

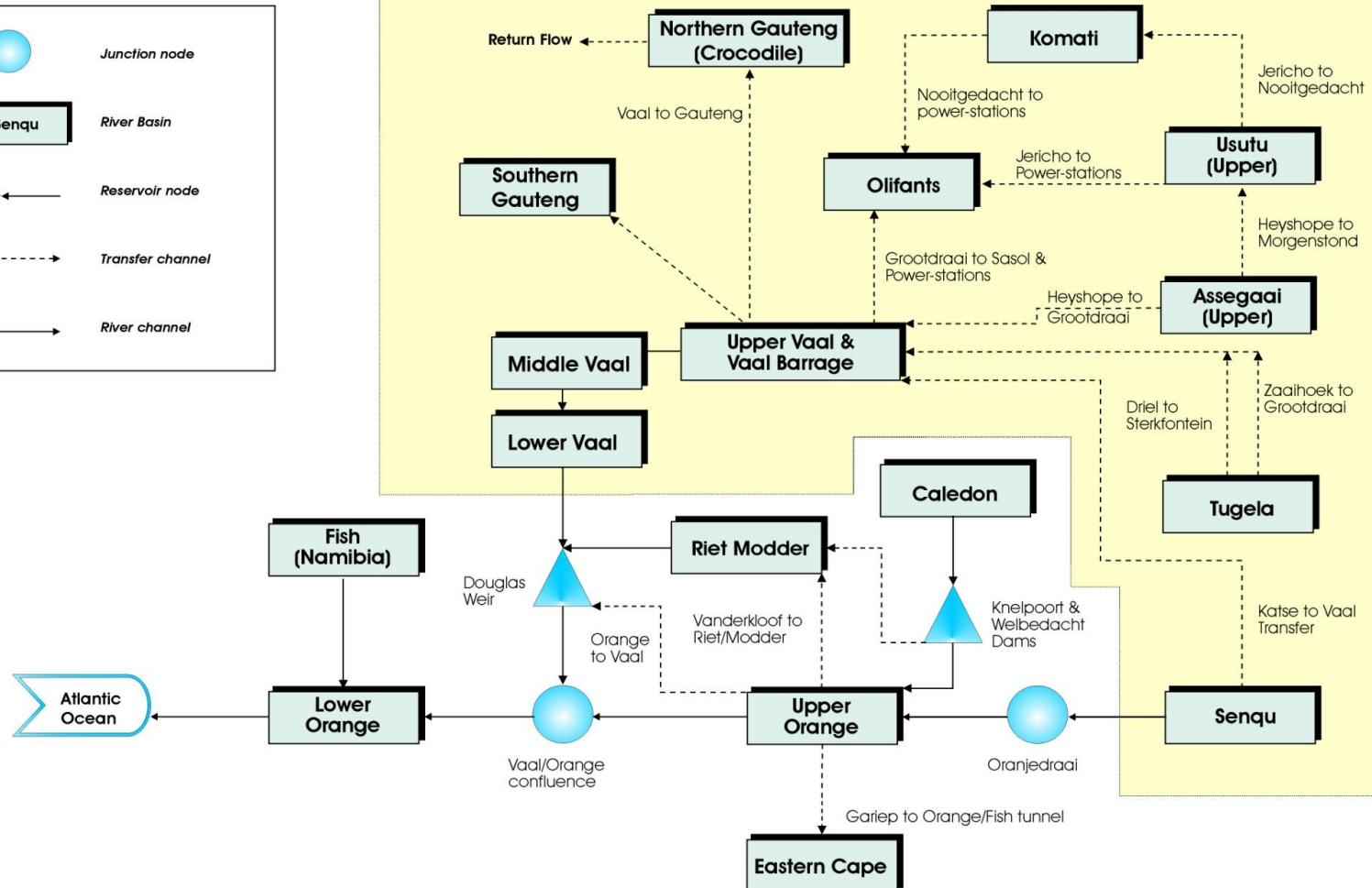
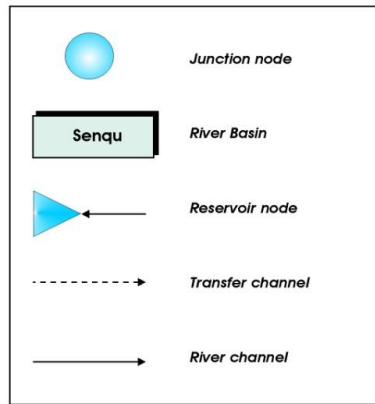
UNDP-GEF Orange-Senqu River Basin Strategic Action Programme

Achievements and challenges



IW Learn Regional Workshop, Rhodes University, 2 to 4 April 2012

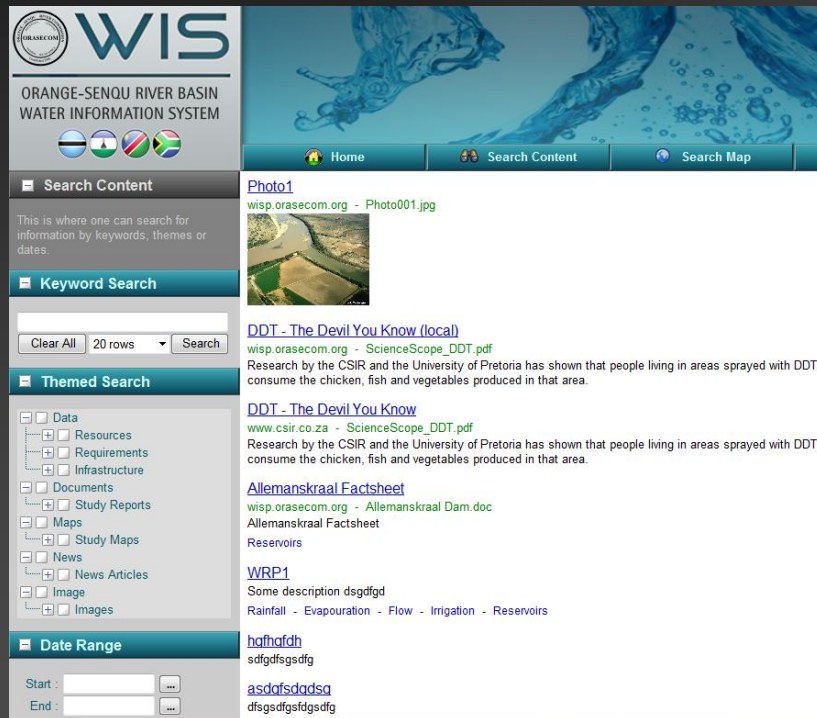
Orange-Senqu Basin



UNDP-GEF Orange-Senqu Strategic Action Programme



ORASECOM Water Information System



- Repository for quality-assured ORASECOM data, including spatial, time-series and non-spatial data
- Search dimensions: themes, time, spatial
- Profiles of relevant data custodians and their information systems to facilitate networking
- Catalogue of harvested metadata from the distributed catalogues of relevant data custodians
- Searchable library of all ORASECOM scientific/technical report
- Collection of background research docs, articles, (wiki, blogs)
- Internet based (wisp.orasecom.org) with user access rights.

Transboundary Environmental Assessment Guidelines

- Highlight the issues of concern in the Orange-Senqu Basin, especially how transboundary impacts on the river and associated habitats could foreclose future livelihood and development options.
- Provide guidance on how transboundary impacts should be assessed, using Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA) tools.
- Advise on how best to design the transboundary consultation process, in the context of notification under the ORASECOM Agreement.
- Geared towards decision makers on environmental issues, but also project developers and practitioners in SEA and EIA.
- Focus on 'water issues' and linked to institutional arrangements pertinent to ORASECOM.

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POPs and heavy metals survey



Current status

- Survey completed
- Sediment samples taken at 61 sites throughout the basin
- Fish collected and tissue samples taken at 4 locations
- Bird eggs collected at 4 locations
- POPs (21 chemicals and chemical classes) analysed
- Heavy metals (42 elements) analysed
- Polycyclic Aromatic Hydrocarbons (PAHs) analysed
- Human Health Risk Assessment conducted
- Scientific report (TR 15, 11 Nov 11) finalised.

Transboundary Diagnostic Analysis



Scientific report

- Audience – decision makers and scientific community
- Format – well structured thematic compilation of research papers, exhibits on special themes, total 150 pages.

Brochure

- Audience – generalist audience
- Format – visually well presented in thematic sections, total 50 pages.

TDA – outline of scientific report

TERRESTRIAL ENVIRONMENT

3 This section provides an overview of the Orange-Senqu River Basin, covering the geographical characteristics of the basin, its ecological status, a summary of the socio-economic situation and an introduction to the policy, legal and institutional arrangements within the basin.

3.1 PHYSICAL CHARACTERISTICS

3.1.1 Geology and soils

In the highlands of Lesotho (where the Orange-Senqu originates, the area is characterized by a series of relatively young rock types belonging to two series of the Karoo system. The upper layer consists of basalt lavas which can be up to 1,500 m thick, underlain by cave sandstone, molten beds and the upper Beaufort beds. Gradients are steep. Moving westwards, the Orange River traverses many geological units with some of the oldest known rocks exposed in the Orange River valley near the confluence with the Fish River.

Soils in Lesotho are classed as Mountain Black Clays, shallow at high altitude and easily eroded by cultivation and overgrazing. During summer, soils on the summit become water-logged and in winter they usually freeze, increasing their susceptibility to erosion. Most of the remainder of the Orange River basin is covered by sands or weakly developed soils. With the exception of mainly the Kalahari component, most of the basin is regarded as being medium to high risk in terms of soil erosion.

3.1.2 Surface and groundwater resources

The Orange-Senqu River system provides the single largest water resource south of the Zambezi in a region which is classified as semi-arid and subject to increasing water stress. The highlands of Lesotho provide the only exception where the climate is temperate and annual rainfall exceeds evaporation. Elsewhere annual evaporative losses far exceed annual rainfall and to such a degree in the lower Orange that the climate is classified as arid to hyper-arid. Certain areas of the Basin are already densely populated, economic development is significant, and socio-economic expectations are high. This causes an inevitable high degree of competition for the finite water resources that are available. Add to this the fact that the urban and industrial demands are geographically concentrated in the upper parts of the Basin and these demands support activities that make a major contribution to the GDP of South Africa (the largest Basin state) creates a significant geographical imbalance in the utilization of available water resources.

Foreword and introduction

Water governance (social geography section)

- Country profiles
- Governance overview from basin perspective.

Thematic analysis (physical geography section)

- Surface and groundwater resources
- Terrestrial environment
- Aquatic environment.

Abbreviations and glossary,
acknowledgements, bibliography,
fold-out map in back cover

Infrastructure catalogue

THUKELA-VAAL TRANSFER

LOCATION

There are two schemes which transfer water from the Thukela Basin to the Vaal River currently in operation, namely the Thukela-Vaal Transfer Scheme, also sometimes called the Drakensberg pumped storage hydro-electric scheme and the Zaaihoek transfer scheme. The larger of the two is the Thukela-Vaal transfer scheme and involves Woodstock Dam, Driel Barrage, Kilburn Dam, Driekloof Dam and a number of pump stations, pipelines, canals and tunnels and is shown schematically in the Introduction. The Zaaihoek transfer scheme will be dealt with separately.

DESCRIPTION

Run of river flows in the upper Thukela tributaries are conveyed by gravity, at a peak rate of 4 m³/s to the Jagersrust pumping station. Water is also pumped from the Driel Barrage at a peak rate of 19 m³/s to Jagersrust. Jagersrust then pumps at a peak rate of about 20 m³/s to Kilburn Dam. From Kilburn it is pumped by Eskom to Driekloof Dam in the Upper Vaal VMA from where it flows directly into Sterkfontein Dam. Woodstock Dam, upstream of the Driel Barrage provides the storage to regulate the flow into Driel. Figure 1 shows the general layout, Figure 2 the elevation perspective



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- Fact sheets and lists for hydrometric stations, dams, transfer schemes, water supply schemes, waste water treatment plants
- Some 500 structures included
- Background documentation (i.e. 'as built' brochures) scanned and linked
- Searchable database, accessible through WIS
- Printed hardcopy version.

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The ORASECOM IWRM-Plan and contributions through the GEF TDA, NAPs-SAP process

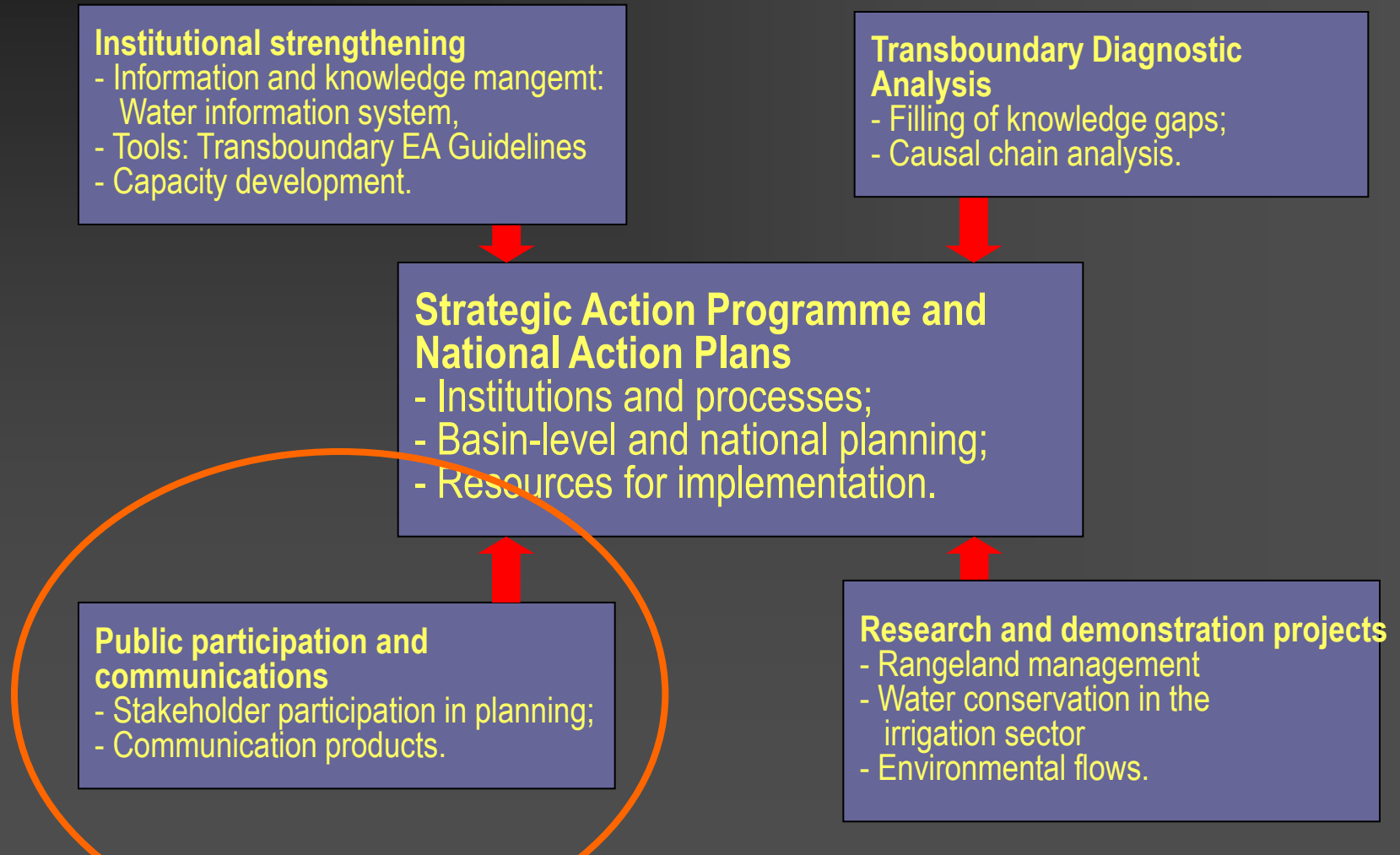
ORASECOM IWRM-Plan
scenario and strategy based
equitable resource allocation
sustainable development, MDGs
benefit sharing
within limits of political realities.

TDA
environmental state of
basin
trans-boundary and
national concerns
causes, priorities.

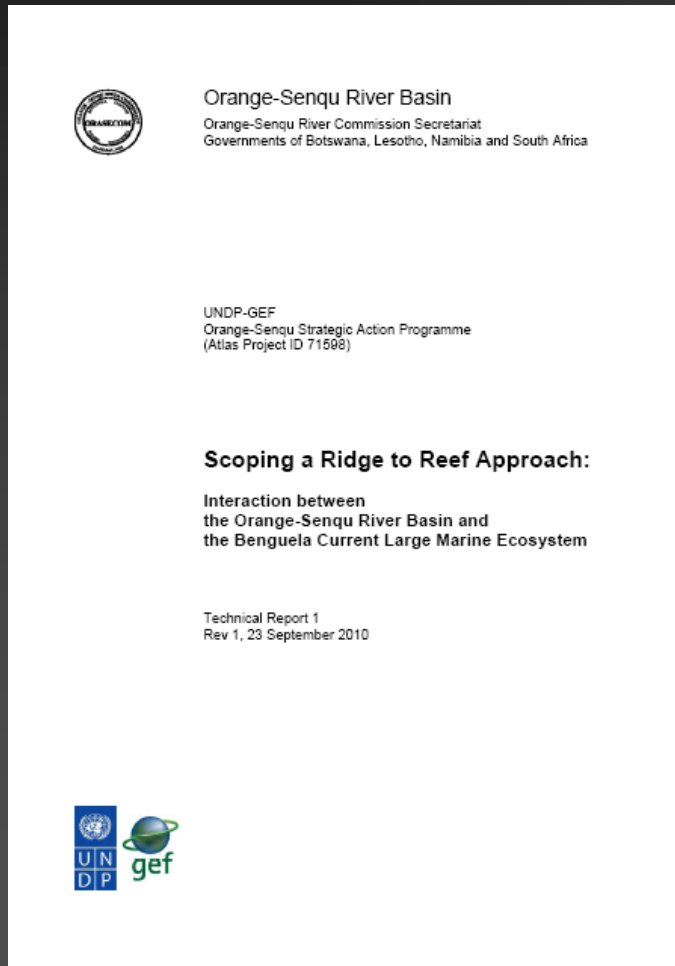
NAPs
issue based
trans-boundary concerns and
national priorities / plans
operational plan of discrete
action
adaptive management.

SAP
issue and strategy based
trans-boundary concerns
investment programme:
thematic coherent project
pipeline.

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‘Ridge to Reef’ Brochure



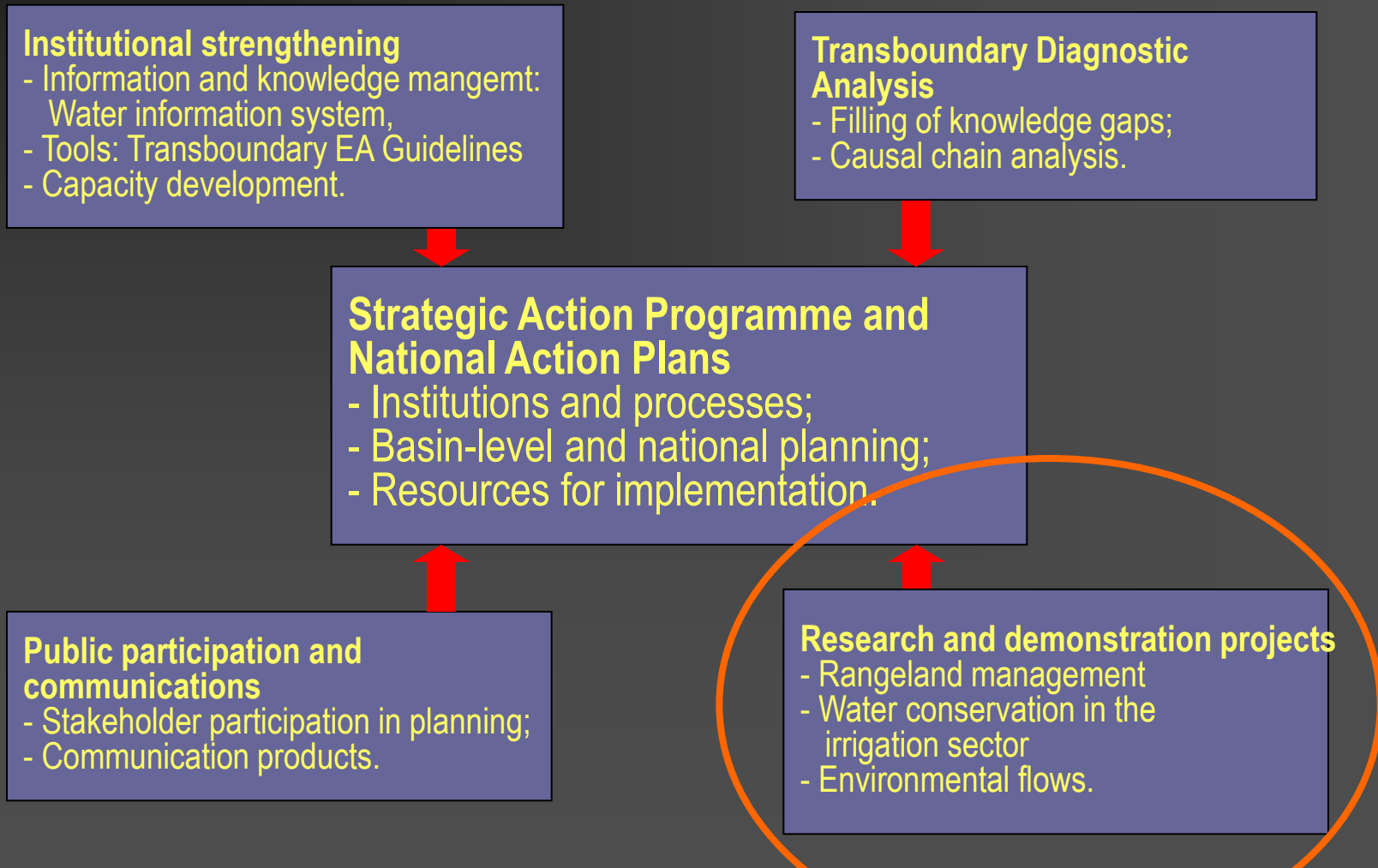
Audience

- Decision makers, scientific community and interested public.

Media

- Visually well presented, similar layout as TDA report, including maps, images and infographics
- Hardcopy document (brochure, some 30 pages)
- Electronic (and on-line) version, with hyperlinks to resource documents.

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Rangeland Demo Project in Botswana



- Communities in Khawa and Zutshwa selected as project sites
- Participatory rural appraisal (PRA) conducted at both sites
- Collaboration with District Technical Advisory Committees (TAC) in Tsabong and Hukuntsi
- Collaboration with UNEP-GEF funded Kalahari-Namib Project and EC funded Restoring Lands for Improved Livelihoods Project, implemented by IUCN.

Rangeland Demo Project in Lesotho



- Project site at Mount Moorosi
- Implementation through Serumula Development Association
- Rehab works including up-rooting of invasive shrubs, re-seeding of palatable grass, construction of silt traps and stone lines on degraded slopes started in October 2011.

Demo Project on Water Conservation in the Irrigation Sector



- **Geographic focus**
Noordoewer/Vioolsdrift irrigation perimeter
Namibia, South Africa
- **Entry points and issues**
Farm level:
 - Scheduling, irrigation efficiency
 - Return flows, pollution control
 - Benchmarking.Joint Irrigation Authority, JIA:
 - Metering, telemetry
 - GIS database irrigation lands, crops grown, irrigation requirements
 - Consumption based tariffs, water market
 - Benchmarking, water management plan.
- **Implementation**
 - MBB Consulting Services, Agrico.

Research Project on Environmental Flows



- **Focus**
Setting Environmental Flow Requirements.
- **Study area**
Fish River focusing on the river downstream from Hardap Dam. Orange River from the Fish River confluence to the mouth and including the near shore marine environment.
- **Implementation**
Rivers for Africa with universities, research organisations and single consultants.



Many thanks.
christophmo@unops.org