International Prepcom Conference:

"Towards the UN Conference on Sustainable Development (Rio+20): Water Cooperation Issues"

Water Cooperation in Transboundary River Basins: Experiences from the Orange - Senqu River Commission

Dushanbe, Tajikistan. 19 – 20 October 2011.

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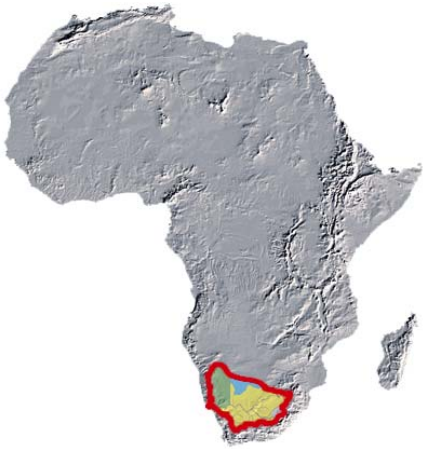
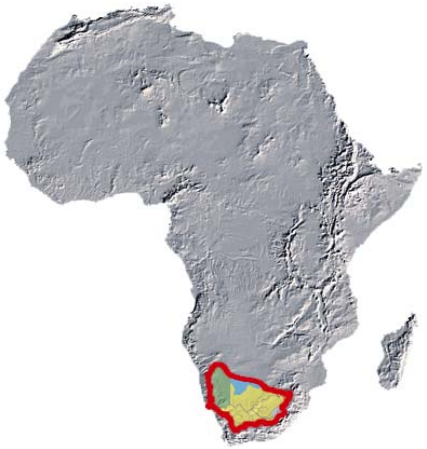


OUTLINE OF THE PRESENTATION:

1.BASIN PROFILE.
2.TRANSBOUNDARY COOPERATION IN THE ORANGE SENQU RIVER BASIN.
3.ORASECOM.

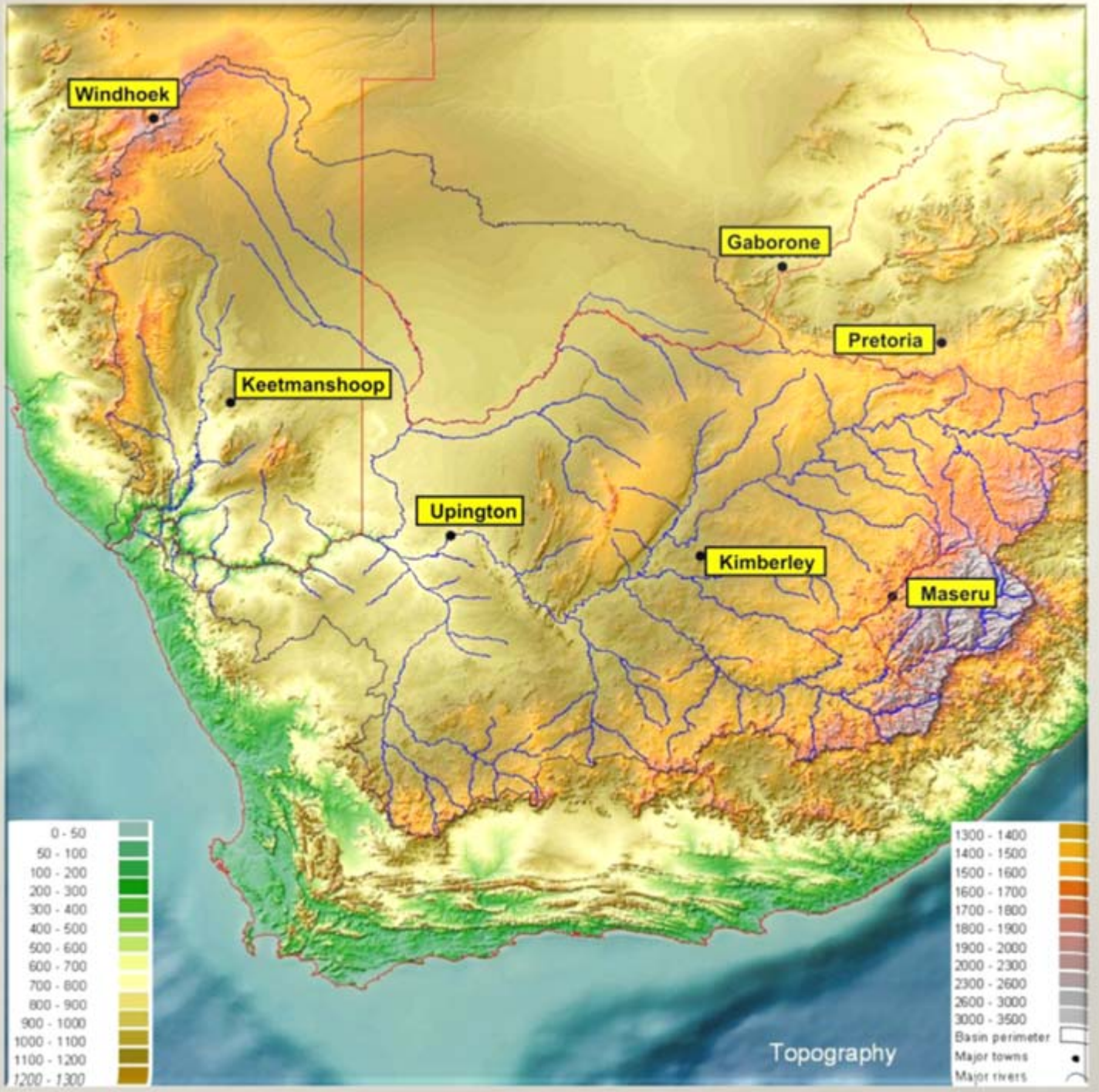


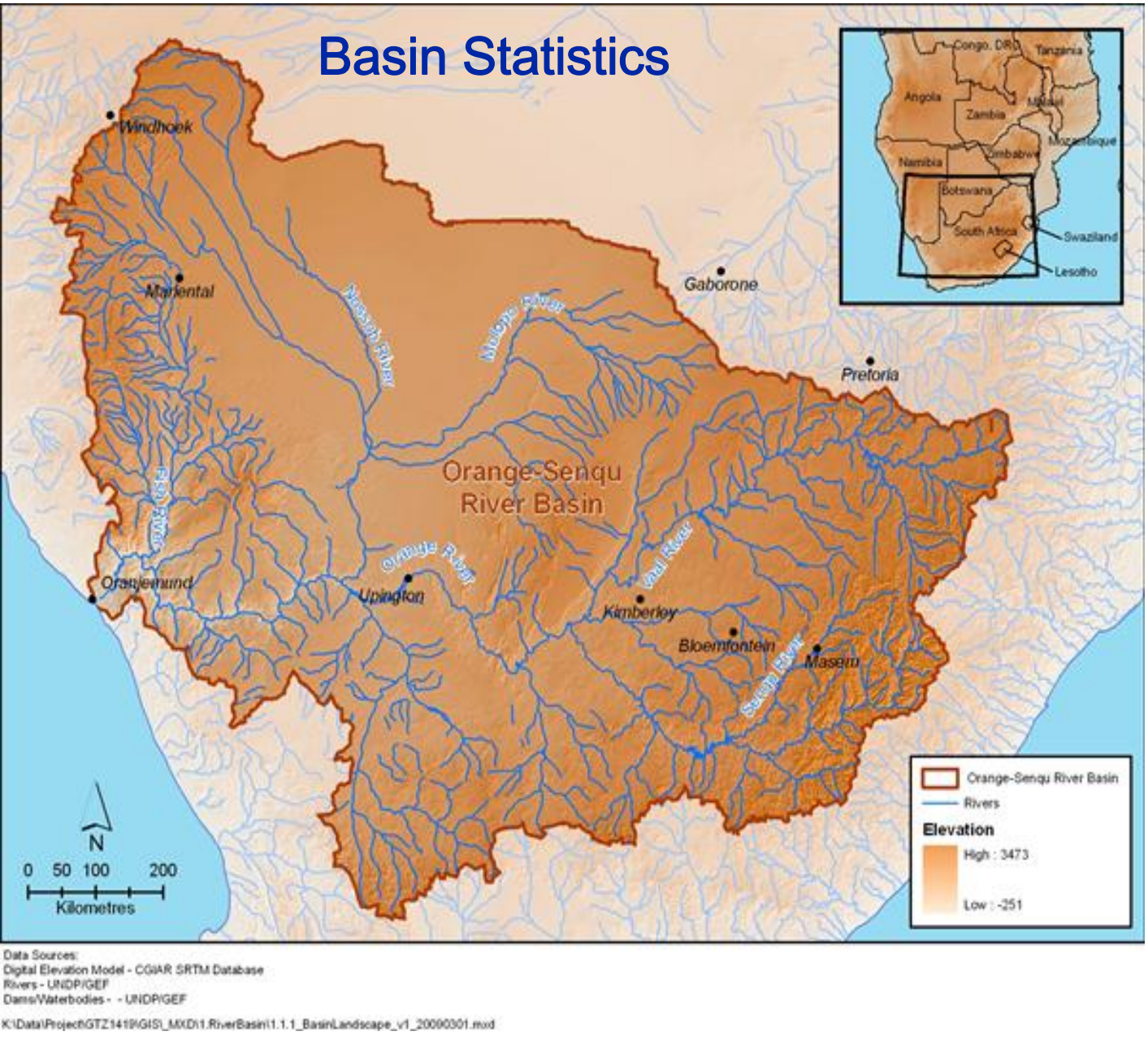
BASIN PROFILE


ZIMBABWE
BOTSWANA
LIMPOPO
NAMIBIA
NORTH WEST
MPUMALANGA
SWAZILAND
SOUTH AFRICA
FREE STATE
KWAZULU/NATAL
LESOTHO
NORTHERN CAPE
EASTERN CAPE
WESTERN CAPE
Orange Senqu River Basin
100 0 100 200 300 400 500 km

Topography

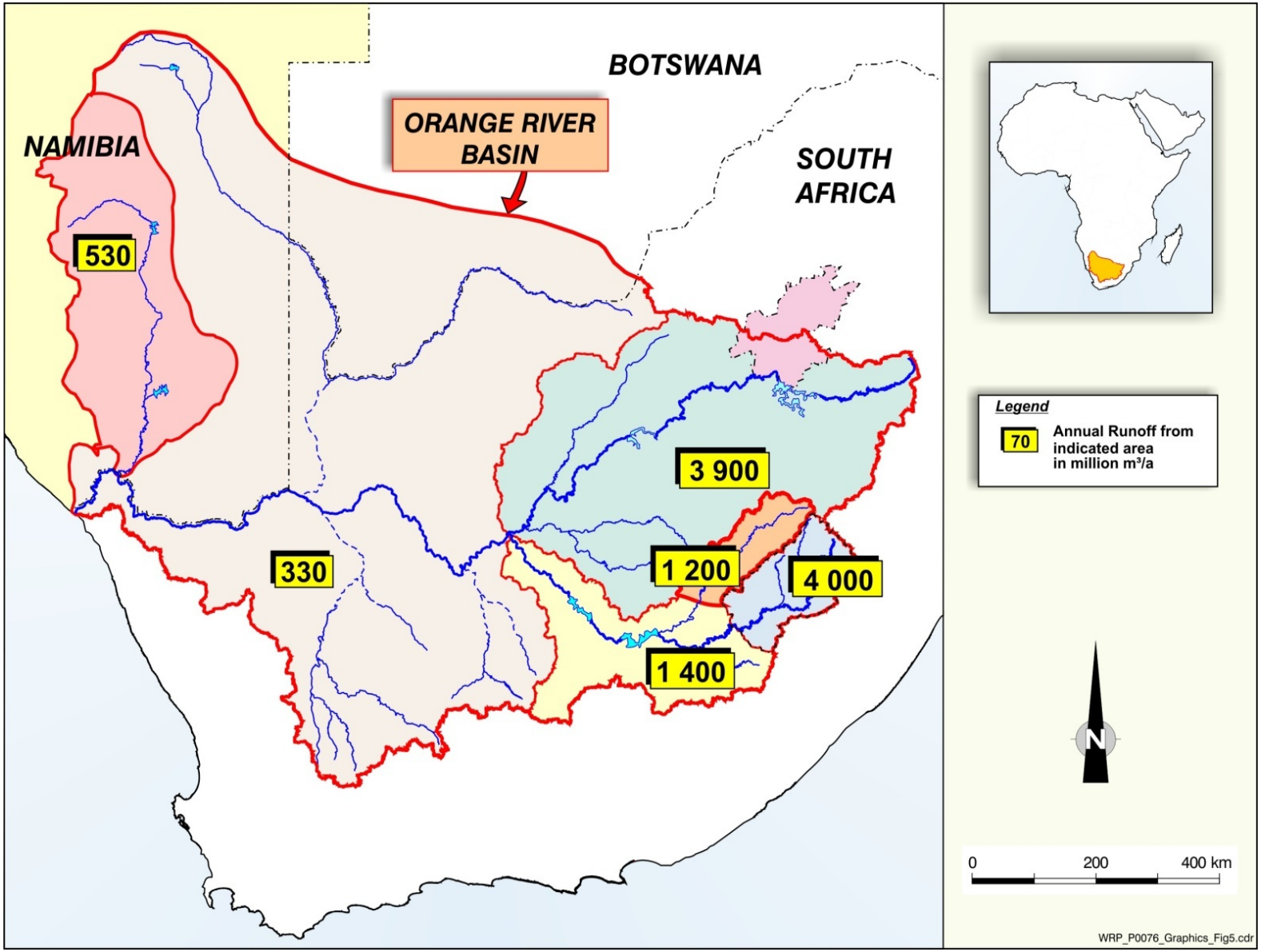
0 - 50	
50 - 300	
300 - 500	
500 -600	
600 - 800	
800 - 1000	
1000 - 1200	
1200 - 1400	
1400 - 1600	
1600 - 1800	
1800 - 2000	
2000 - 2600	
2600 - 3500	



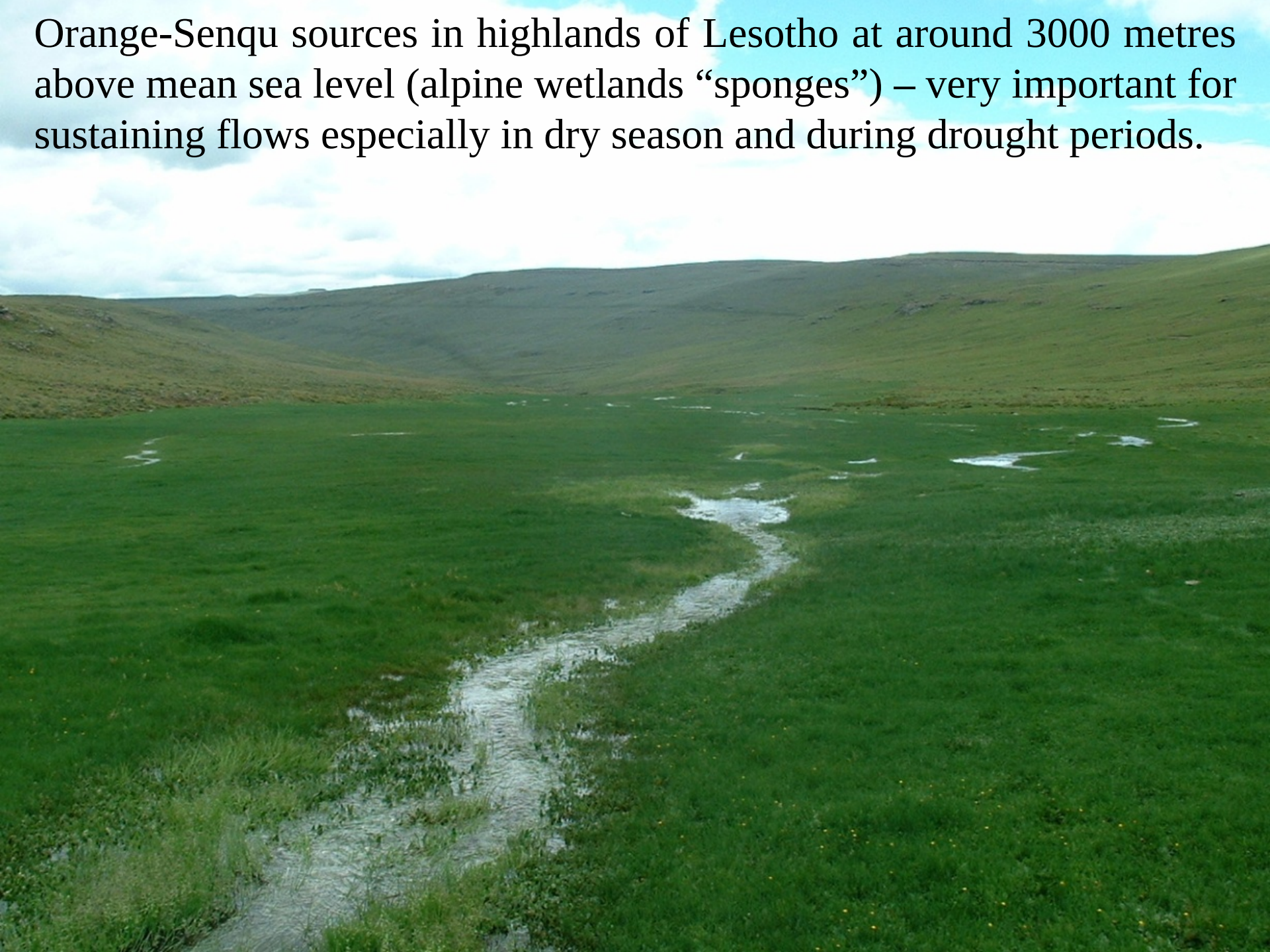


1. **Basin Area : 1 million sq km.**
2. **Rainfall : 1800mm in Lesotho highlands to 45mm at River mouth.**
3. **Population: 19 million (Earle et al. 2004).**
4. **Average annual natural runoff : 12,000 mill. cub. metres (quote flood and drought flows as well) less than half of the flow reaches the river mouth on the Atlantic Ocean.**
5. **Basin States: Botswana, Lesotho, Namibia and South Africa.**

Mean Annual Runoff – Main Subcatchments

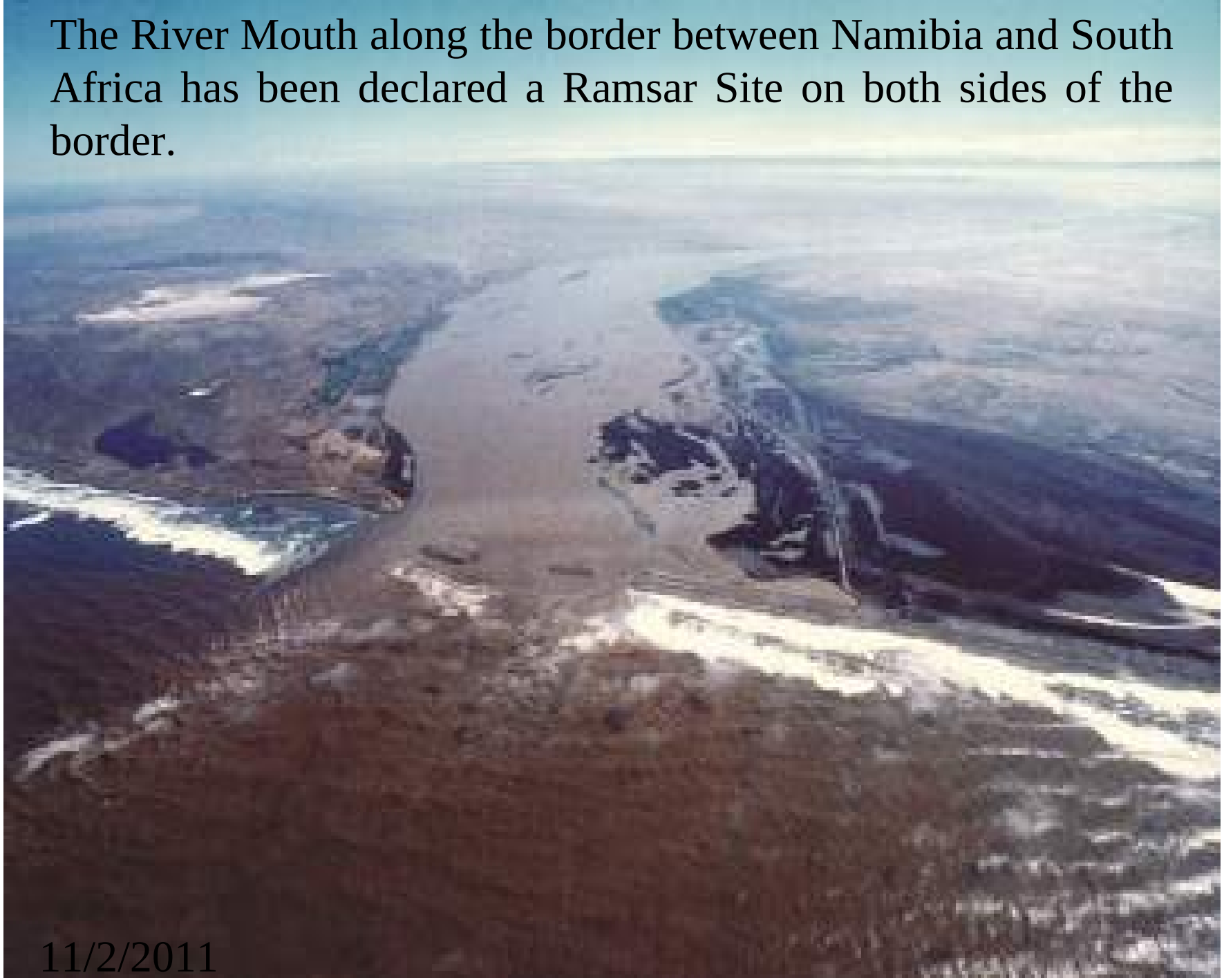


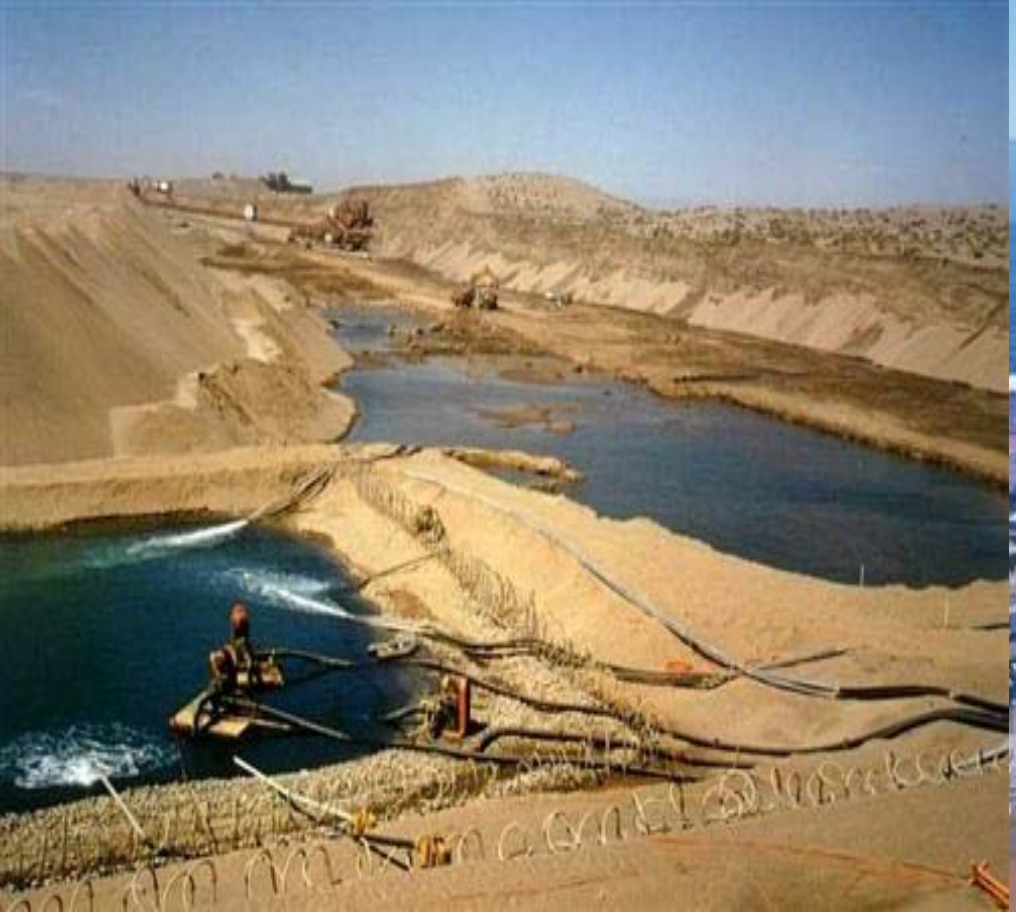
Orange-Senqu sources in highlands of Lesotho at around 3000 metres above mean sea level (alpine wetlands “sponges”) – very important for sustaining flows especially in dry season and during drought periods.



Dry river bed on Molopo catchment - north west part of the Orange Senqu River Basin

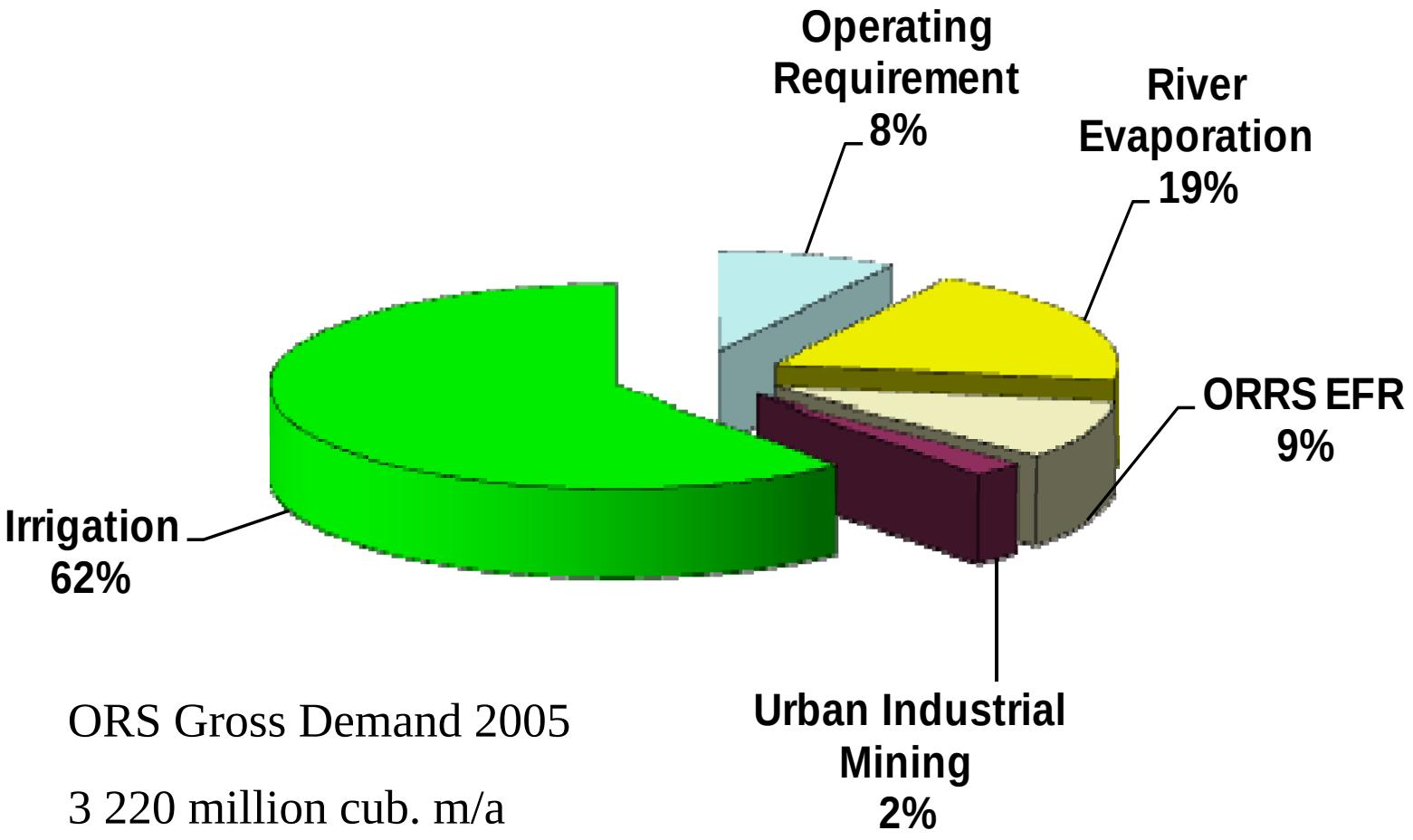
Commercial Irrigation and Hydropower generation are some of the main developments in the river basin.


The River Mouth along the border between Namibia and South Africa has been declared a Ramsar Site on both sides of the border.



Alluvial diamond mining operations are also found on the lower Orange-Senqu, the estuary and along shallow sea bed of the Atlantic Ocean.

Demand in the Orange-Senqu River Basin



ORS Gross Demand 2005

3 220 million cub. m/a

Sasol Petrochemical Plant Secunda

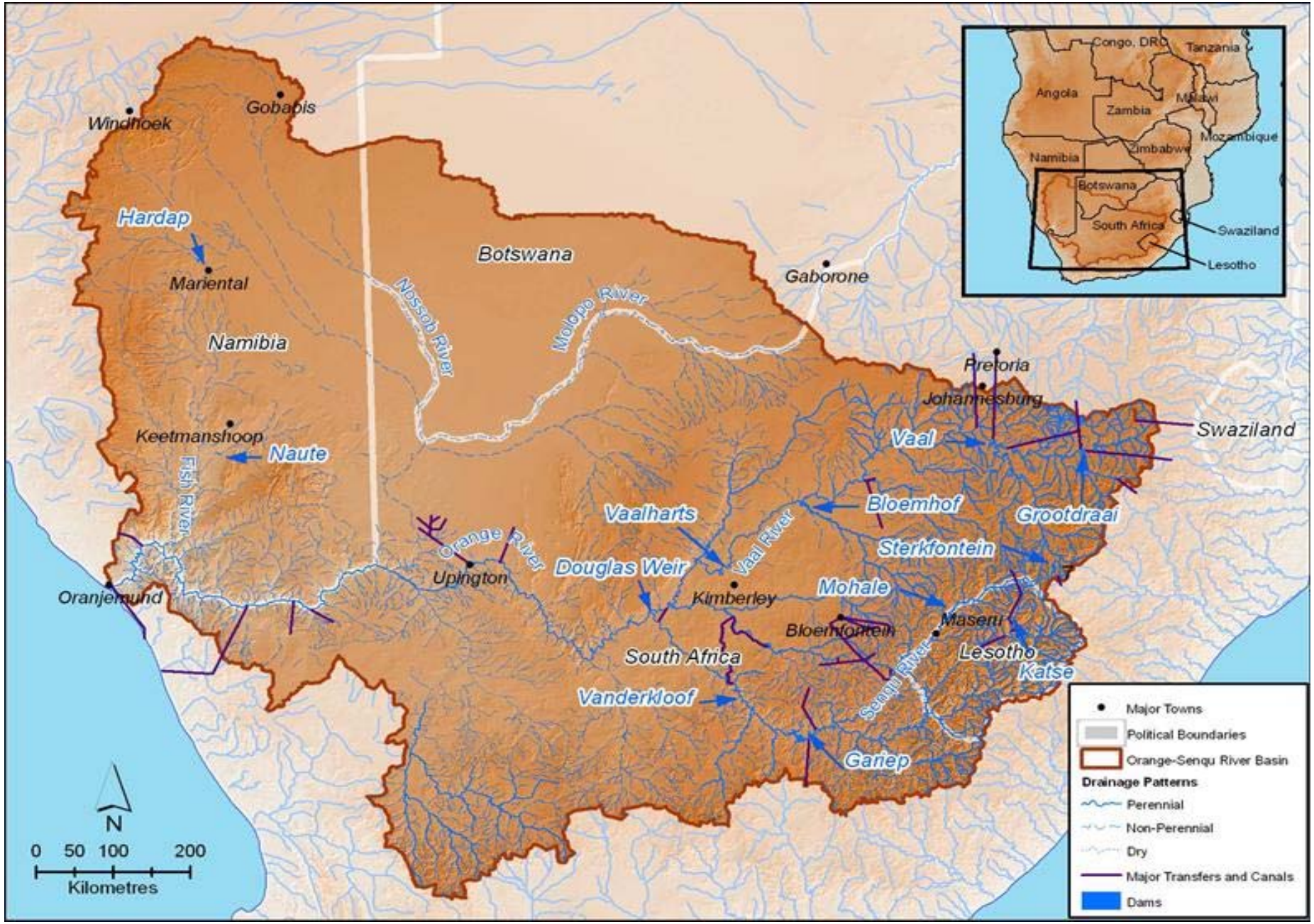
Produces >30% of SA's Petrol/Diesel from coal

Sishen Iron Ore Mine

One of the largest single open pit excavation in the World

Export grapes Aussenkehr Namibia

System of Water Transfers to address Demand



Storage capacities of major dams

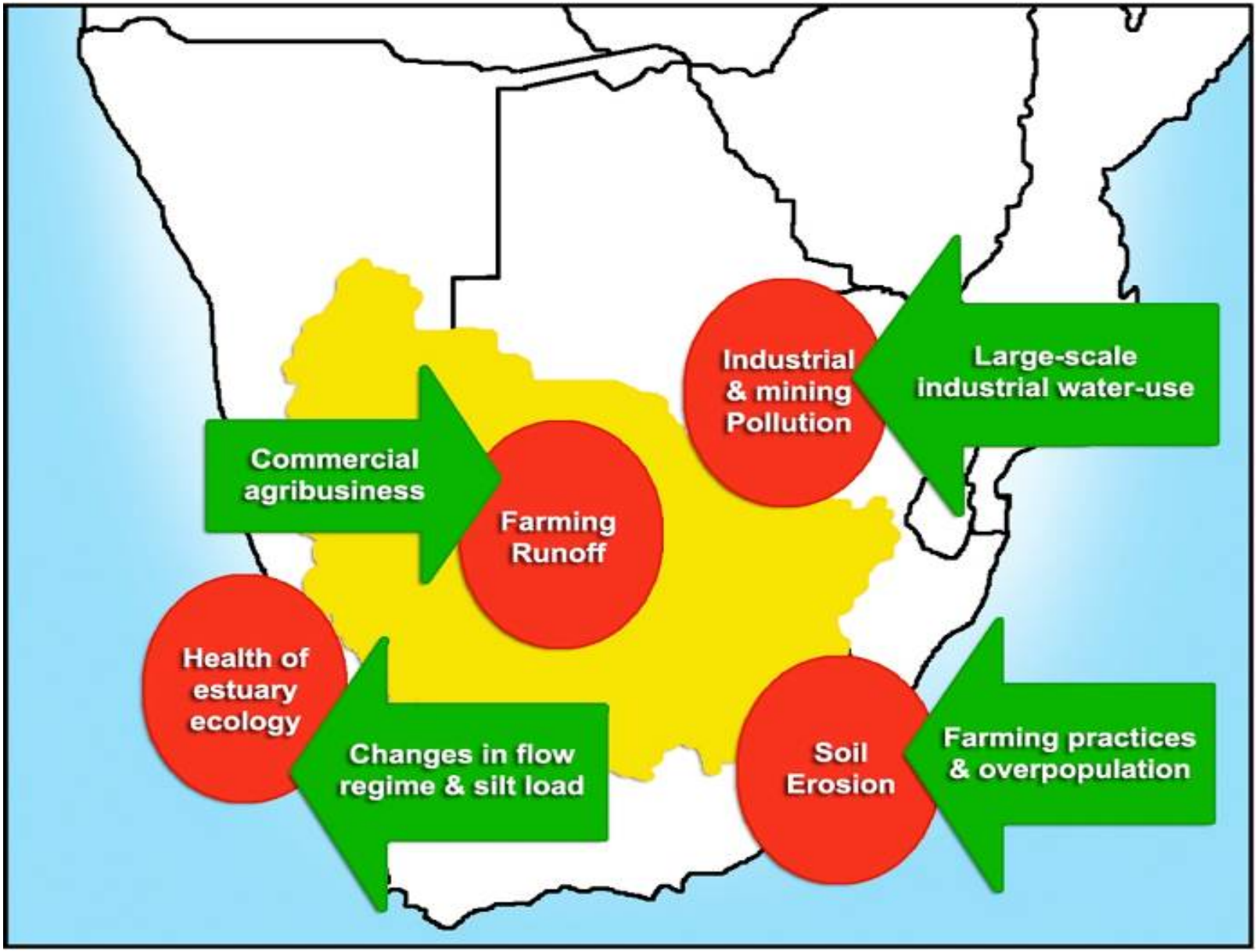
Dam Name	Water Management Area/Country	Storage (Mm^3)
Gariep	Upper Orange (South Africa)	5 500
Vanderkloof	Upper Orange (South Africa)	3 200
Combined: Vaal, Grootdraai, Sterkfontein, Saulspoort and Vaal Barrage	Upper Vaal (South Africa)	5 655
Vaal	Upper Vaal(South Africa)	2 536
Grootdraai	Upper Vaal (South Africa)	364
Bloemhof	Middle Vaal (South Africa)	1 269
Mohale	Lesotho	947
Katse	Lesotho	1 520
Naute	Namibia	84
Hardap	Namibia	294

Economic Benefits

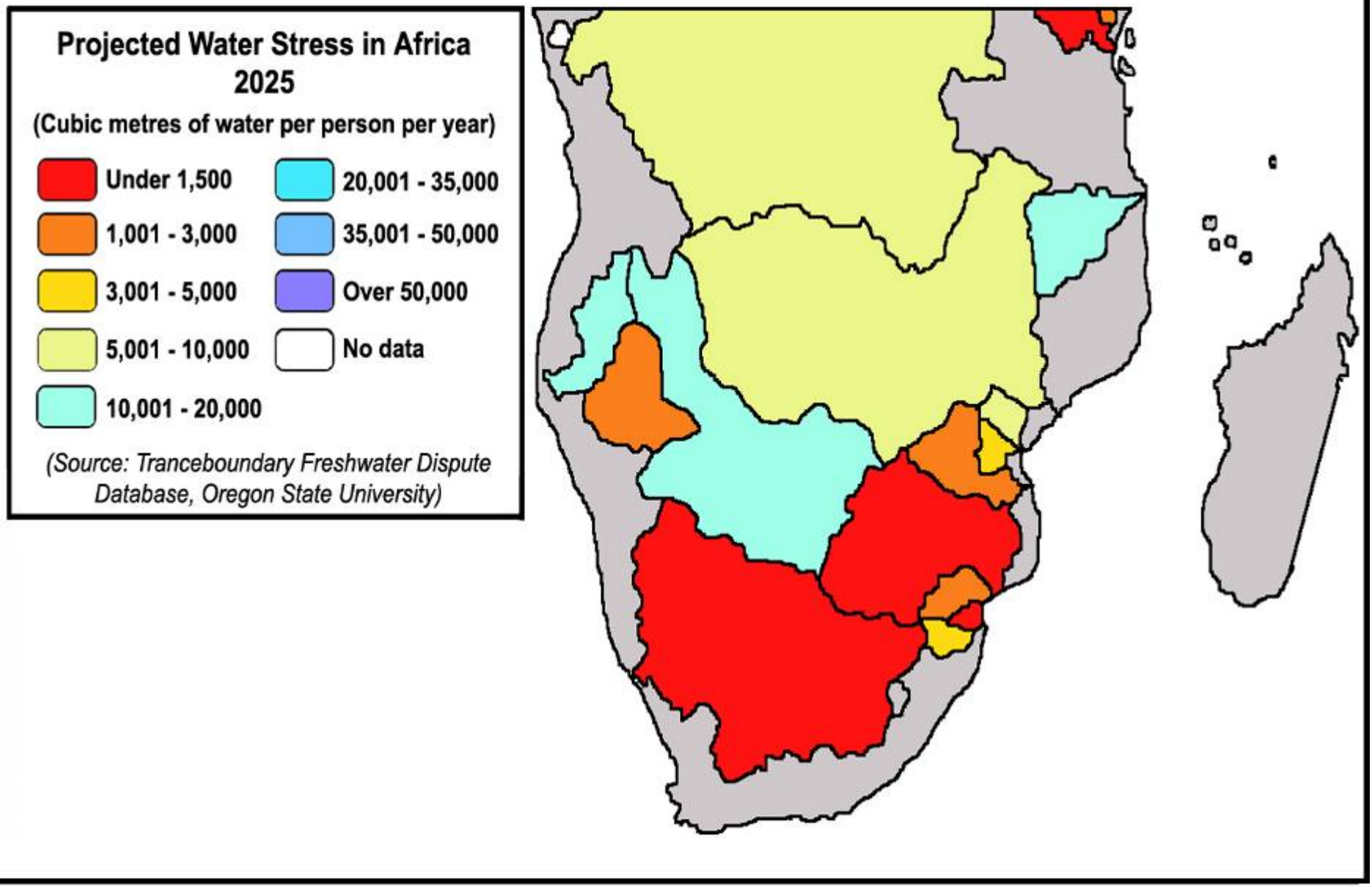
- Average Rands GDP per cubic metre used (2000)
  - Agriculture: R3.00 (irrigation only) – R17.00 (including livestock)
  - Mining: R7.00 – R160.00
  - Manufacturing and services: R210.00 – R730.00
- Lesotho
  - Royalties from LHWP phase I (A and B) average M20 million per month (currently 28.32 cubic metres per second)
  - LHWP hydropower generates 72 MW (current demand 108 MW Summer, 132 MW winter).
- RSA (Vaal River Basin)
  - Generates >50% of South African GDP.
  - And >80% of South African electricity.
- Namibia/RSA
  - Alluvial diamonds along the river and around its mouth.

(1 Euro approx equal R10.00 , 2011 exchange rate)

Basin Challenges



Basin Challenges – Water Stress

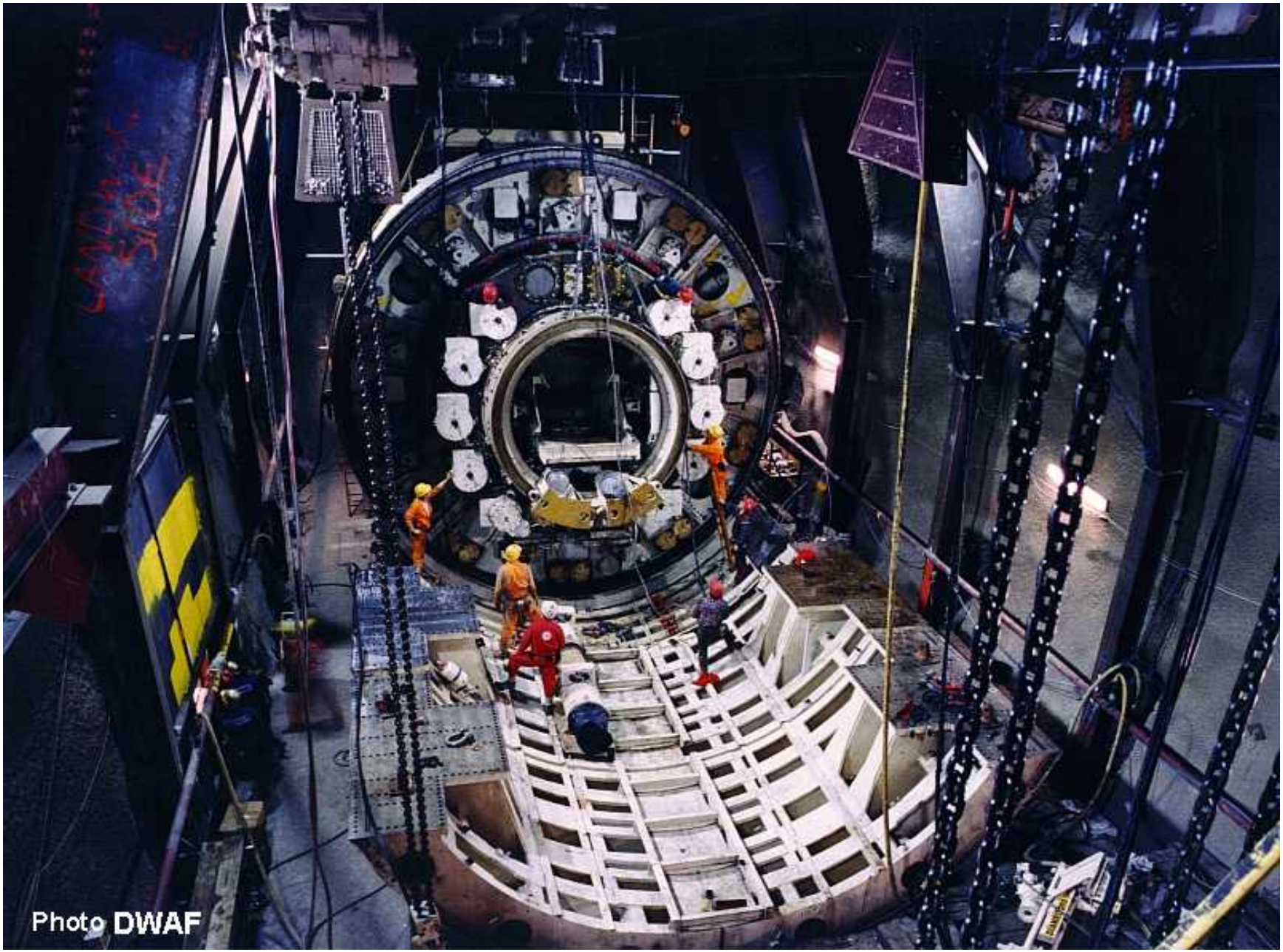


TRANSBOUNDARY COOPERATION IN THE ORANGE SENQU RIVER BASIN

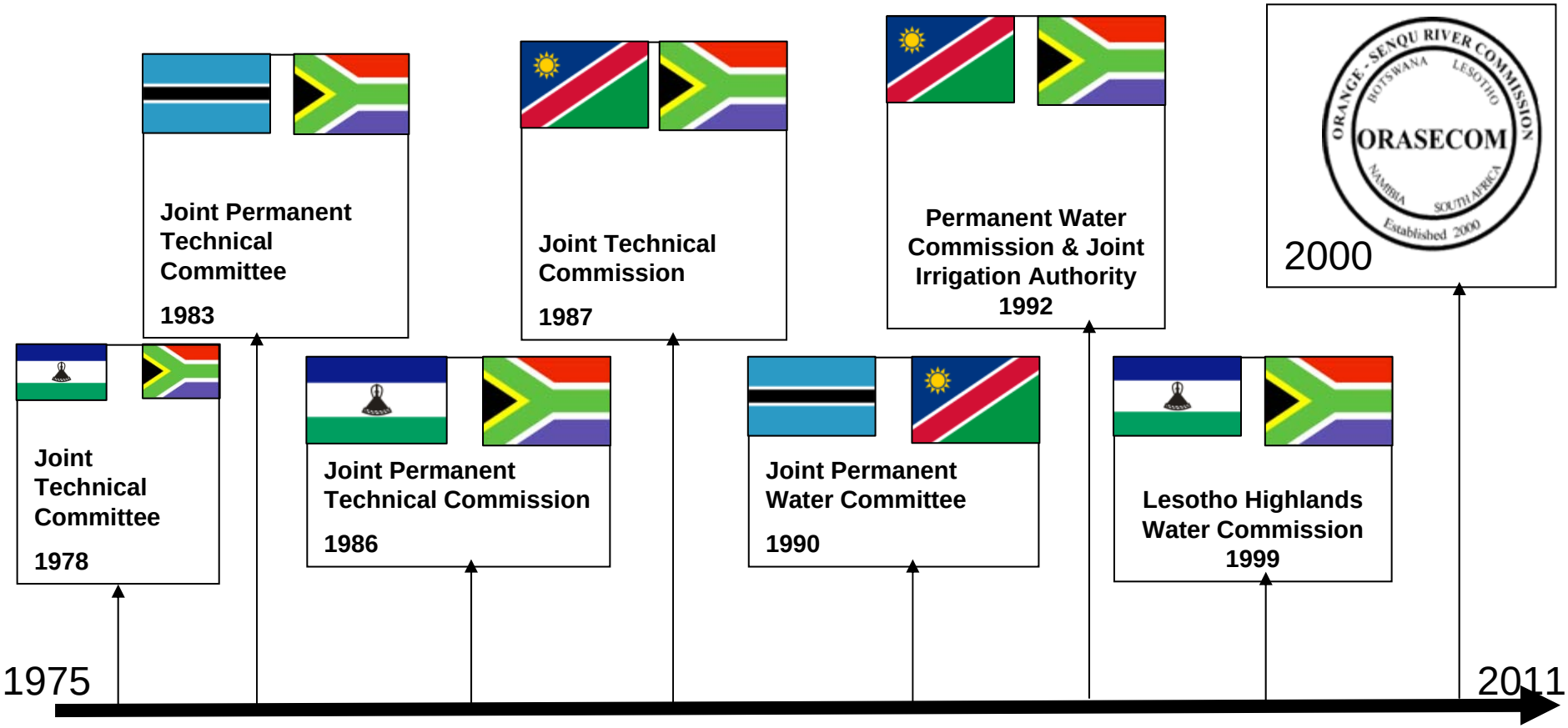

To Vaal Dam
Sterkfontein Dam
Vaal Basin
37km
4.5mØ
Fouriesburg
Woodstock Dam
Bergville
Muela
Butha Buthe
Ficksburg
Leribe
46km
4.4mØ
Tugela Basin
5.6km
3.8mØ
32km
4.4mØ
Ladybrand
Matsoku
Mokhotlong
MASERU
Katse
Mohale
N
Wepener
Lesotho
Mohale's Hoek
Quthing
Lesotho Highlands Water Project


To Vaal Dam
Sterkfontein Dam
Vaal Basin
±40m³/s max
37km
4.5mØ
40m³/s
Fouriesburg
Woodstock Dam
Bergville
Butha Buthe
Muela
Ficksburg
Leribe
46km
4.4mØ
Tugela Basin
32km
4.4mØ
33 m³/s
5.6km
3.8mØ
Ladybrand
Weir
MASERU
Mokhotlong
Polihali 164m
Katse 185m
Mohale
145m h
38km
5mØ
16 m³/s
N
Wepener
Lesotho
Mohale's Hoek
Quthing
Phase 2 (New) of the Lesotho Highlands Water Project

Katse Tunnel (85km @ 4.5m Diameter)



(Katse dam: Central collection point for transfer of water to South Africa(Gauteng).



Botswana

Lesotho

Namibia

South Africa

History of Trans-boundary Cooperation in the Orange-Senqu Basin *(… 2011: LHWP Phase II and ongoing negotiation with Botswana)*

The Orange-Senqu River Commission (Est. 2000)

Establishment and Purpose

ORASECOM agreement was signed on 3rd November 2000 by Republic of Botswana, Kingdom of Lesotho, Republic of Namibia and Republic of South Africa *(within framework of SADC Protocol on Shared Watercourse Systems which in turn is derived from principles of UN Convention on Non-Navigational Uses of Water)*

- Commission was established to advise Parties on matters related to development, utilisation and conservation of the water resources in the River system.

- Areas of Advise include:

  i. determination of yield;

  ii. equitable and reasonable utilisation of water resources;

  iii. investigations and studies on development of the river system;

  iv. stakeholder participation, harmonisation of policies and impact of water resources development on social, cultural, economic and natural environment;

  v. standardised form of collection, processing and dissemination of data and information;

Purpose (cont.)

vi. prevention of pollution and control of aquatic weeds;

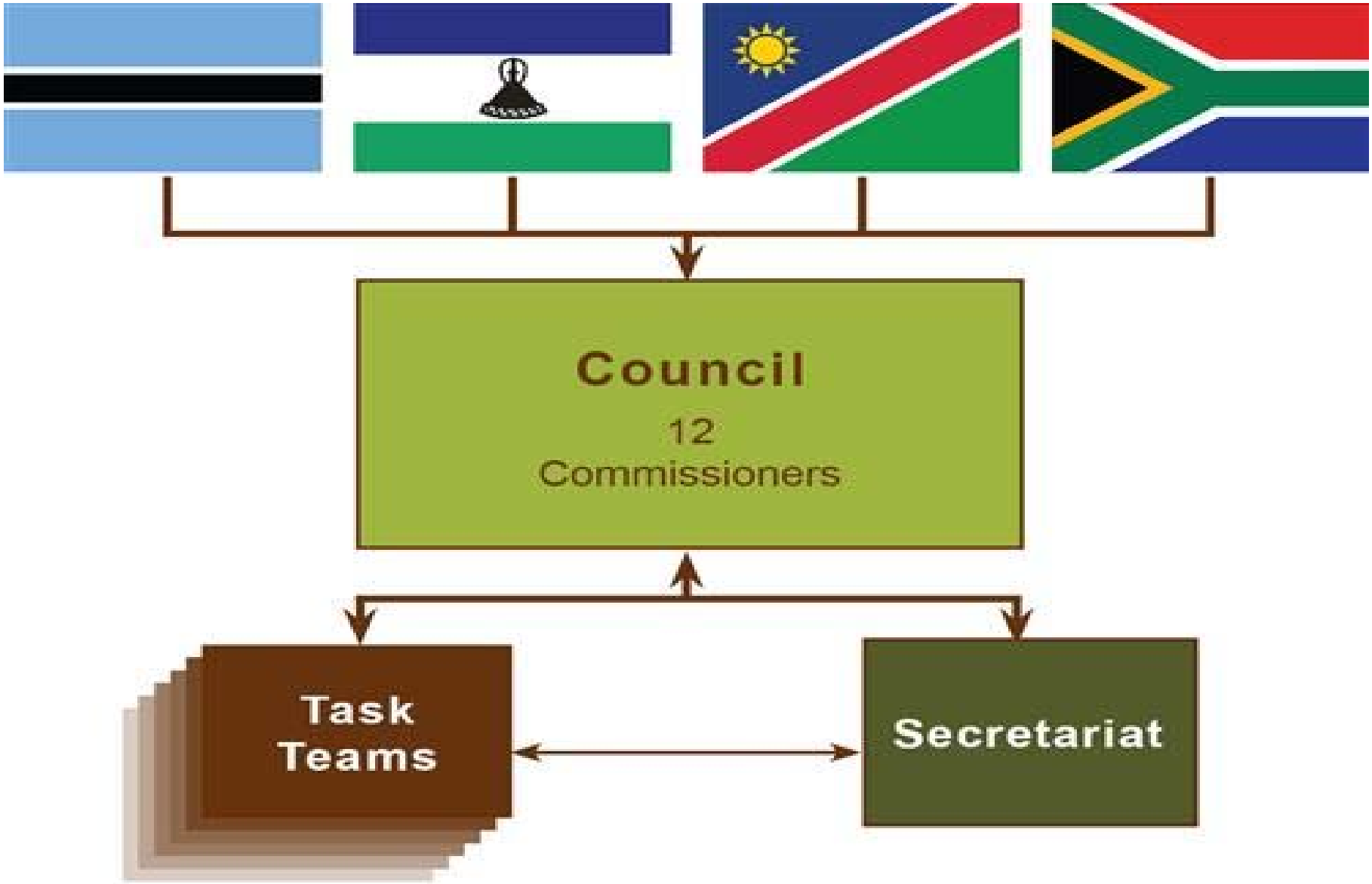
vii. contingency plans for responding to emergencies resulting from natural causes such as droughts, floods and industrial accidents;

viii. exchange of information and consultations on possible effects of planned measures.

ix. measures with a view to arriving at settlement of dispute between two or more of the Parties.

x. any other matters as may be determined by the Parties.

ORASECOM Institutional Structure



Task Teams: technical, legal, communications, finance and economic planning, environment, hydrogeology.

Institutional Operations

• Ministers meet once every 2 years to direct the Commission and review overall programme of work.

• Senior Officials meet once every year to consider Commission work programme, budget and prepare submission to Ministers.

• Council meets twice a year to review and discuss progress on programme of work and budget; discuss bilateral cooperation projects; and exchange information on national development projects of transboundary significance.

• Task Teams meet at least twice a year to discuss respective activities of the Commission and prepare technical updates for Council.

• Secretariat oversees implementation of Commission programme of work and is the corporate arm of the Commission.

• Currently Secretariat core staff (complement) comprises Executive Secretary, Water Resources Specialist, Finance and Administration, Administration Assistant.

•Projects of ORASECOM currently delivered through consultancies and medium/short term specialists at Secretariat.

Actions on Institutional Establishment 2000-2012

- Development of Rules and procedures including equal representation, equal powers and decision making by consensus (2002).

- Benchmarking and seeking international best practices.

- Establishment of Permanent Secretariat hosted by RSA; profile based on 2003 need analysis.

- Agreement on equal cash contributions towards Secretariat operations (5 core positions) and programme requirements.

- Mobilising funding partners – current profile includes GIZ (BMZ ,UKAid and Australia Aid), French GEF, EU, UNDP GEF.

- Mobilising strategic partners for delivery of components of the programme and continuous experience sharing (including ICPDR, La Plata, Sasol).

	2007/8	2009	2010	2011	2012
Theme 1. Institutional and Organisational Strengthening					
Review of Legal issues					
Review of Institutional arrangements					
Establishment and support to Secretariat and other ORASECOM Institutions					
Establish and support ORASECOM technical working groups					
Development of implementation programme					
Development of mechanism to mobilise funds for conservation of catchment					
Creation and support to sub-basin stakeholder councils /committees					
Theme 2. Specific Capacity Building on Shared Watercourses Management					
Development of national coordination framework for implementation of IWRM					
Capacity building for technical staff and water resources practitioners in IWRM					
International Congress on Basin Commissions, lessons learnt and secondments					

	2007/8	2009	2010	2011	2012
Theme 3. Development of Shared Information System					
Creation of integrated GIS database					
Review / quality assurance of existing databases for data exchange and integration					
Design of common basin observation and monitoring system					
Theme 4. Enhancing ORASECOM Communication and Awareness Building					
Awareness raising on ORASECOM					
Raising awareness among general public					
Preparation and publication of "State of the Environment report"					
TDA revised, updated and disseminated					

	2007/8	2009	2010	2011	2012
Theme 5. Specific Transboundary Projects and Studies					
Assessment of water demand and potential for savings through demand management					
Surface water yield assessment taking into account climate change					
Determination of catchment boundaries based on contribution of base flow from ground water					
Ground water review review and feasibility study of water resources of the Molopo-Nossob					
Assessment of Environmental Water Requirements in Lower Orange-senqu and other selected points and proposal of harmonised methodologies					
Assessment of development and use of marginal waters					
Assessment of water quality and catchment degradation					
Integration of invasive species eradication programmes					
Theme 6. Promotion of Conservation and Environmental Strategies and Policies					
Development of basin wide IWRM Plan					

GIZ Support

- GIZ (with BMZ, UKAid & AUSAID) is providing support to the SADC water sector.
- A key area of this support is in the form of support to ORASECOM
- GIZ supported Phase 1 of Orange Senqu River Integrated Water Resources Plan

Phase 1 of Orange River Water Resources Management Plan

- Phase 1 (completed 2007) was a preparatory study and was based on existing studies and information. It comprised 12 reports covering (amongst others):
  - Existing infrastructure
  - Surface hydrology (1) and groundwater (1)
  - Flood management
  - Water requirements
  - Water Quality (1) and environmental considerations (1)
  - Demographic and economic activity in the basin..
  - Legislation and legal isssues
  - etc….

Phase 2 of the IWRM Plan

- Phase 2, the current phase (Sep 2009-Feb 2011), has a price tag of 2.3 million euros and involves more than 70 experts.

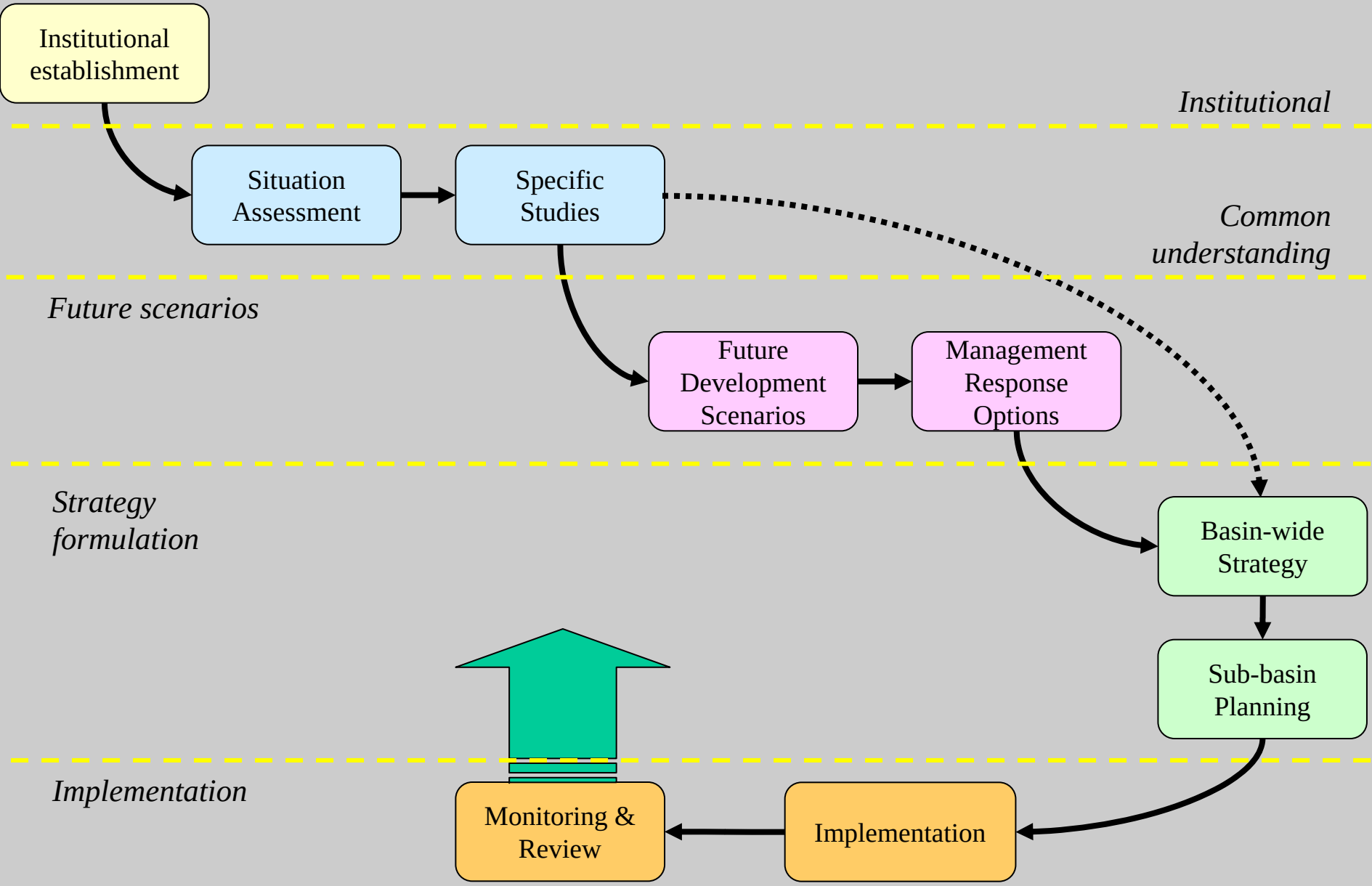
- It has the stated aim of:
  - enlarging and improving the existing models for the OrangeSenqu Basin, so that they:
    - incorporate all of the essential components in each basin state, and
    - are accepted by each basin state

ORASECOM supports use of same models in 4 basin states

It was agreed that all 4 basin states will use the same models and analyses techniques.

This will avoid disagreements in the interpretation of water allocations and yields which can be confusing if each party uses a different methodology.

2000-2012 (and beyond) Delivery Schematic



Continuing Challenges

- Water scarcity, which will be compounded by climate change.
- Defining equitable allocation and benefit sharing with limited available water resource and basin wide data.
- Effectively involving stakeholders at basin level e.g given assymetry of stakeholder groups in basin States.
- Managing Stakeholder expectations e.g on delivery of MDGs
- Determining long term ecological allocation.
- Ensuring clear long term roles and relationships with bilaterals.
- Ensuring consistency in delegations and maintaining institutional memory.

Lessons Learnt

- Shared appreciation of common issues and challenges foster cooperation;

- Ownership and commitment are essential at both political level and technical level; and financial support from own sources is key to institutional sustainability and programme development;

- Programme and partner coordination is essential to ensure focused delivery and enhance synergy among complementary initiatives;

- Institutional and programme growth should be driven by basin States within their collective capacities.


Thank you.
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