

4th SADC GROUNDWATER CONFERENCE

10th -12th of November 2021
VIRTUAL CONFERENCE



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Defining SADC capacity and research interventions

Kevin Pietersen, Brighton Munyai and Thokozani Kanyerere



International Association
of Hydrogeologists
the World-wide Groundwater Organisation



GRIPP
GROUNDWATER SOLUTIONS
INITIATIVE FOR
POLICY AND PRACTICE



British
Geological
Survey



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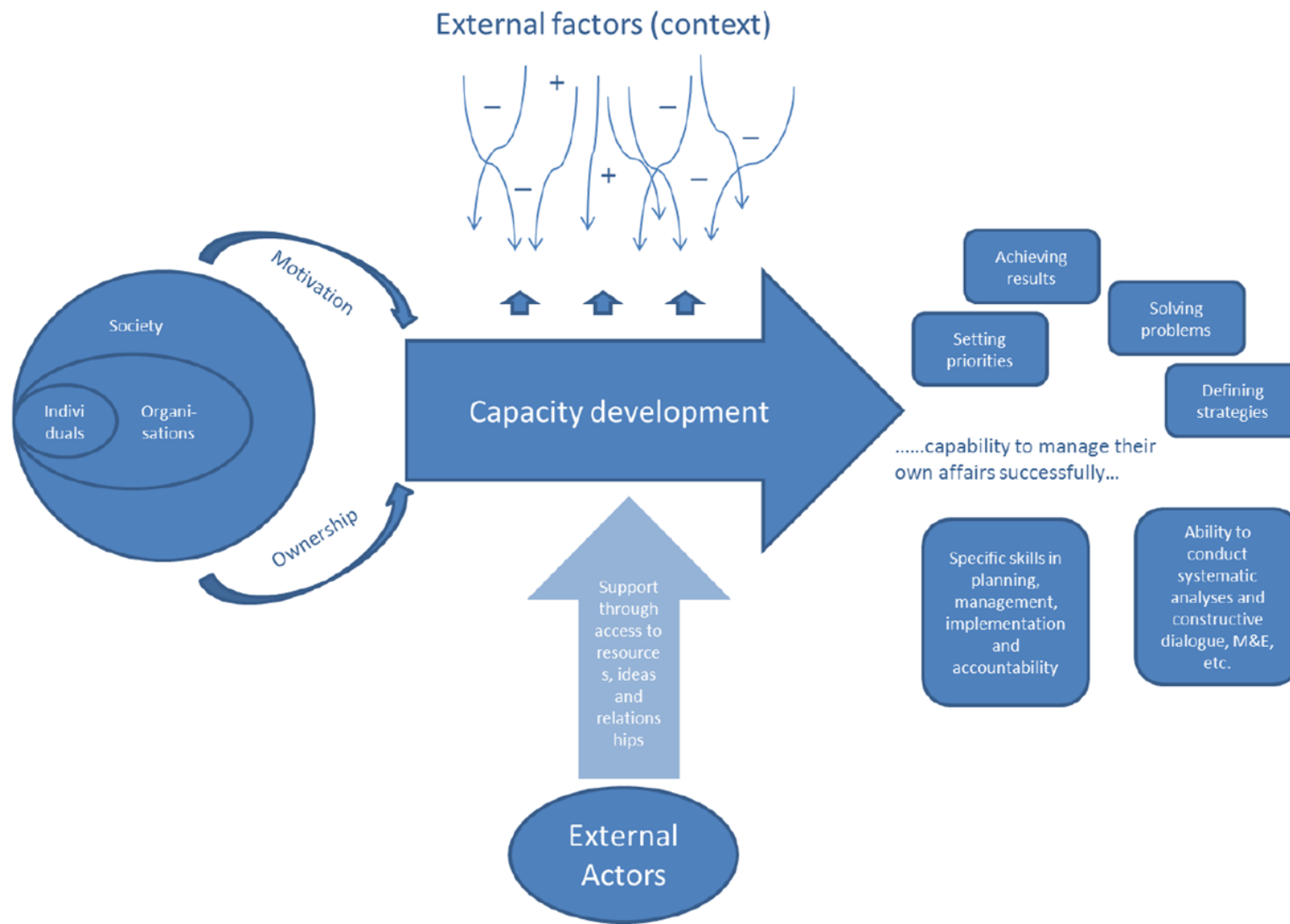


Capacity development

- Technical knowledge and know-how transfer
- Simple propagation of models and systems
- Limited attention to structural challenges
 - social, political and institutional environment
- Limited success
- Knowledge displacement rather than transformation

ADA (2011) Manual Capacity Development. Austrian Development Agency

UNDP (2009) Capacity Development: A UNDP Primer. United Nations Development Programme



Needs assessment consultancy

- Document review
- Liaison with key organisations and individuals
 - Semi-structured interviews
 - Questionnaire
 - Workshops
- Analysis and reporting



Visit to the University of Kinshasa, DRC (Eng. Cyrille Masamba; Prof Celine Sikulisimwa, Dr Kevin Pietersen and Prof Raphael Tshimanga).



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Contact	Organisation (s)
Angola	Agostinho Neto University
	National Institute of Water Resources
	Cunene, Cubango and Cuvelai River Basin Authority
	José Eduardo Dos Santos University
Botswana	Ministry of Minerals, Energy and Water Resources: Department of Water Affairs
	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
	Wellfield Consultants
	University of Botswana
DRC	International Commission for the Congo-Oubangui-Sangha Basin
	University of Kinshasa
	Geological Survey
	Ministry of Rural Development
	Ministry of Energy and Hydraulic Resources
Lesotho	Ministry of Water Affairs
Malawi	Ministry of Water
Mozambique	National Directorate of Water Management
	WaterAid
	FIPAG (Public water asset operator)
	ARA-Sul (Mozambique's Southern Regional Water Board)
	University of Eduardo Mondlane
	Consultant and academic
South Africa	International Water Management Institute
	Department of Water and Sanitation
International Organisations	World Bank
	British Geological Survey
	Office of Geological and Mining Research in France
	German Federal Institute for Geosciences and Natural Resources

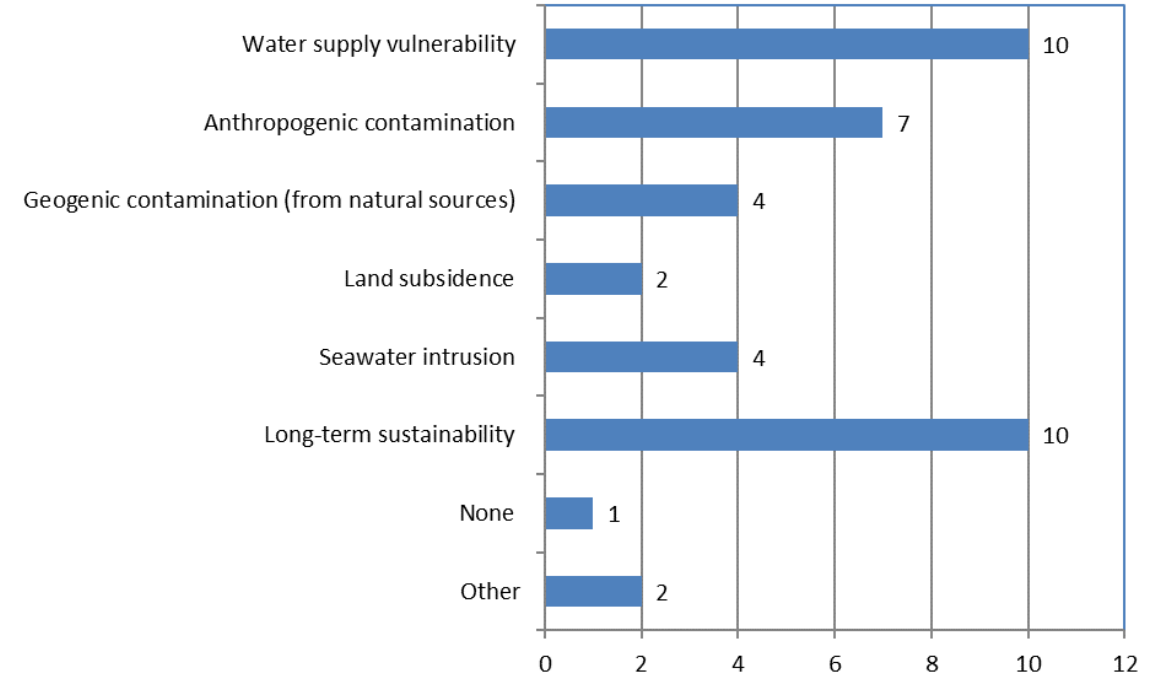
Planned country visits

Angola, Botswana, DRC, Madagascar, Mozambique, South Africa, Zimbabwe and Malawi



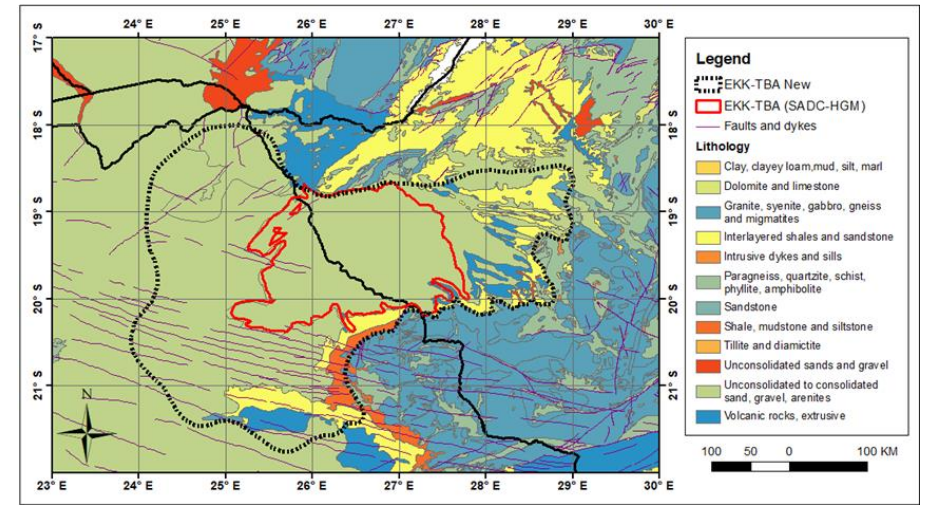
Groundwater challenges

- Water supply vulnerability
 - Theft and vandalism
 - Drought
- Long term sustainability
 - Poor operation and maintenance
 - Local over-abstraction
- Anthropogenic contamination
- Geogenic contamination



Transboundary groundwater issues

- Weak institutional frameworks
- Weak functioning of RBOs
- No scientific data sharing
- Pollution and over-exploitation are not seen as major issue
- Most RBOs have incipient groundwater programmes and groundwater research and consultancies are almost non-existent
- The Orange-Senqu River Commission (ORASECOM) structure makes a provision for Technical Task Teams which includes a hydrogeology committee
- This structure (at that time) was not replicated amongst other basins



Scale of the issues

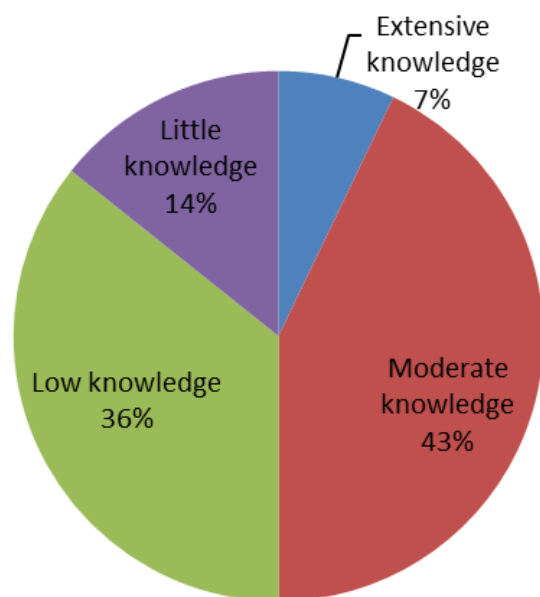
- Most of the Member States struggle to fulfil their mandate related to groundwater management
- Public sector capacity is unevenly distributed across the region and weak in some countries
- Public sector capacity has multiple facets
 - staff numbers
 - aggregate staff skills and qualifications
 - availability of equipment and budgets
 - institutional systems and working practices (including support staff and equipment)
 - appropriate national and regional policy and legislation

Scale of the issues (cont....)

- There have been some notable advances in public sector hydrogeology in SADC
 - Hydrogeological mapping of DRC , Madagascar and Namibia
 - Groundwater assessment of Malawi
 - Groundwater databases of Namibia and South Africa are available on-line
- Public sector staff faces several challenges
 - salaries
 - staff mobility and retention
 - working conditions
- Public sector data collection remains patchy
- Regulation of the private sector requires strengthening

Availability and access to information and science

- There is low to moderate knowledge about the natural state of groundwater resources in the respective member States
- Most countries have national groundwater monitoring networks in place



- The availability and disparate state of data was also identified as a constraint to better understanding the region's groundwater resources

Intervention measures

- Capacity, especially in most of the Sub Saharan African countries, remains a missing / neglected element in the process of development
- Strategies
 - advocacy and awareness creation
 - training and professional development
 - facilitation and mentoring
 - networking
 - collaborative research programmes
 - feedback, to promote learning from experience

Training, education and professional development

- Practical training of hydrogeologists
 - training programmes must focus on the day-to-day functions of hydrogeologists in Line Ministries – learning by doing
 - training programmes must be fully accredited, conform to quality standards and not be ad-hoc in nature
 - training in the past has been frequently used as a quick fix solution to complex problems and lacked clear understanding of impact and follow-up actions are required
 - the needs of the individual Member States may be different and require different approaches and require delivery in not only English but also in French and Portuguese

Facilitation and mentoring



- The interviews supported the idea that it is crucial to prioritize the building of capacity of the weaker states with respect to groundwater practical skills, in order to promote equal and competent participation in decision-making
 - develop learning by doing tasks
 - develop mentoring programme road map, which link educational and government institutions across the region
 - supporting early-career hydrogeologists with mentors
 - deliver a women's fellowship and leadership program

Networking

- Use existing capacity development organizations and programmes in Africa to strengthen the capacity among the TBOs
- The SADC-GMI needs to build a coherent knowledge infrastructure that includes the involvement of National Governments, Universities and the Private sector
- Networks have proven to be effective at promoting the understanding of integrated water resources management and play a key role in supporting the development of
- Use, replicate, and expand existing frameworks for enhancing public participation and awareness raising to address groundwater issues in the basins
 - link to existing networks through event funding

Collaborative research programmes

- Joint programmes between government departments and the industrial sector including academic institutions that train hydrogeologists
- Joint collaborations tend to be donor funded project based which lack sustainability once the projects end
- SADC GMI to reflect in terms of means to promote and sustain such collaborations in the member states
- The involvement of academics in international research programmes must form part of project requirements

Support to RBOs

- Mainstreaming groundwater matters in the RBOs is imminent on the SADC agenda through GMI and therefore weak and strong RBOs need to be mapped and assess ways of mainstreaming groundwater issues in the working RBOs as a starting point and roll out with time to all RBOs
- There is a clear need to support RBOs with hydrogeological capacity



The road map

- The roadmap focuses on groundwater monitoring which was identified as the common area of interest among most Member States
- Lack or inadequate data will weaken efforts for effective groundwater management and should become a focal point for implementation and capacity development for national and transboundary groundwater management

Implementing the road map



- Four (4) pilot projects for groundwater monitoring -Eswatini, Lesotho, Tanzania, Zimbabwe
- TBA projects in SADC producing data from TDAs & JSAPs
 - Ramotswa, Stampriet, Shire, Tuli-Karoo, Eastern Kalahari-Karoo, Khakea/Bray
- Training interventions on data collection & management
 - 65 Internships from Young Professionals from SADC Member States including on QGIS, Data Collection, etc
 - Private Sector skills development through Regional Drillers' Directory, Training on Professional Borehole Drilling Supervision and Sustainable Borehole Yield Testing

Implementing the road map (cont.....)

- SADC Groundwater Information Portal (SADC-GIP) - up to 30 links and map layers <https://sadc-gip.org/>
 - National groundwater databases
 - RBO databases
 - TBA databases
 - Improved data sharing capabilities on the GEONODE platform.
- SADC Grey Literature Database (<http://sadc-gla.org/SADC/>) up to 600 records

Thank you

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