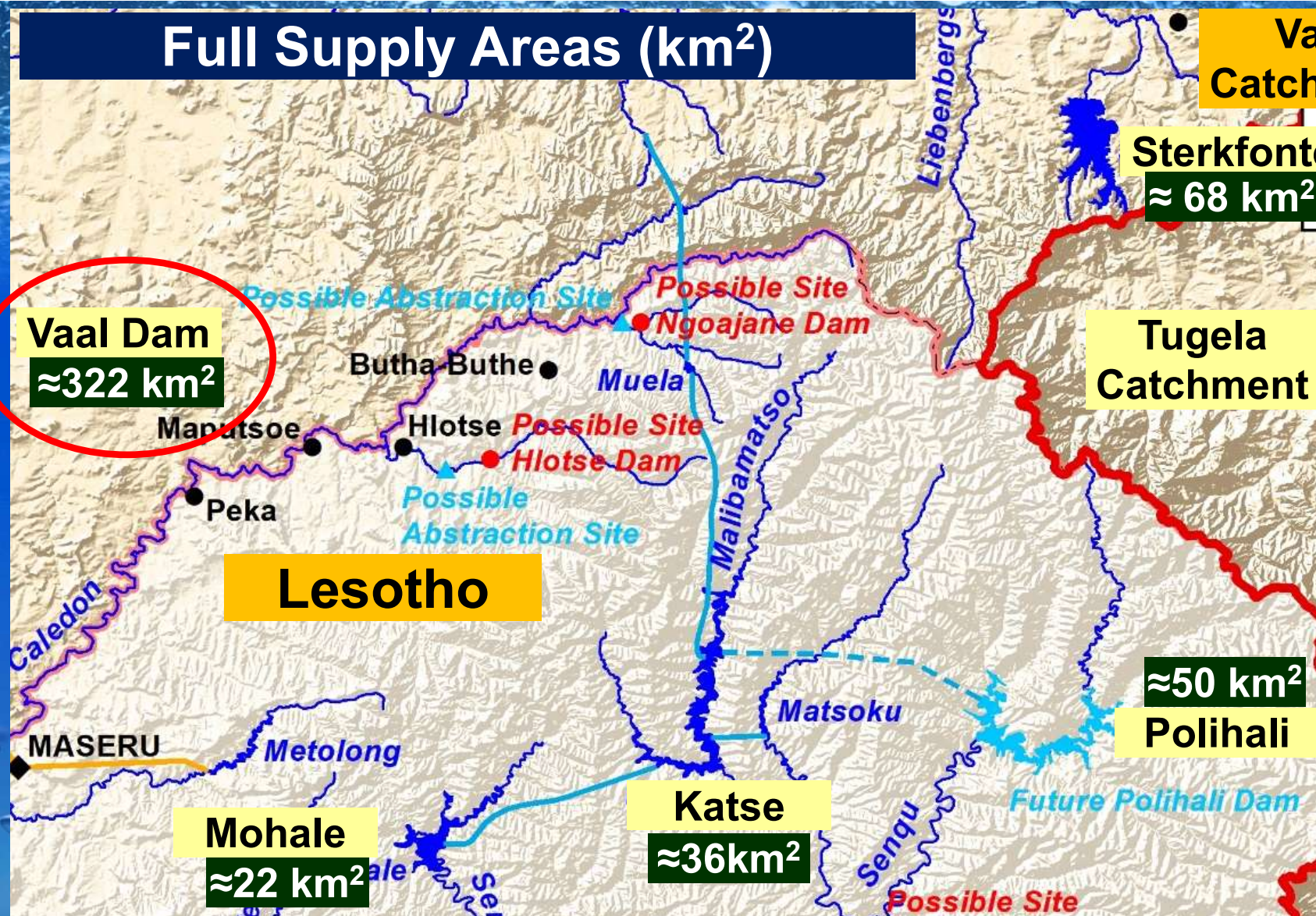
Lesotho

Katse

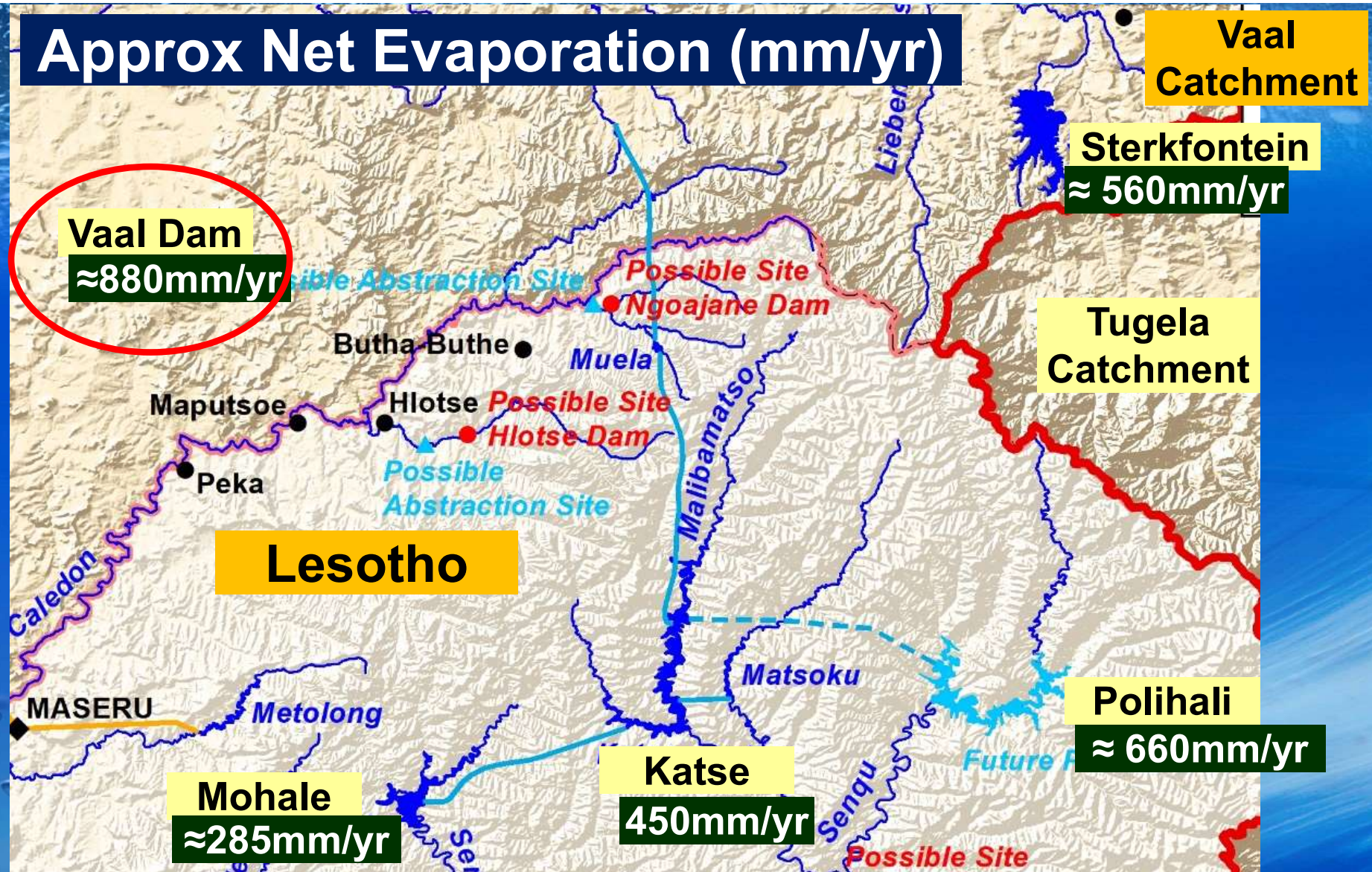
≈ 36 km²

Mohale

≈ 22 km²



Approx Net Evaporation (mm/yr)



Approximate Net Evap Loss at Full Supply

Vaal Dam

≈280 million m³/a

Vaal Catchment

Sterkfontein

≈38 million m³/a

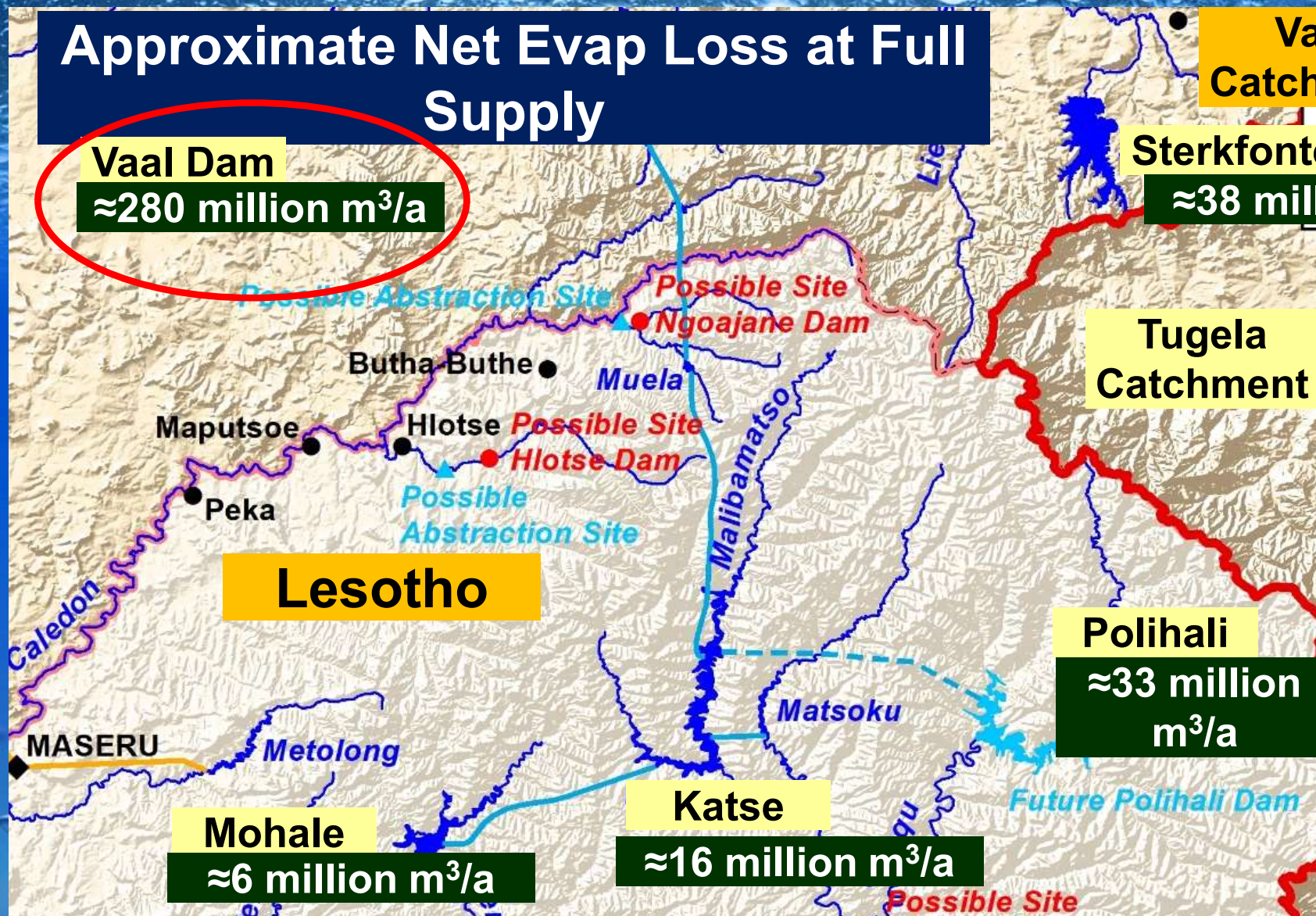
Tugela Catchment

Polihali
≈33 million m³/a

Katse
≈16 million m³/a

Mohale
≈6 million m³/a

Lesotho



Average Annual Water Transfers into the Vaal Dam Catchment from Lesotho and Tugela Basin without the new Polihali Dam

≈780 million m³/a

≈630 million m³/a

Sterkfontein

Vaal Catchment

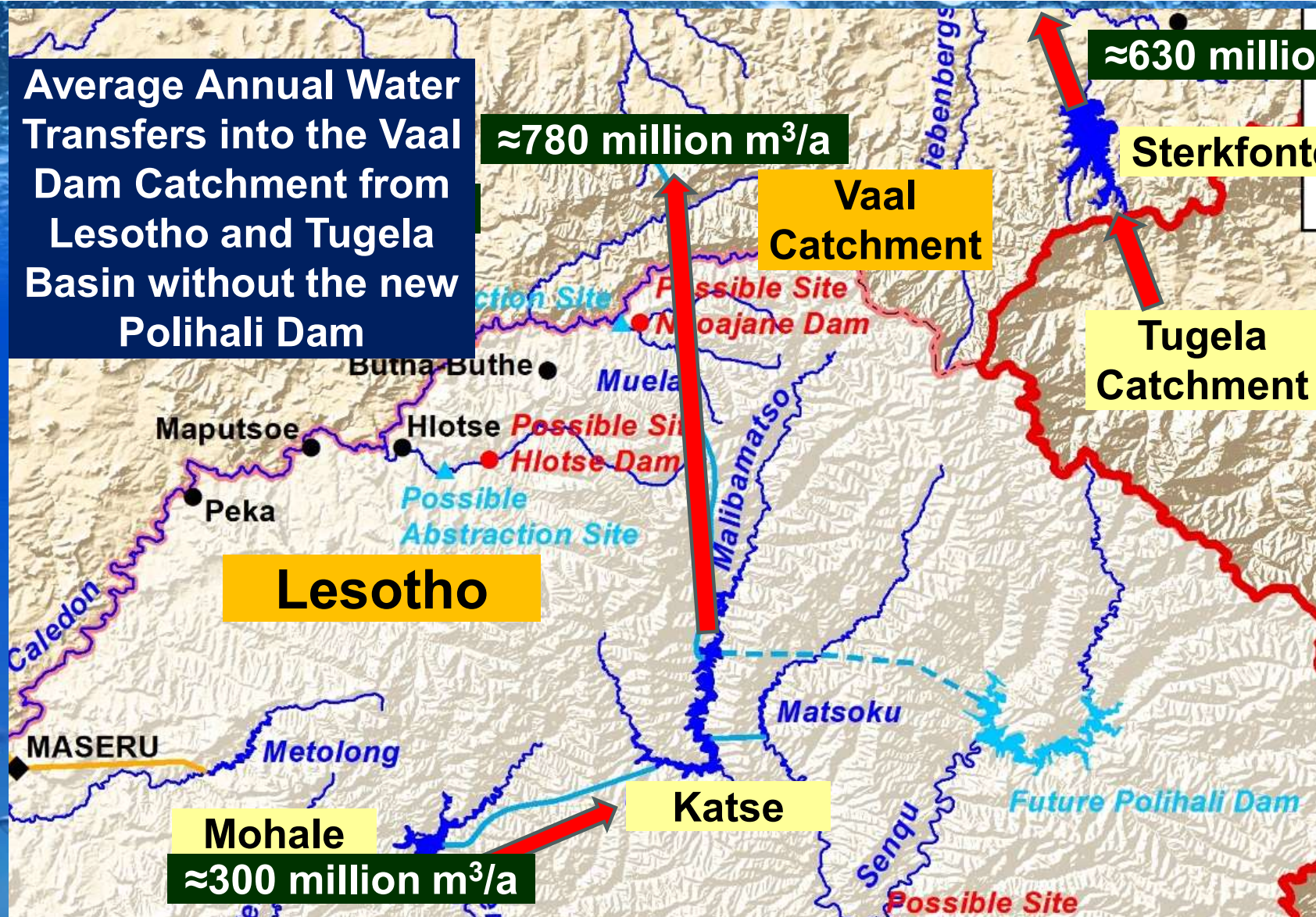
Tugela Catchment

Lesotho

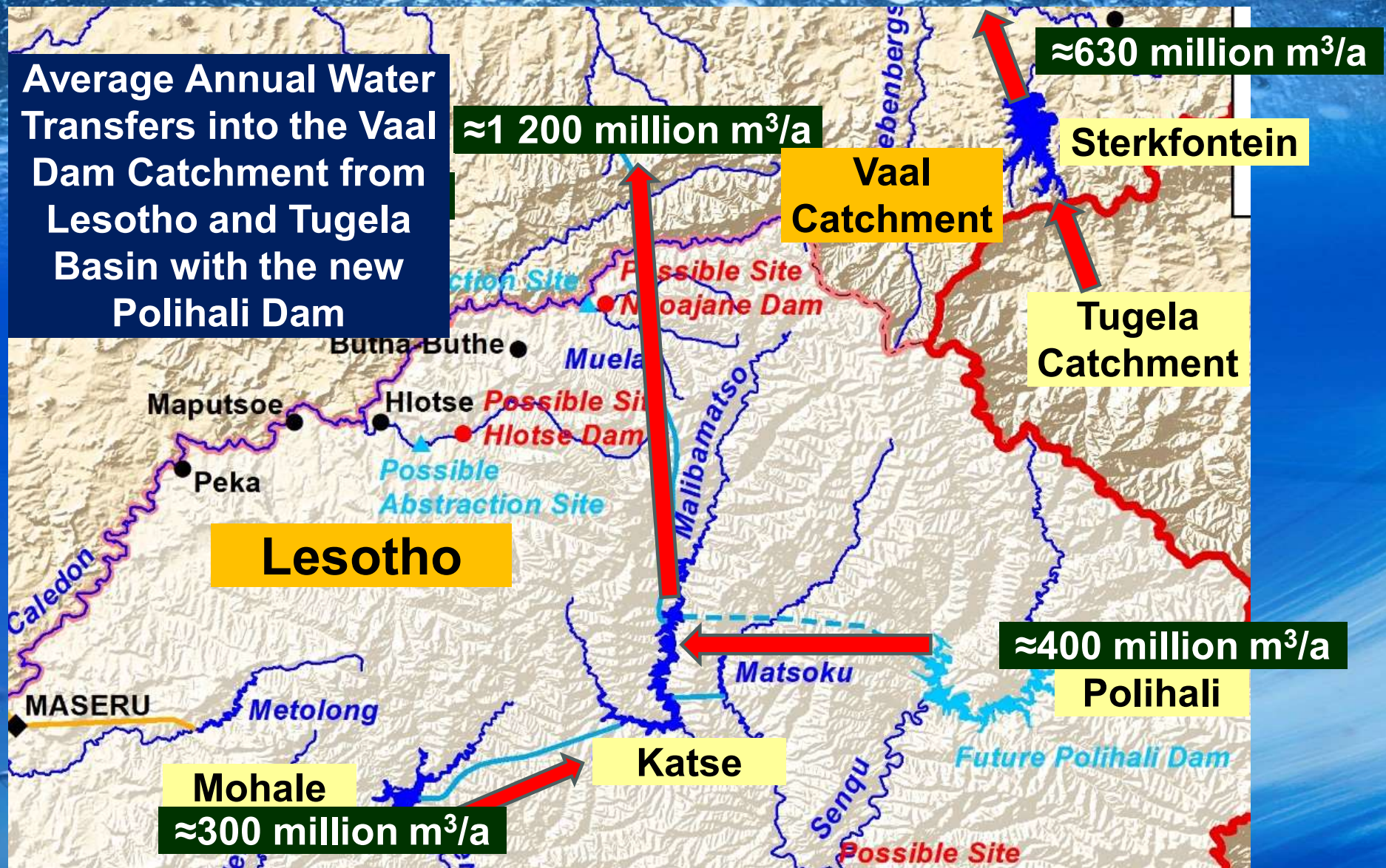
Katse

Mohale

≈300 million m³/a



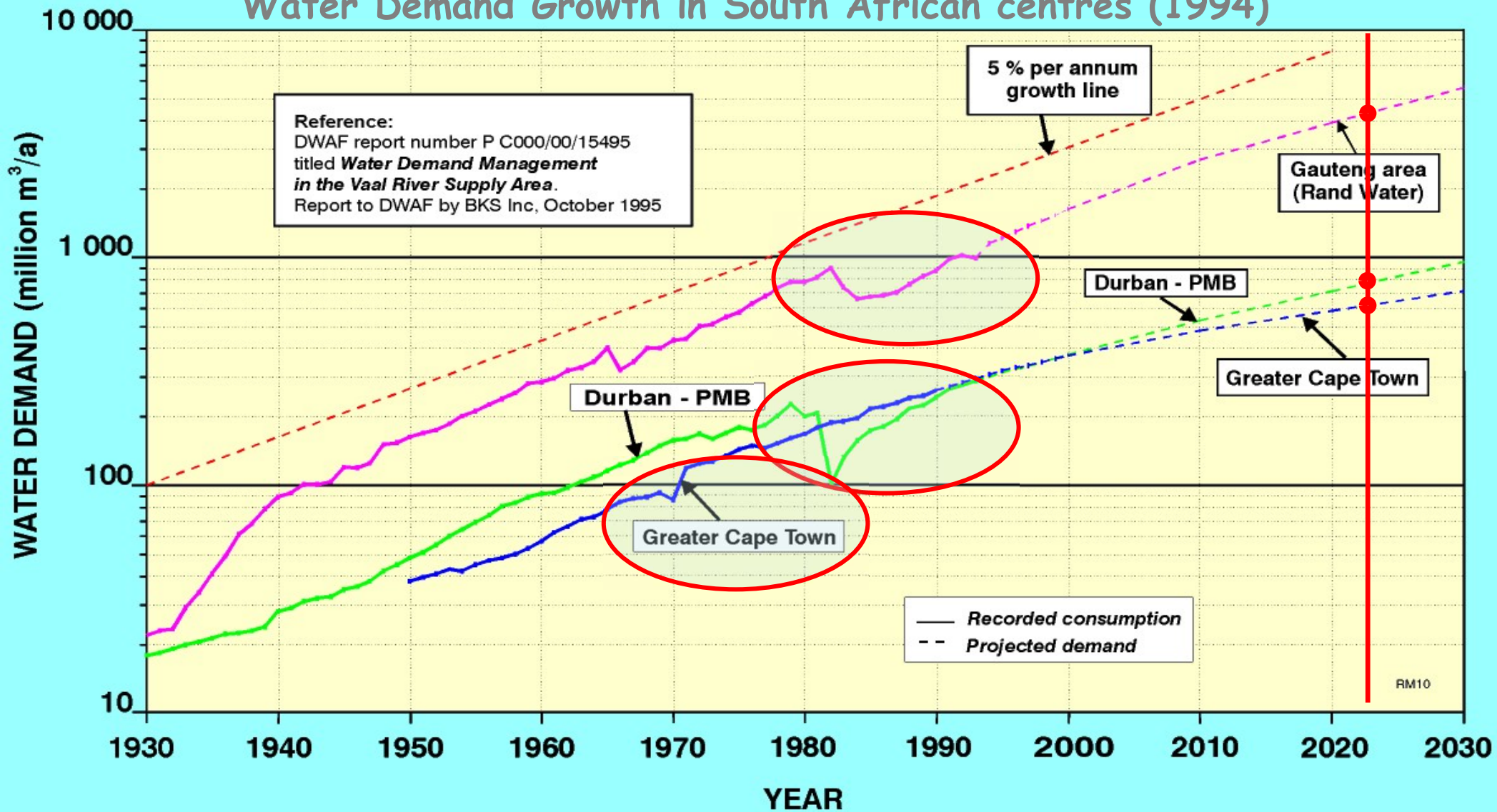
Average Annual Water Transfers into the Vaal Dam Catchment from Lesotho and Tugela Basin with the new Polihali Dam



Reservoir Storages in Vaal River System : April 2024

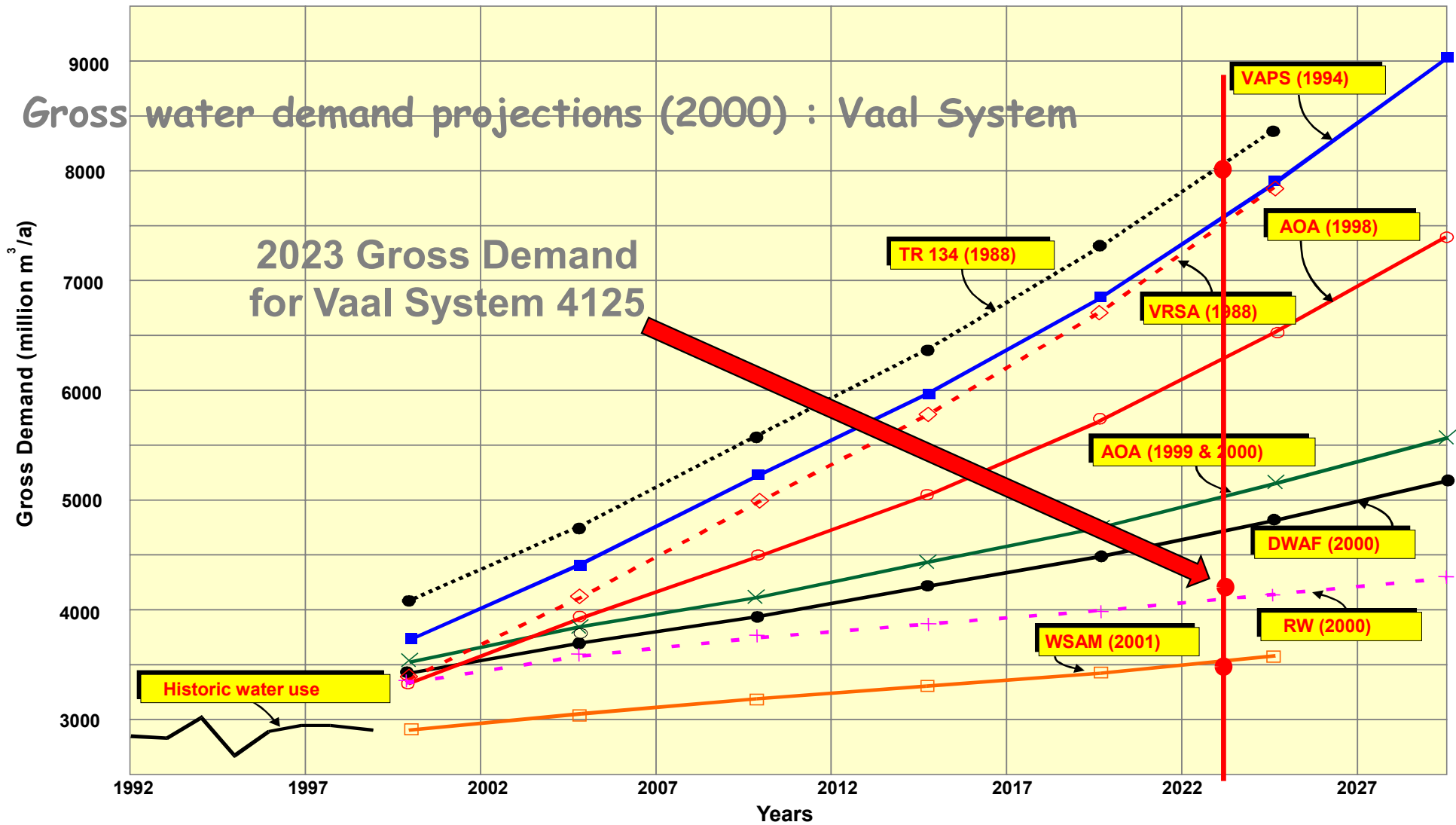
Dam Name	Full Gross Volume (mil m ³)	Full Live Volume (mil m ³)	% Live storage April 2024	Live Volume (mil m ³)April 2024
STERKFONTein	2617	2617	100%	2612
VAAL	2610	2603	62%	1611
KATSE	1950	1519	92%	1394
BLOEMHOF	1240	1240	82%	1021
MOHALE	947	844	97%	820
HEYSHOPE	447	445	101%	449
WOODSTOCK	373	355	95%	337
GROOTDRAAI	350	350	95%	333
ZAAIHOEK	185	184	91%	167
MORGENSTOND	101	100	91%	91
NOOITGEDACHT	78	78	96%	75
VYGEBOOM	84	78	101%	79
WESTOE	61	60	69%	42
JERICHO	60	59	70%	41
Totals	11103	10532	86%	9071

Water Demand Growth in South African centres (1994)



Gross water demand projections (2000) : Vaal System

2023 Gross Demand
for Vaal System 4125



Thank You
ronniem@sarox.net



