Water security: How much is enough?

Young Water Professionals
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Background statistics

- 30th driest country in the world
- 60% WMA, demand > supply
- 98% of all available water resources allocated
- 37% of potable water is lost due to leakages
- 40% of wastewater treatment works is in a critical state
- Pollution renders water unfit for use and/or consumption

"Some, for all, forever"

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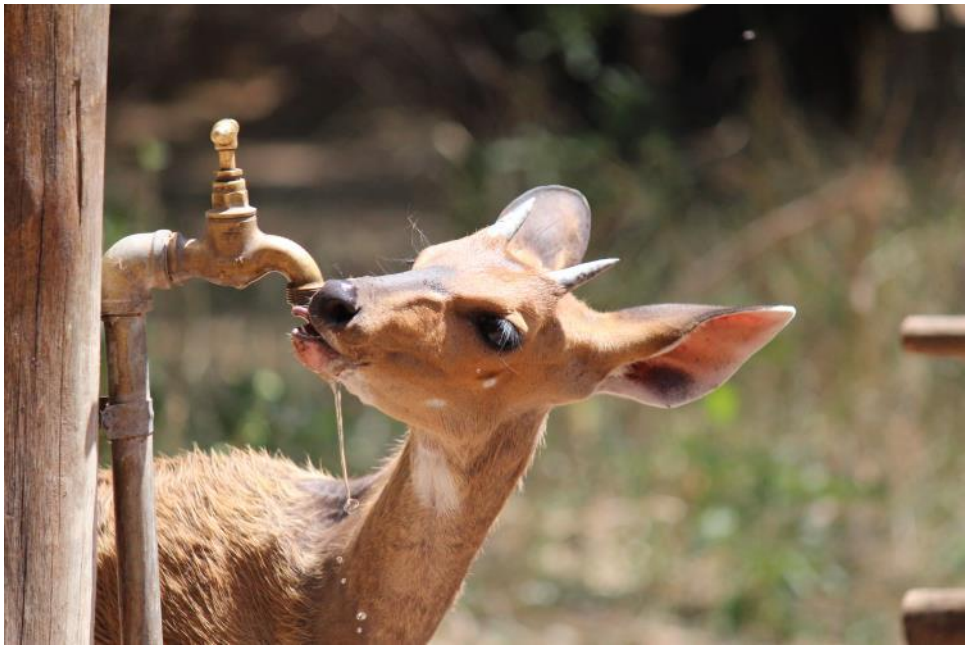
Water security

- Meeting basic needs
- Securing food supply
- Protecting ecosystems
- Sharing water resources
- Managing risks
- Valuing water
- Governing water wisely



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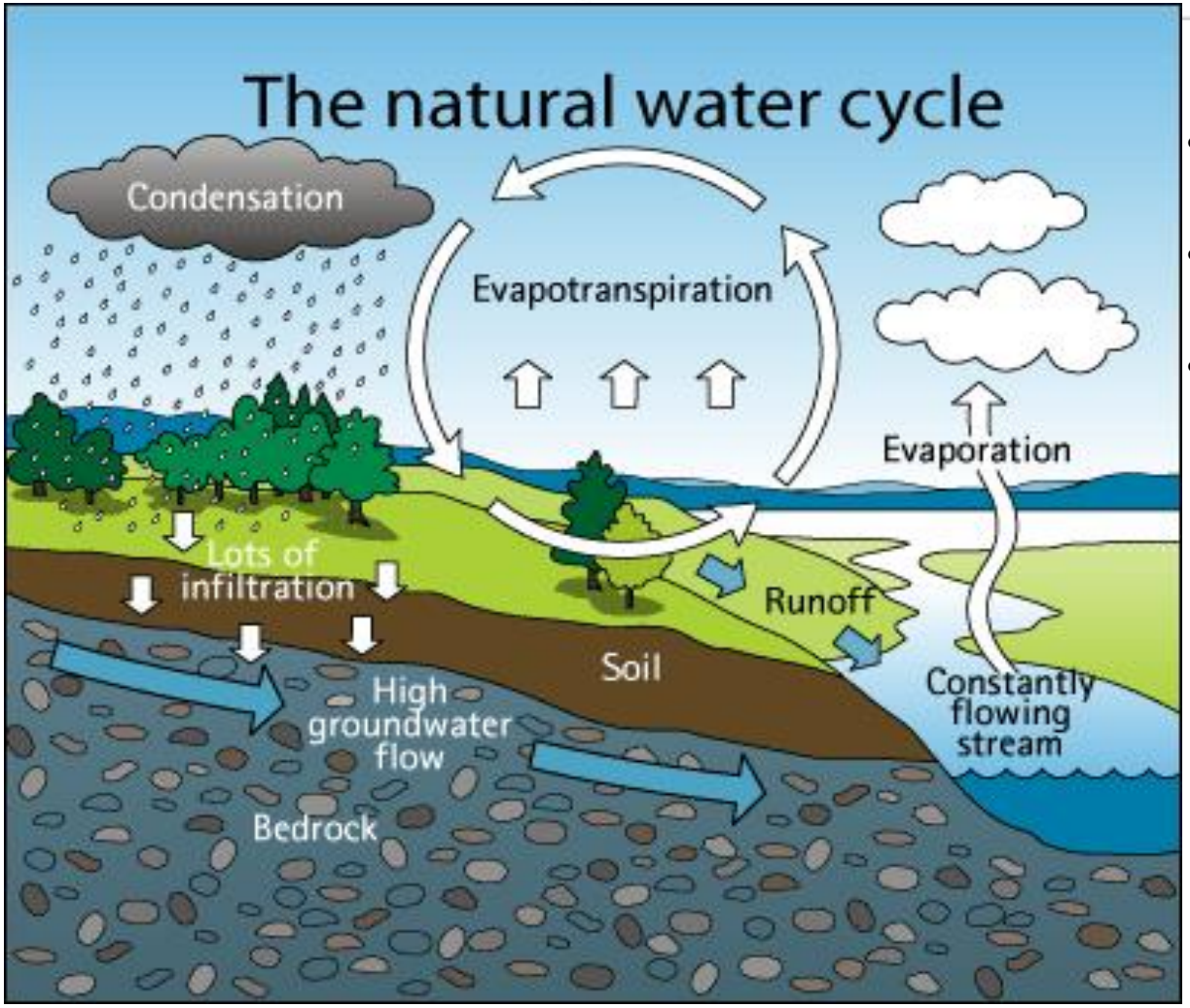
A renewable but finite resource



- Water can not be “used up”
- Water cannot be “made”
- Finite volume of water on earth

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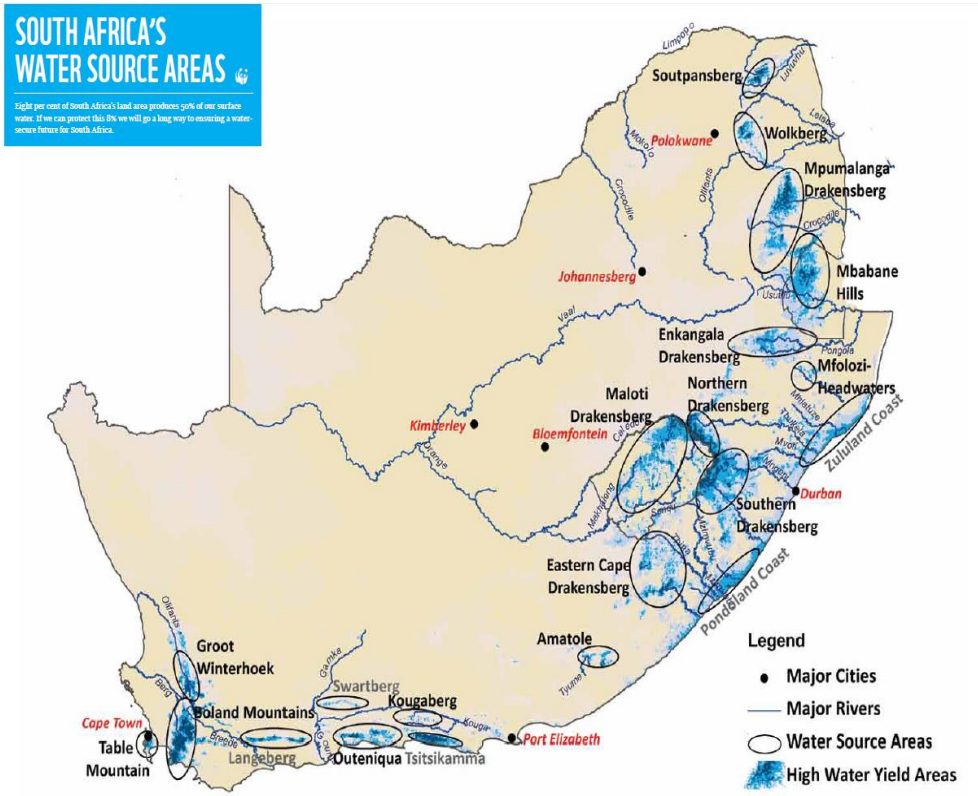
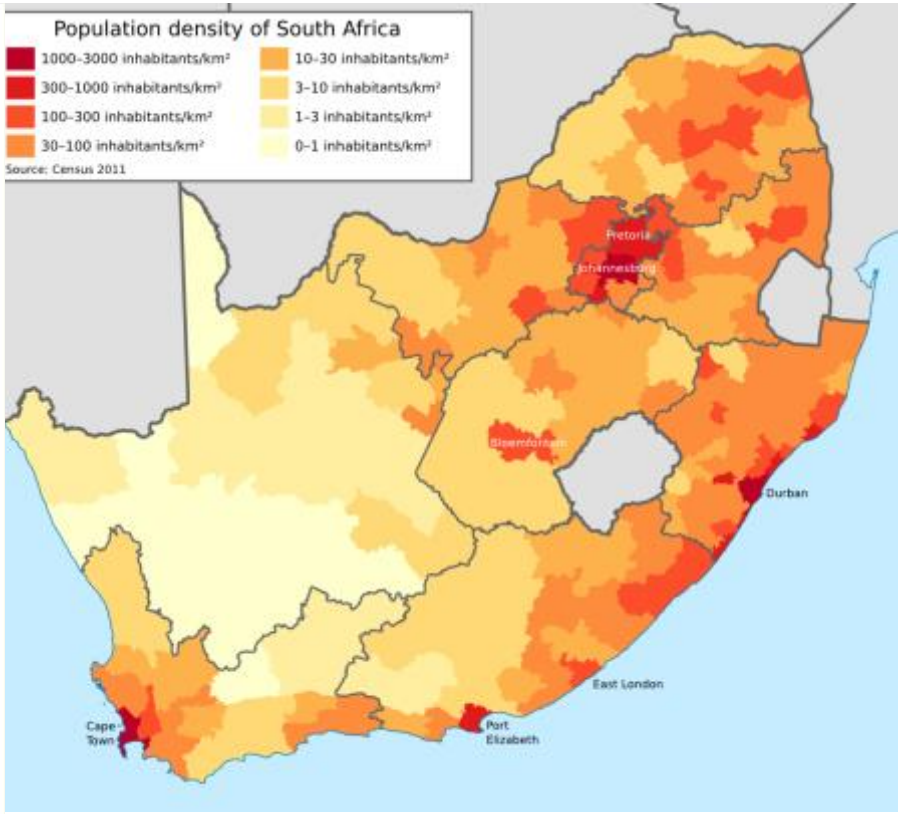
Uneven distribution – water vs people





Water

People

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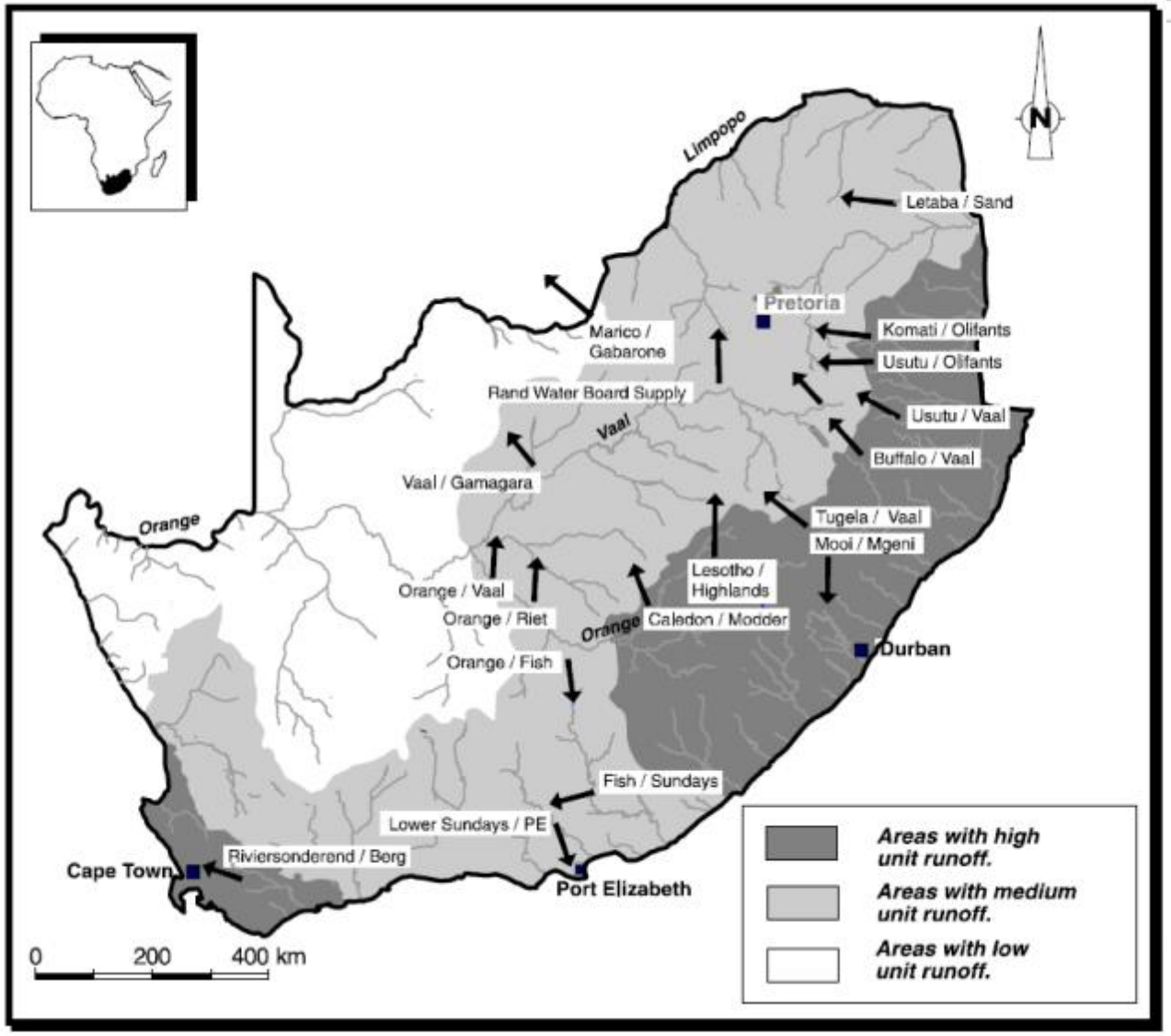
Water transfer schemes



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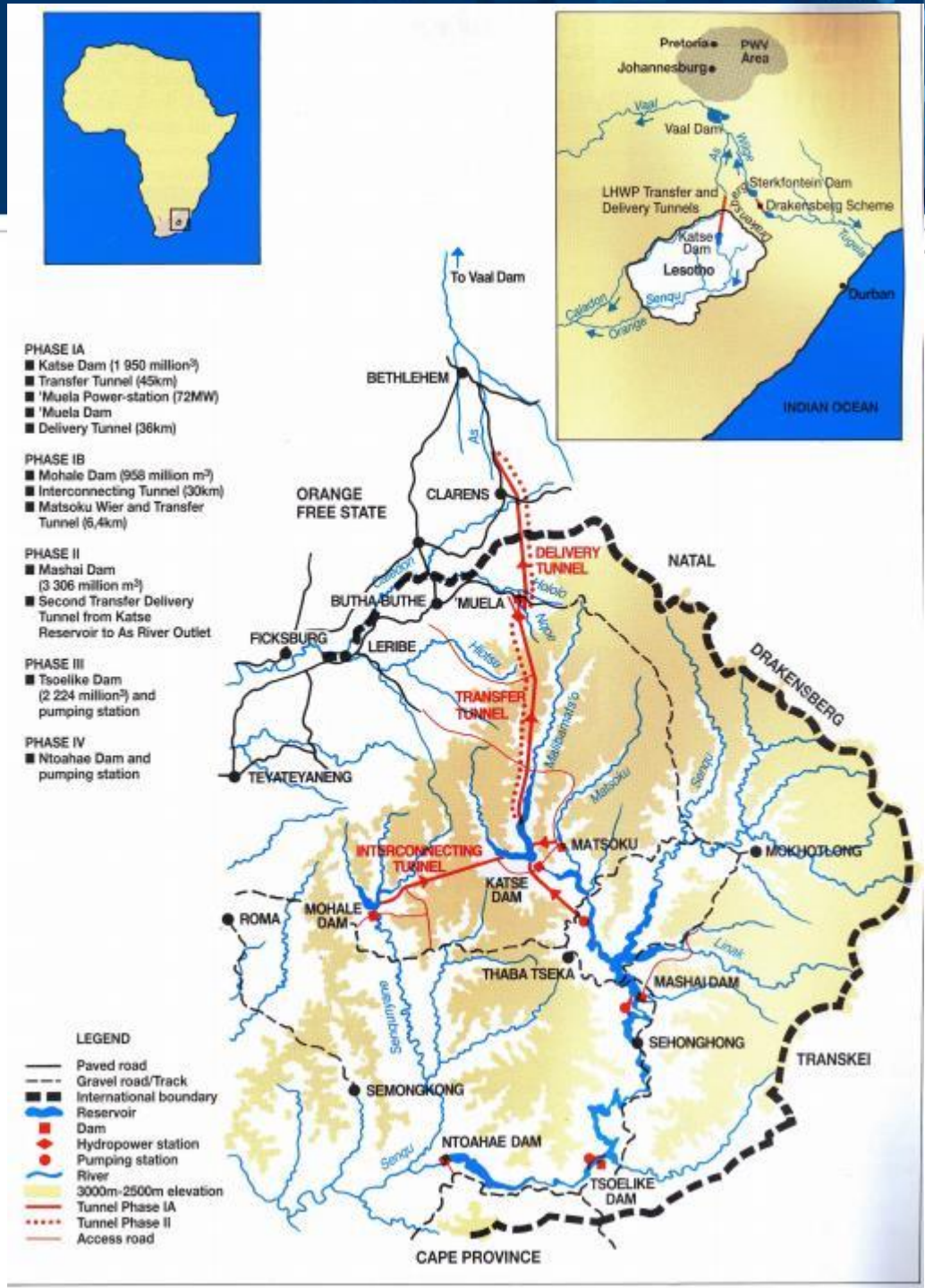
Lesotho Highlands



Ensuring water security

- Water loss control
- Increased use efficiencies
- Effluent reuse
- Desalination of sea water
- Inter-basin transfers
- Ground water development
- Building more dams
  - More than 500 government dams in SA with total capacity = 37 000 million m^3

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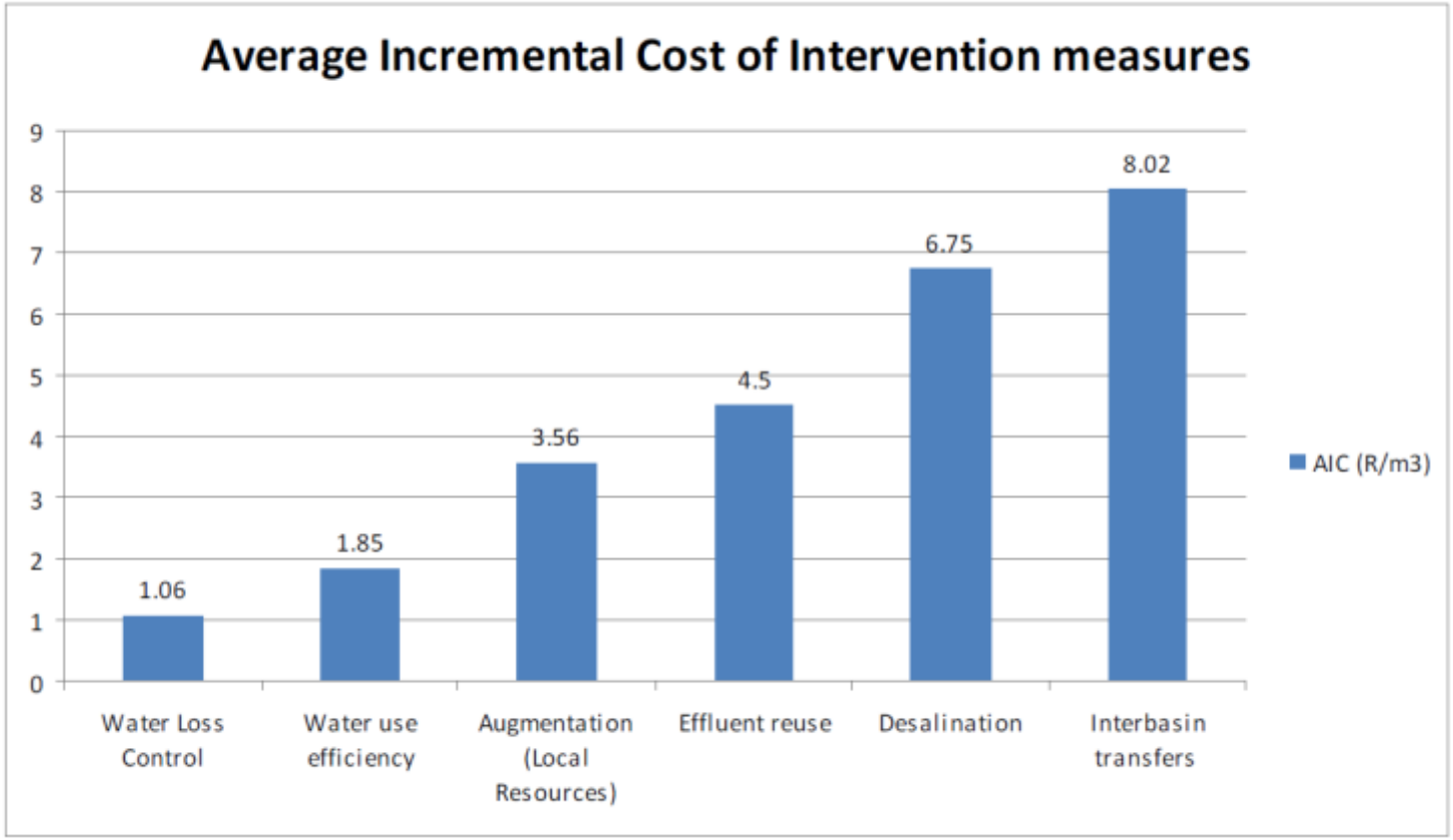
Cost of intervention measures



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Storing water as means to secure supply

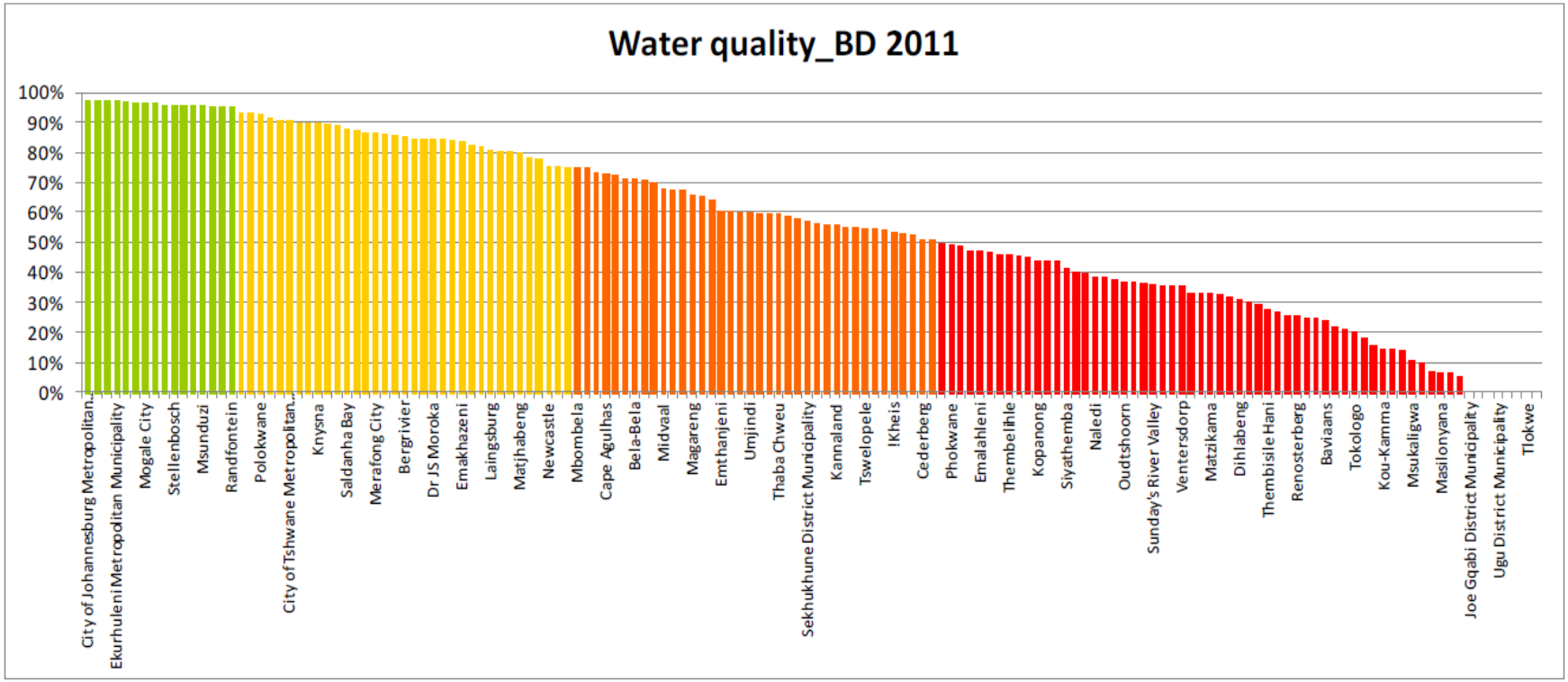
Loskop Dam

Beervlei Dam

Storing means trapping of pollutants

Hartbeespoort Dam

Blue drop status – 2011



- 144 out of 152 WSA provided data
- 16 achieved Blue Drop status
- 63 scored below 50%

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How much is enough?

Life expectancy = 62 year (MRC, 2014)

Basic human needs = 25 litre/person/day

= 9125 litre/person/annum

Lifetime basic water requirement

(25*365*62) = 565 750 litres

= 113 x 5000 litres

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Current water demand for Basic Human Needs

- 54 million (StatsSA, 2014)
- 1 350 000 m^3 /day required for basic human needs

= 270 000 x 5000 Litres/day

Water scarce = < 1 000 m^3/capita/annum

Water stressed = < 1700 m^3/capita/annum

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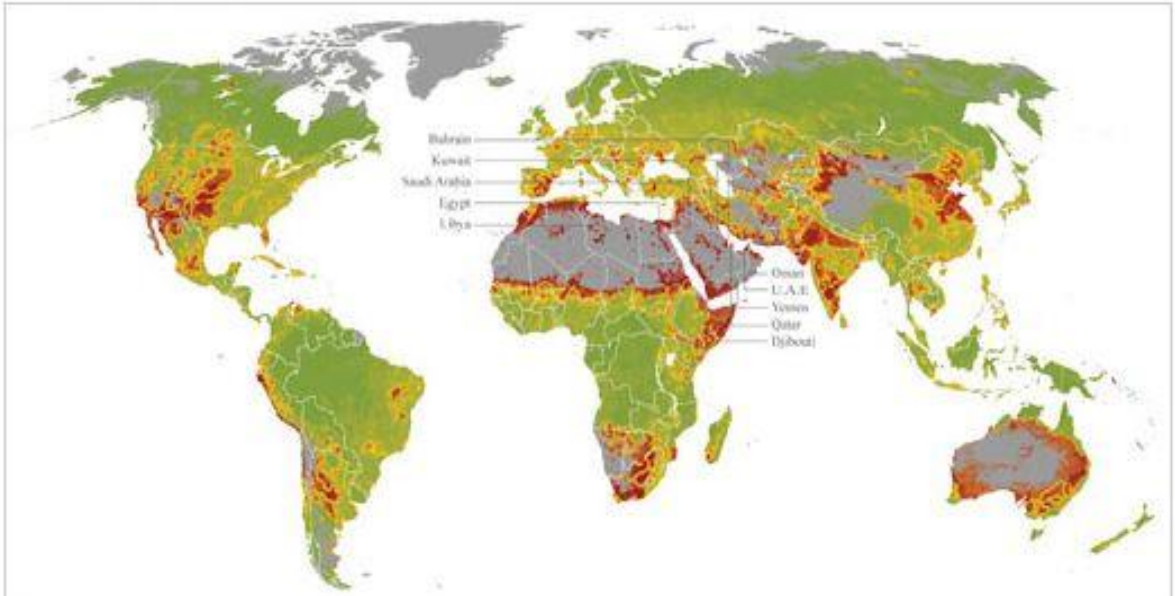
Water stressed

Water Stress Index 2012



Legend
Extreme risk
High risk
Medium risk
Low risk
No Data

Rank	Country	Rating
1	Bahrain	Extreme
2	Qatar	Extreme
3	Kuwait	Extreme
4	Libya	Extreme
5	Djibouti	Extreme

Rank	Country	Rating
6	U.A.E.	Extreme
7	Yemen	Extreme
8	Saudi Arabia	Extreme
9	Oman	Extreme
10	Egypt	Extreme

© Maplecroft, 2012

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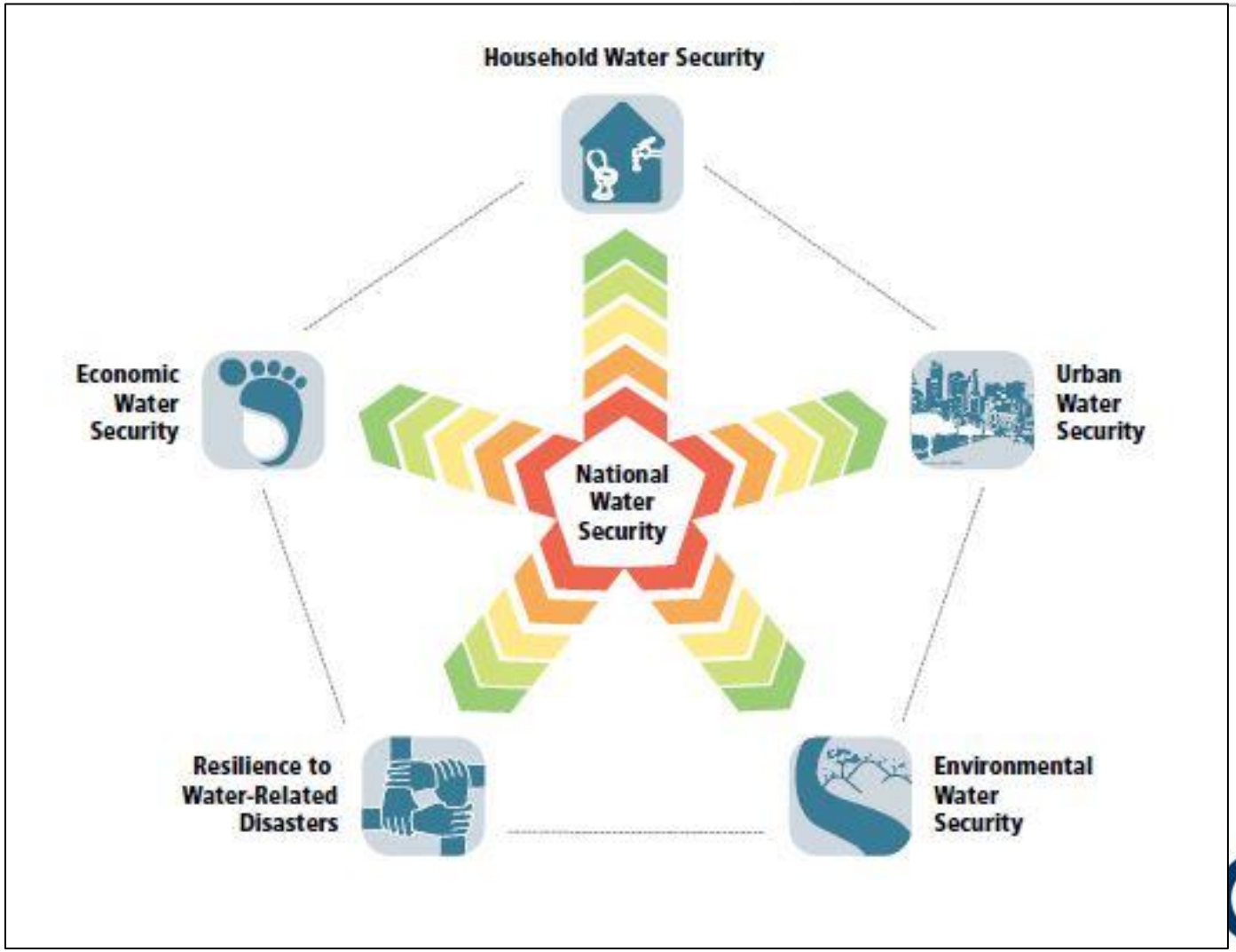
Dimensions of water security



Source: AWDO, 2013

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Conclusion

- Water Stress Index
  - SA is considered a “high risk”
  - Large pockets of “extreme risk”
- Not much capacity for more dams
- Variability in climate – predicted increased droughts, floods
- Water treatment is not up to standard
- Potential
  - Reduce water use and leaks
  - Ensure less pollution

“Some for all for ever”

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References

- DWS, 2014. Annual National State of Water Report for the Hydrological year 2012/2013 https://www.dwa.gov.za/Groundwater/documents/Annual%20National%20State%20Water%20Report%20for%20Hudrological%20Year%202012-13_Final.pdf
- MRC, 2014 www.mrc.ac.za/bod/reports.htm

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Ideas that work

Thank You

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