

4th SADC GROUNDWATER CONFERENCE

10th -12th of November 2021
VIRTUAL CONFERENCE



Overview of the 4th SADC-GMI Conference

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International Association
of Hydrogeologists
the World-wide Groundwater Organisation



GRIPP
GROUNDWATER SOLUTIONS
INITIATIVE FOR
POLICY AND PRACTICE



British
Geological
Survey



UNIVERSITY
BOTSWANA





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Overview of the sessions

- Theme of the conference: Towards a Water Resilient SADC-Groundwater Systems Thinking
- Opening session
- Sub-theme 1: Groundwater an Integral part of the hydrological system
 - 24 presentations
- Sub-theme 2: Communities, Institutions, Capacity, and Local-level Governance
 - 4 presentations
- Sub-theme 3: Deriving benefits from the groundwater system: Innovative groundwater infrastructure interventions
 - 10 presentations
- Special sessions
 - Project Preparation and Funding Landscape for Groundwater
 - International Union for Conservation of Nature (IUCN) – BRIDGE Promoting the participation in water governance and research
 - Reflecting on Capacity Building and Research for Groundwater in SADC
 - AMCOW-Groundwater Programme: Maximizing Groundwater Potential for Development and Livelihoods
- Closing session

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- 22 countries
- 100 – 150 participants

South Africa
Namibia
Malawi
Eswatini
Zimbabwe
India
Hungary
United States of America
Sweden
Botswana
Lesotho
Madagascar
United Kingdom
Netherlands
Zambia
Nigeria
Mauritius
Tanzania
Germany
Mozambique
Indonesia
Belgium



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Key-messages Opening Session

- Making the invisible visible – Theme for World Water Day 2022
- Groundwater in Southern Africa is being under-utilized – the discourse of groundwater depletion does not apply to sub-Saharan Africa
- Translation of knowledge generated into practical implementation
- Challenges: fragmentation, local-level governance, climate change, human capital development
- SADC-GMI the anchor for groundwater management in the region

- Data and information
- Data and information
- Data and information

Groundwater promise unfulfilled



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Sub-theme 1: Groundwater an Integral part of the hydrological system

- This conference focused on groundwater characterization, groundwater contamination and quality, as well as groundwater dependent ecosystems (GDEs)
- Demonstrated the use of digital tools to assist in groundwater resource characterization
 - GRACE
- Presented techniques and tools to investigate GDEs
 - Remote sensing and geospatial analysis
 - Integrated hydrological models
 - Geophysical models
- Showed that the estimation of borehole yield is important in order to maintain aquifer productivity e.g., use of flow characteristic (FC) method and derivative analysis
- Emphasized that it will be impossible to achieve SDGs without sharing research outputs with communities and groundwater users in general
 - Sharing of information and awareness is important for groundwater quality management.



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Sub-theme 2: Communities, Institutions, Capacity, and Local-Level Governance

- Introduced BRIDGE IUCN - Building River Dialogue and Governance
 - This project aims to build water governance capacities through learning, demonstration, leadership, and consensus-building
 - Consider model application to TBAs
- Explored the role of informal institutions such as religious organisations in groundwater management
- Embracing theology in the scientific management of groundwater management, will enable the Southern African Communities to persuade, convince, negotiate and engage in groundwater management dialogues
- Demonstrated empirical evidence in favour of certain determinants of households' choice of water type.
 - These have been used to explain the high groundwater usage
- Lack of coordinated approaches by the different stakeholders can result in unsustainable groundwaters there is therefore a need for a coordinated approach if groundwater use is to be sustainable
- Both formal and informal institutions participate in the management of natural resources, with the later overseeing access where formal institutions have limited access



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Sub-theme 2: Deriving benefits from the groundwater system: Innovative groundwater infrastructure interventions

- Highlighted the importance of groundwater and groundwater infrastructure sustainability
- Emphasized the need for responsiveness and building resilient plans
- Stressed the need for groundwater monitoring network and infrastructure
- An optimum monitoring network requires a collaborative effort between, National Government which is the custodian of the resource, Member States, Water Resource Agencies, abstractors, polluters, researchers and drilling companies
- Implementation of recommendations made are critical
- Demonstrated use of innovative techniques
- Infrastructure limiting factor in implementing MAR
- Demonstrated linkage to MAR and demand centres
- Shown the value of systems thinking for MAR implementation in Botswana



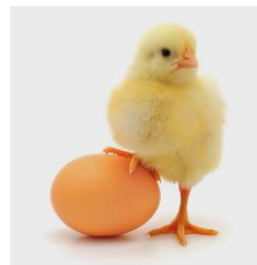
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Key messages Project Preparation and Funding Landscape for Groundwater

- Not surprising access to funding is a long standing and ongoing challenge for groundwater infrastructure projects / Funding Gap for water infrastructure in general runs into USD billions
- Reasons for the lack of funding include:
 - Lack of enabling institutional framework
 - Understanding funders requirements
 - Lack of capacity to develop proposals
 - Misalignment between applicants and ICPs
 - Budgetary and regulatory, constraints
 - Poor data and limited translation of science into practical implementation
 - Political constrains (prioritization)
 - Failure to meet investment criteria
 - Low, levels of stakeholder ownership
 - Inadequate mainstreaming Environmental and Social, Gender and M&E



Key messages Project Preparation and Funding Landscape for Groundwater

- Attracting investing
 - Promote Innovative use of groundwater
 - Pay attention to opportunities for conjunctive use and management and water resources at both national and regional level
 - The basics of attracting investments are i) is there a demand ii) chance for cost recovery iii) what are the alternatives
 - Settlements patterns that do not encourage investments (need for sustainable demand centres)
 - Need to invest in water for production and addressing scale issues
 - Need for the transition from Science to Engineering
 - Need to move from the perception of groundwater for basic needs to groundwater for significant economic development (paradigm shift)



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Key messages Project Preparation and Funding Landscape for Groundwater

- Its not automatic for groundwater to qualify for climate funding, interventions should demonstrate how they are responding to climate change impacts
- What are the success factors;
 - Need to quantify the problem within a climate change context
 - Treat proposals as business cases
 - Strong sense of country ownership
 - Sustainability of the project



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Key messages Project Reflecting on Capacity Building and Research for Groundwater in SADC

- Fortunate to have structures such as WaterNet / NEPAD SANWATCHE / SADC-GMI / UNESCO-IHP / ROSA and network of Universities / Research Institutions
- Strengthen existing institutions / Learn from other institutions / Level the playing field
- Link to implementation / capacity building for industry requirements
- Online platforms has extended our reach but face-face to better
- Modular courses for practical implementation
- Research interventions
 - TBA management
 - Investing technologies and monitoring
 - Conjunctive use
 - Systems approach – groundwater fit into broader aspects
 - Resilience
 - From Resource to Tap – different scales
- Mentoring schemes
- M&E of capacity implementation
- Capacity building require a cultural change



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Key messages Project AMCOW-Groundwater Programme: Maximizing Groundwater Potential for Development and Livelihoods

- Introduced the APaGRoP programme
- Highlighted the groundwater impacts across sectors
- Water resource management gap
- Adoption of Action Plan
- Develop country support tools, providing context for further intervention
- Infrastructure plan
- Use existing institutions and capacity



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Closing remarks

- Beneficial use of groundwater for society, environment and economy
- Require significant investments
- Networking opportunity
- Regional diversity
 - Small Island States
 - Rest of SADC
- Language diversity – French, Portuguese
- Gender diversity
- 4IR tools great – but require field measurements for validation and downscaling techniques
- Institutions matter – also informal institutions
- Groundwater governance a political process
- Groundwater infrastructure – operation and maintenance
- Need to seek innovative implementation modalities

Thank you

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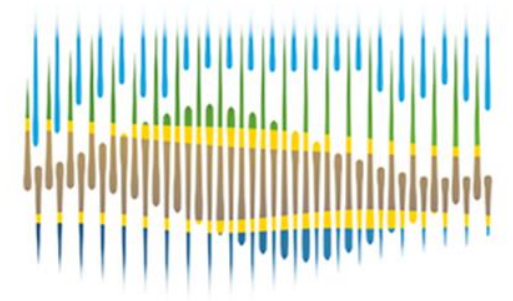
17 TO 22 SEPTEMBER 2023 – CAPE TOWN, SOUTH AFRICA



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The International Association of
Hydrogeologists