State of the Water Sector in Mauritius, Mozambique, Namibia, South Africa, Zambia, and Zimbabwe

PRESENTATION TO ASSAF WORKSHOP
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BY
BARBARA SCHREINER

PEGASYS
Strategy and Development

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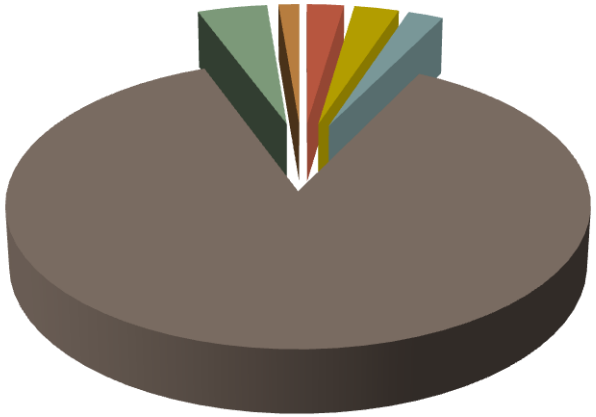
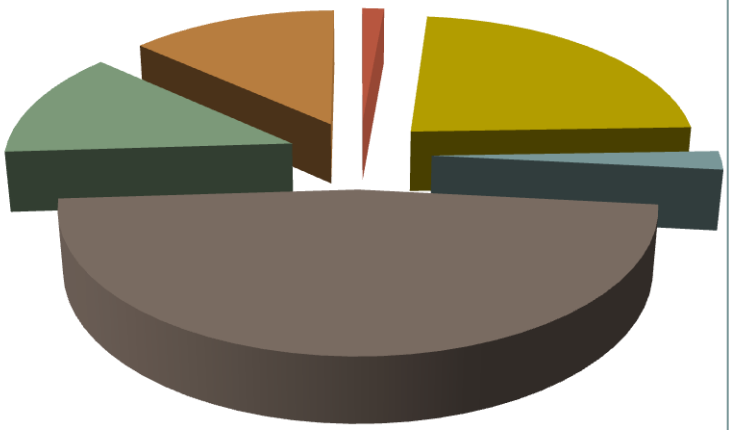
Population and economy

GDP

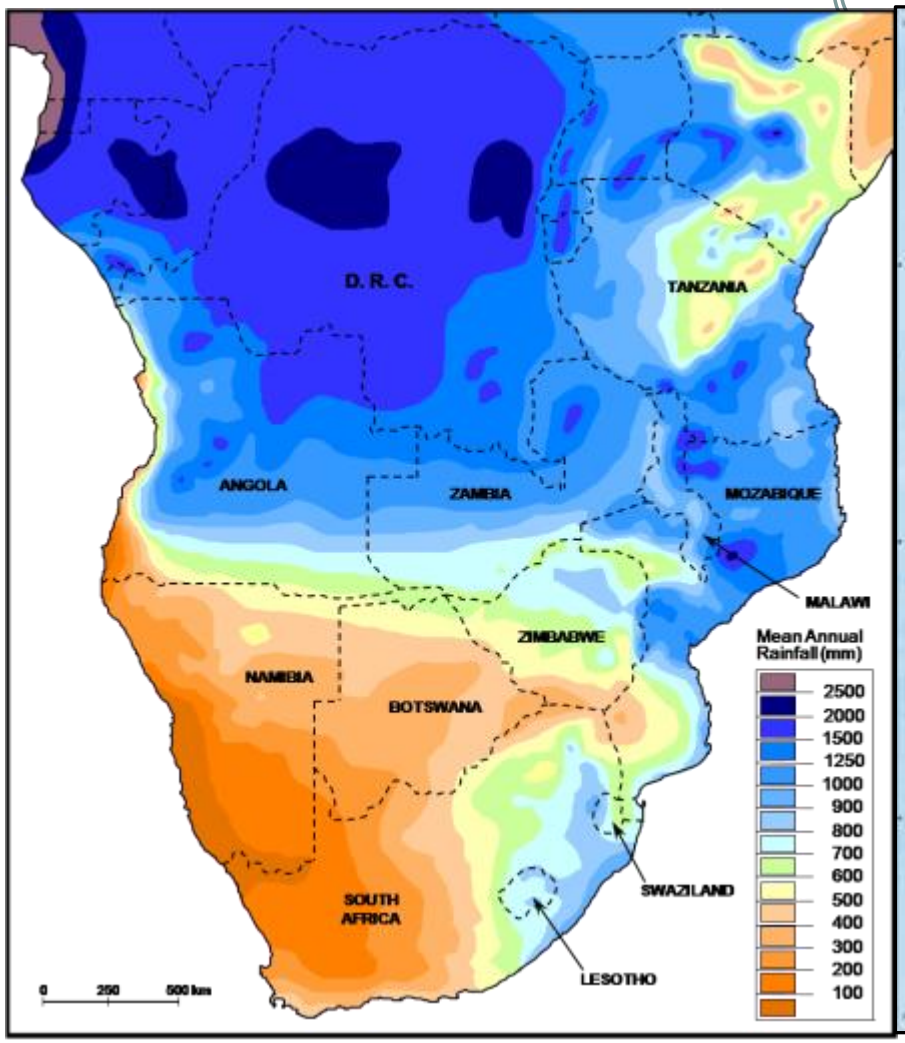


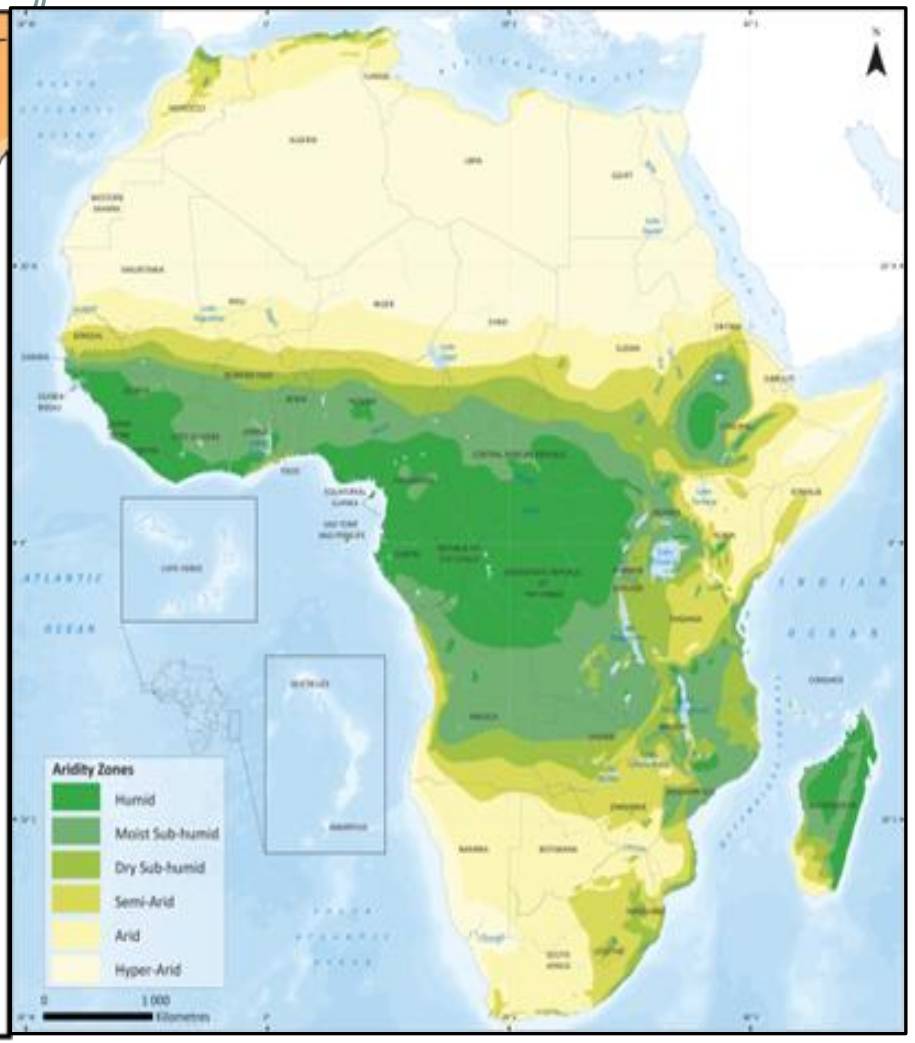
Population



Average rainfall across SADC region

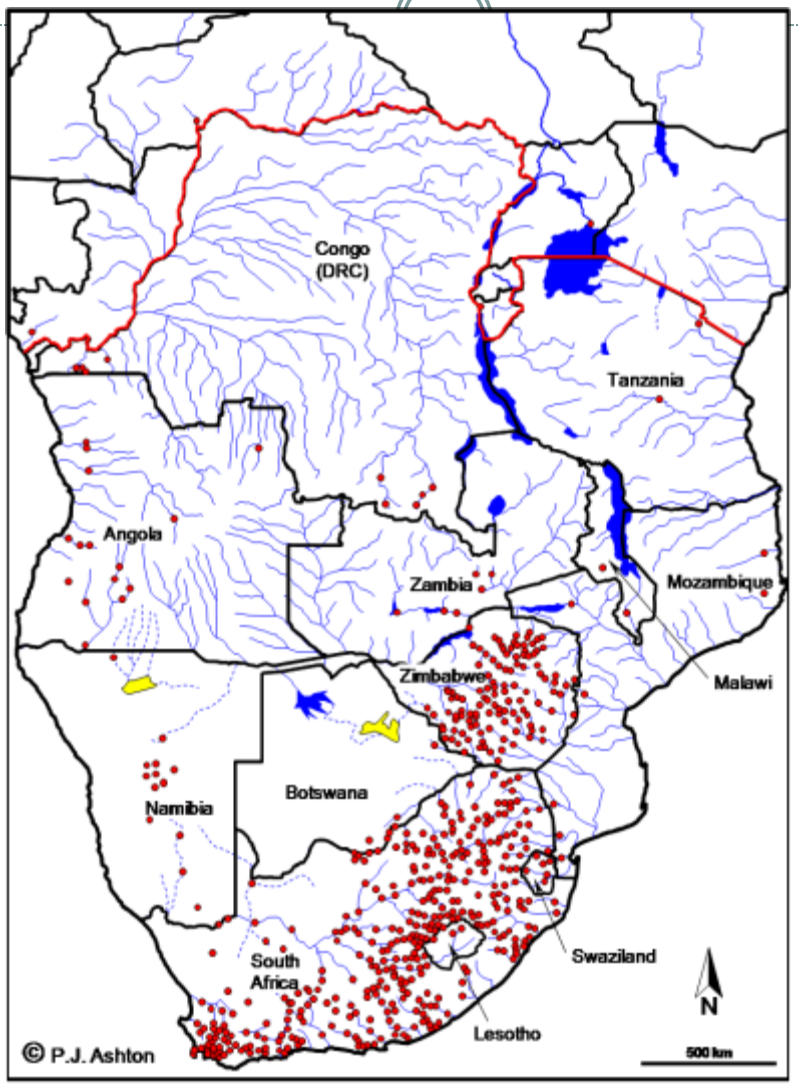
(Source P Ashton)



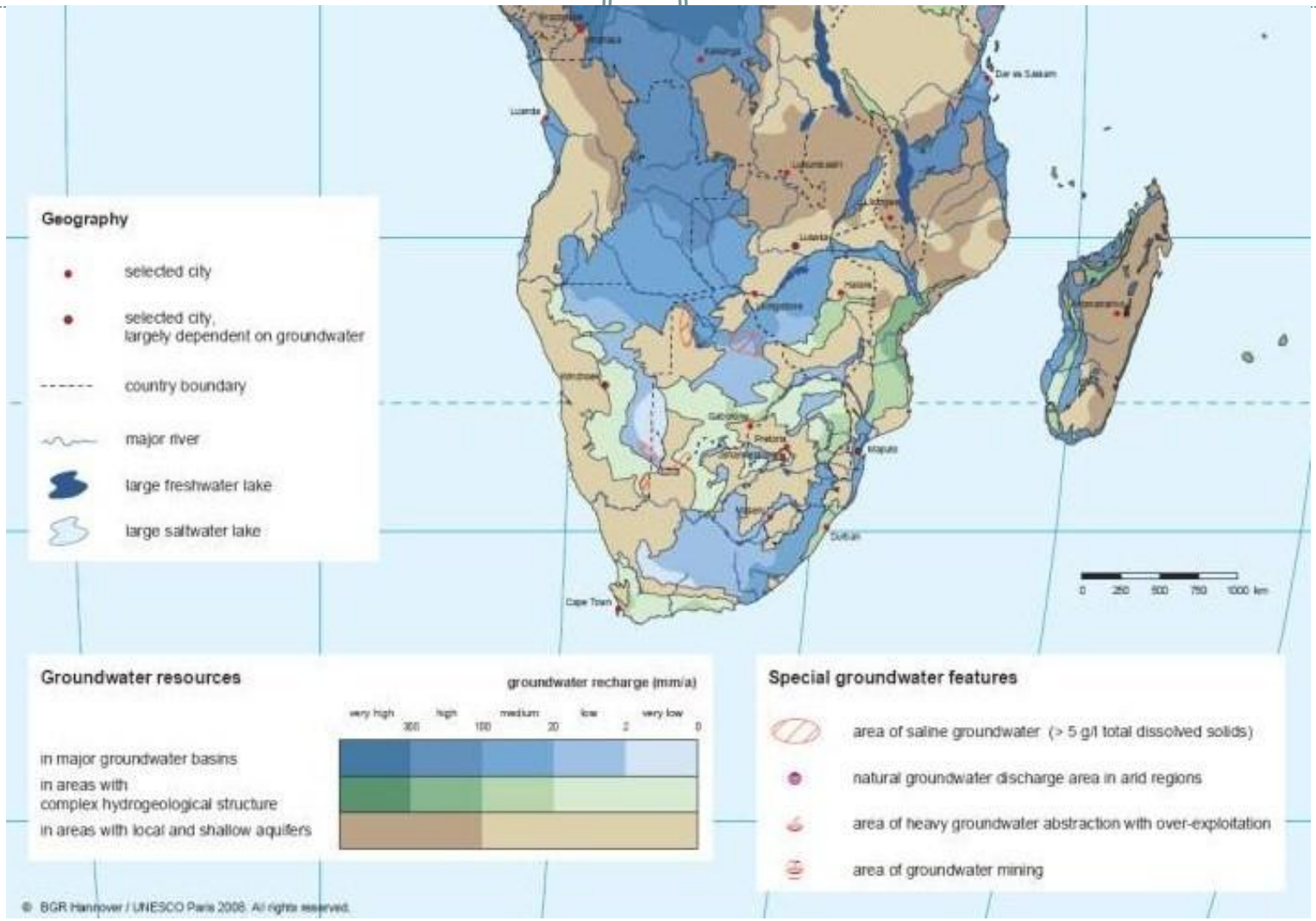


Distribution of dams in SADC

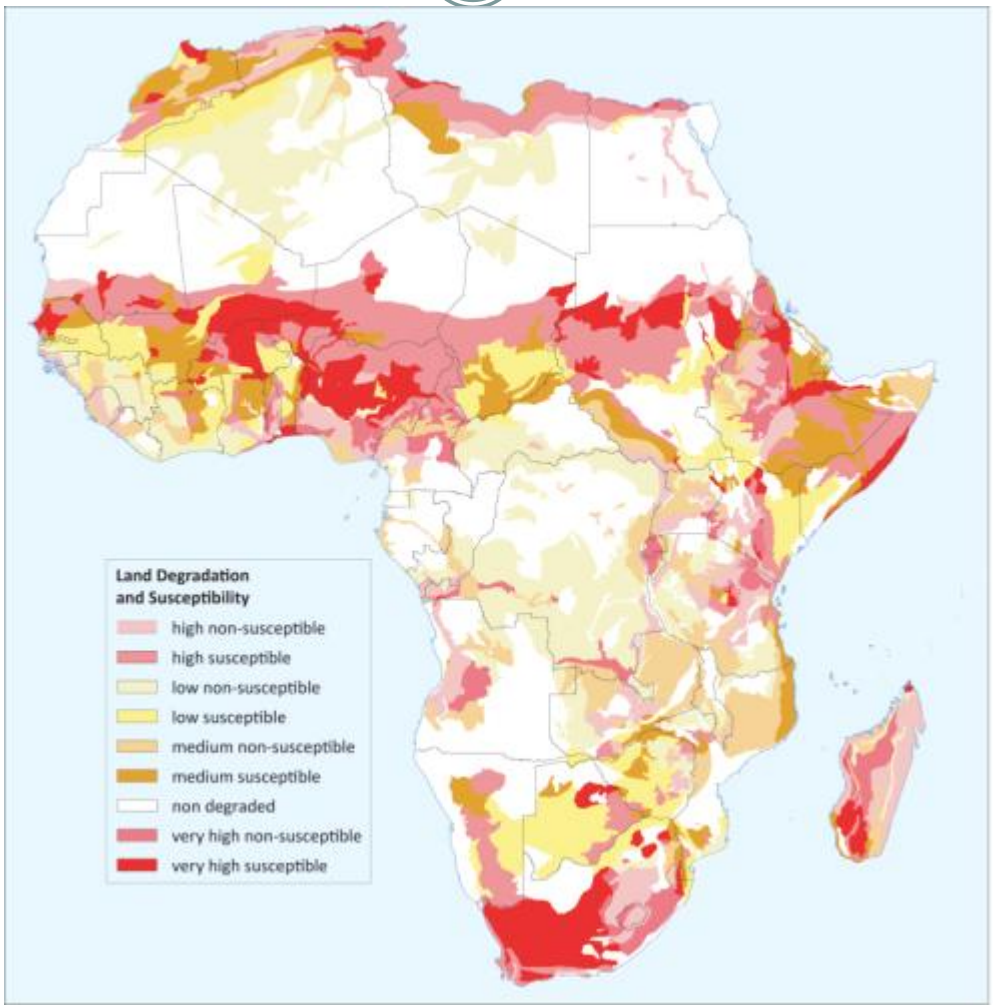
(Source P Ashton 2005)



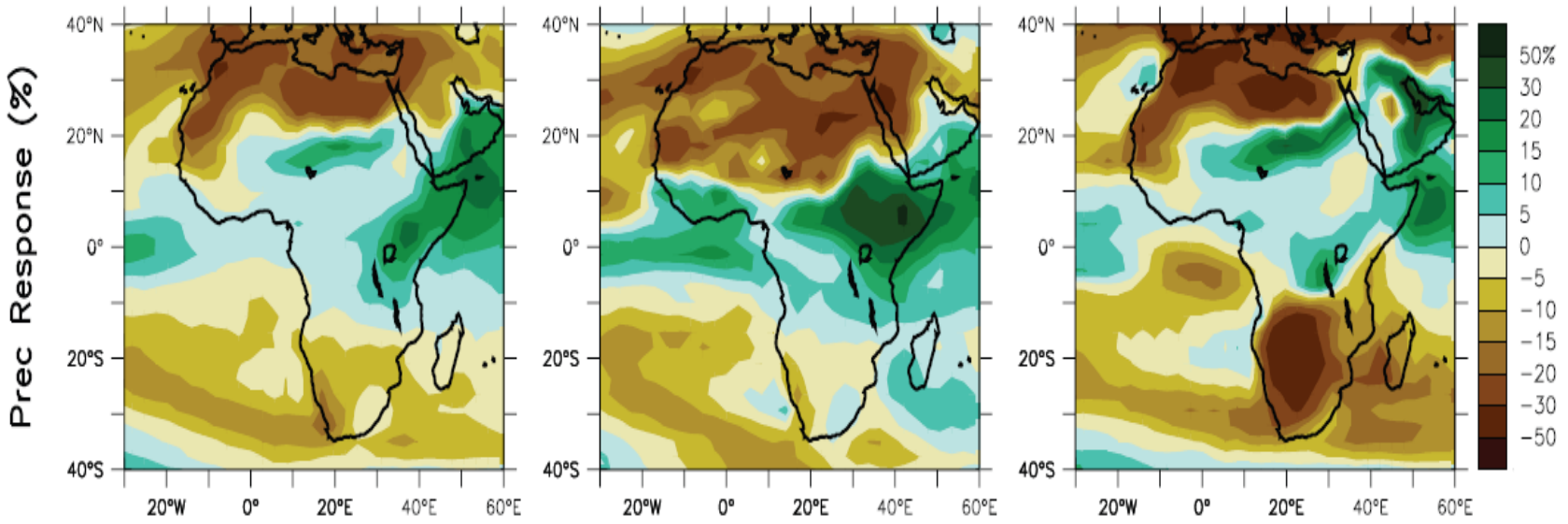
Groundwater availability



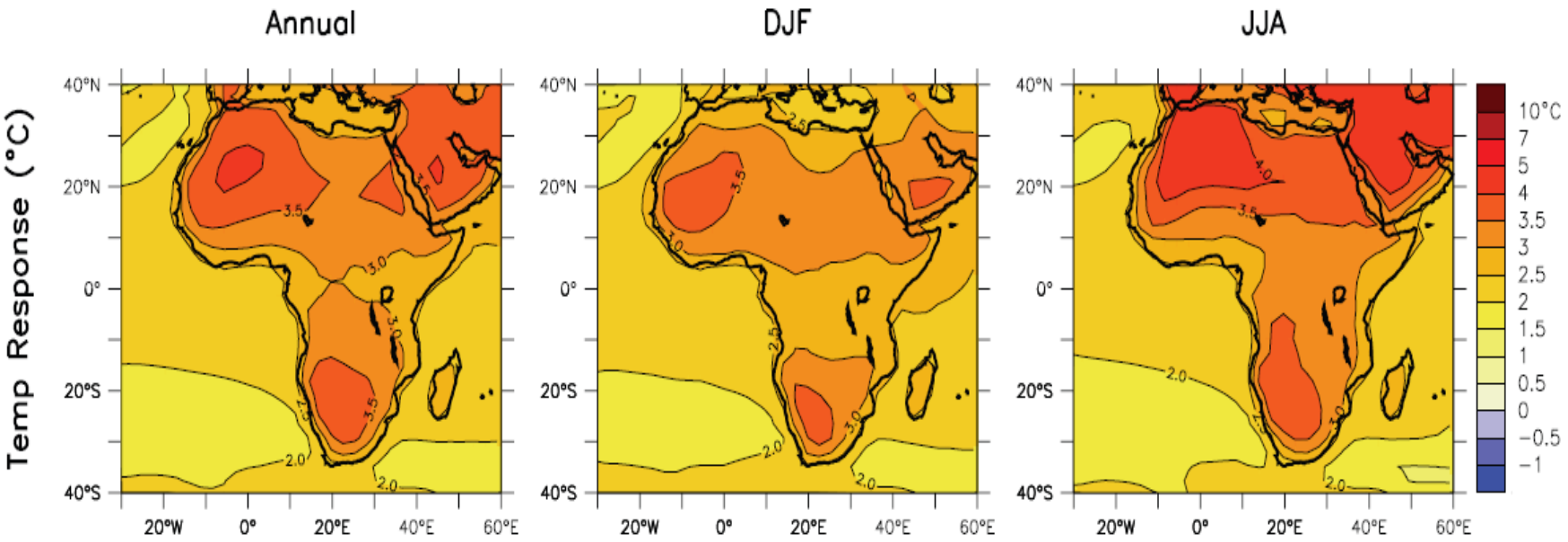
Land use degradation and vulnerability



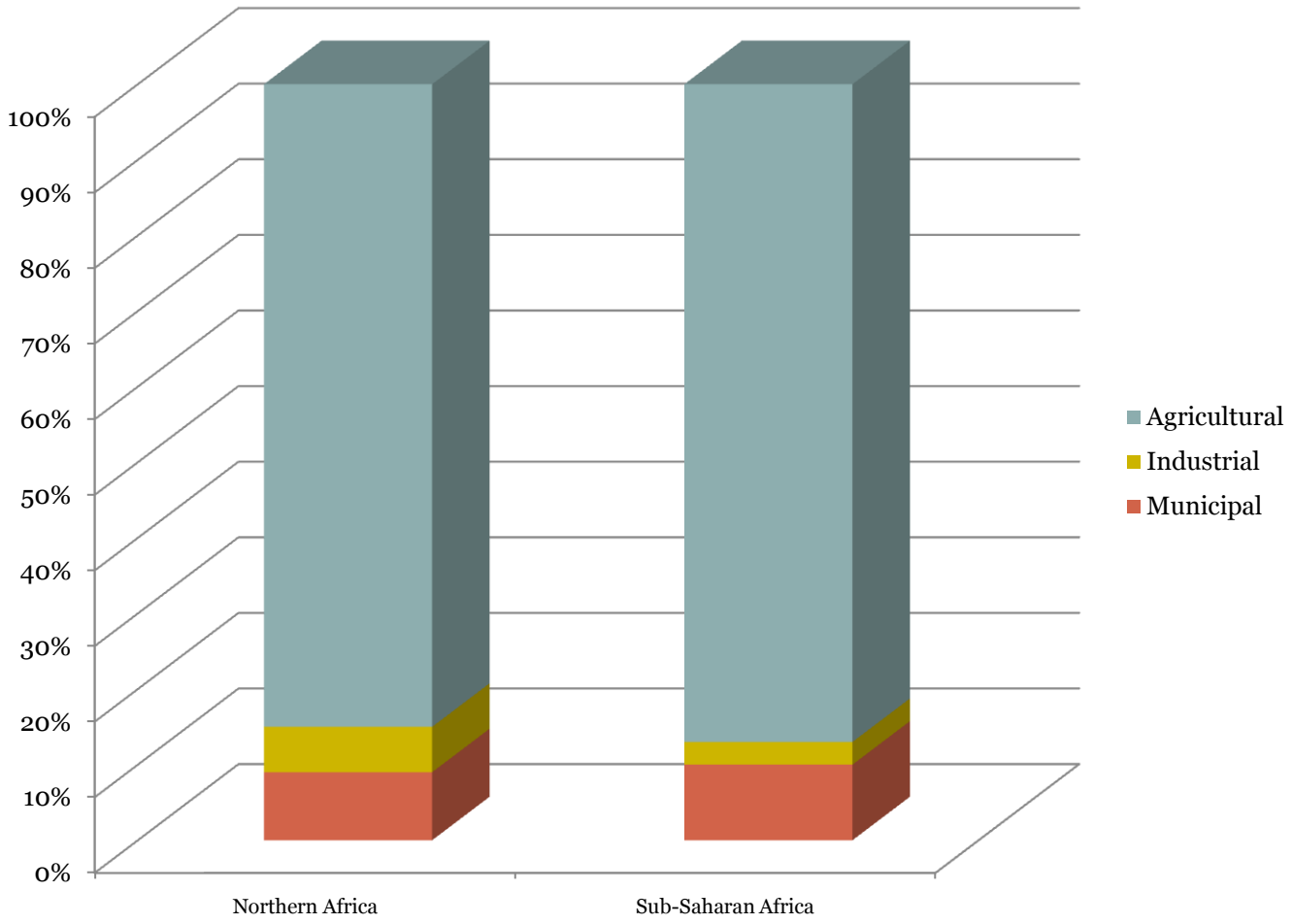
Climate change: rainfall



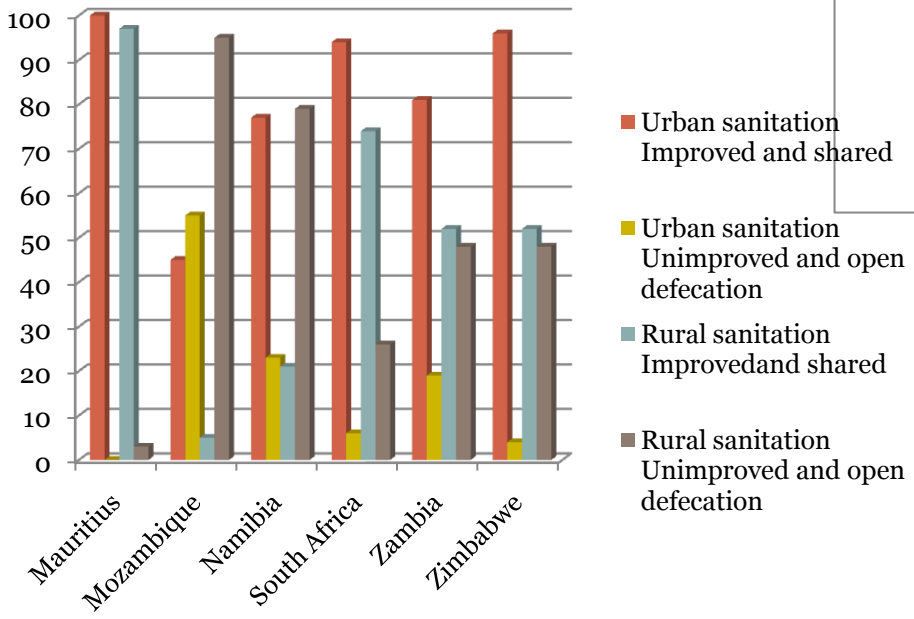
Climate change: temperature

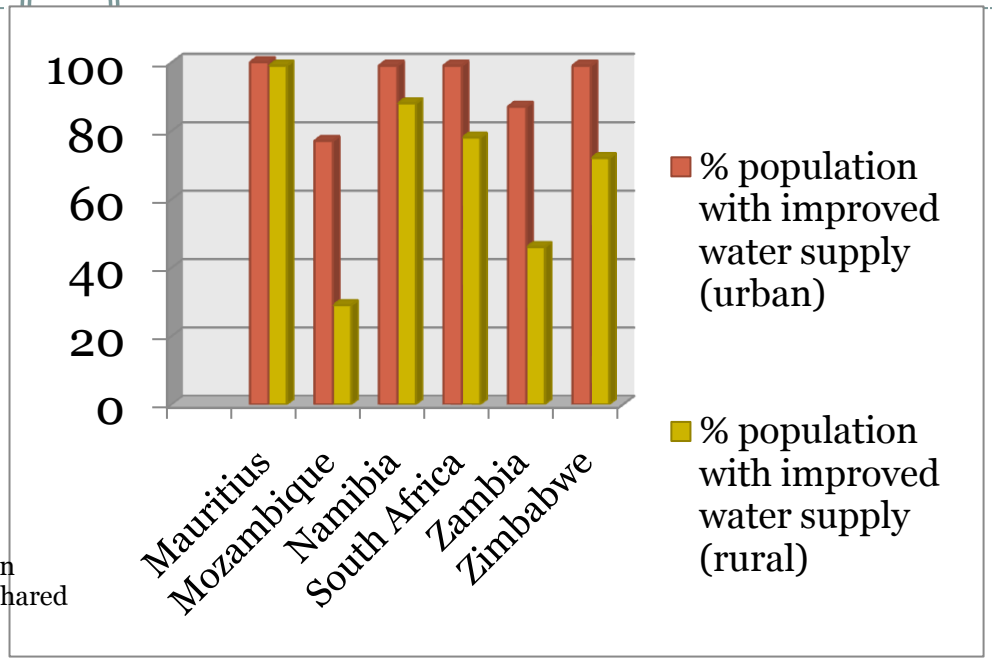


Water use


100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Northern Africa
Sub-Saharan Africa
Agricultural
Industrial
Municipal

Water supply and sanitation





Thank you

Part 2

Key challenges and issues

Data

- Inadequate and unreliable data: water resources and water services
- poor monitoring infrastructure
- inadequate information systems

Capacity

- Limited human resource capacity in technical and managerial fields
- Building of appropriate capacity includes:
  - Building human resource capacity in the management and technical fields;
  - Increasing research and knowledge generation
  - Enabling communication across science/management divide;
- Ensuring good governance of water sector institutions
  - Including eradication of corruption and building of transparency;

Key challenges and issues

Infrastructure

- Closely linked to issues of financing and human capacity
- Limited water resources storage infrastructure (excluding RSA)
  - countries vulnerable to droughts and to the impacts of climate change;
- Water resources and water services infrastructure often poorly maintained, resulting in safety issues, water wastage and water quality problems;
- Four of the countries = large numbers of people with inadequate access to water and sanitation infrastructure and related services;
- High levels of illegal connections

Financing

- Inadequate financial resources
  - Capex and opex
  - Poor revenue collection for water services is a major challenge - links to weak understanding of actual costs of service delivery and sufficient investment in maintenance, and reluctance in government to increase water tariffs.

Key challenges and issues

Climate change

- Further research required to understand downscaled impacts of climate change
- Requires investment into improved flood management, extended hydrological gauging networks, improved hydrological modelling, improved groundwater modelling, improved data processing, appropriate drought management, enhanced disaster / risk management and improved communication and transfer of information.

Managing water quality

- Protecting the water quality in surface and groundwater resources – pollution control
- Ensuring safe drinking water quality.

Key challenges and issues

Water for equitable and sustainable development

- As economies grow and diversify the interaction between basin hydrology and economic, ecological and social factors becomes more complex to understand and manage
- Need to continually improve scientific understanding of complex interrelationships at the basin level to support sustainable economic development

Resource recovery for food security

- Sanitation delivery lagging behind
- A number of challenges around ensuring appropriate sanitation
  - Including sustainable, waterless or low water use sanitation appropriate to the local context.
- Management of productive and safe wastewater, excreta and faecal sludge for nutrient re-use agriculture and aquaculture
  - How can this can enhance resilience to climate change
  - Includes understanding science, business models and social change needs

Additional issues for science community

- Providing scientific research to support evidence based policy-making.
- Informing management decisions
  - Including communicating scientific information in a manner accessible to water managers
- Supporting and enabling improved data collection and information
  - development of innovative spatial-temporal surveillance/monitoring techniques, use of remote sensing, etc
- Development of appropriate and effective water quality technologies for waste water management and treatment of potable water
  - including waste water treatment, mine water management, risk characterisation, applied water resource classification etc.
  - Development of energy efficient effluent treatment and nutrient recovery processes
  - The further development of waterless toilet technologies
- Better understanding of integrated/conjunctive use of water resources in basin context
- Development of effective and equitable mechanisms for allocation of water resources from shared water courses
- Further development of adaptive water resources management to cope with climate change impacts in both surface and groundwater systems.

Additional issues for science community

- Risk management in relation to floods and droughts.
- Integrated delta and estuaries management
  - increasing agricultural production
  - dealing with saline intrusion
- Designing better tools for environmental flows assessment and resource allocation;
- Improving adaptive resilience
  - including on-line real time access to water security information, forecasting, smart allocation, etc.
- Understanding the social and cultural dimensions and dynamics of water;
- Production of sufficient people qualified to work in diverse technical areas for water management
  - creation of better understanding amongst decision makers of the need to employ such people.
- Developing hard and software to reduce the costs of monitoring of water resources and their use.

Key questions

- Have the key issues been captured?
- What are the key messages for policy-makers?
- What are the constraints to science-based policy making in the region? What are the opportunities?
- Where can the science community make the greatest input?
- What current processes are there that can be built on?
- Are there specific case studies that should be captured in the policy makers booklet?

Thank you