

Integrating Groundwater Management and Transboundary Aquifer Cooperation in Sub-Saharan Lake and River Basin Organizations

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Foreword

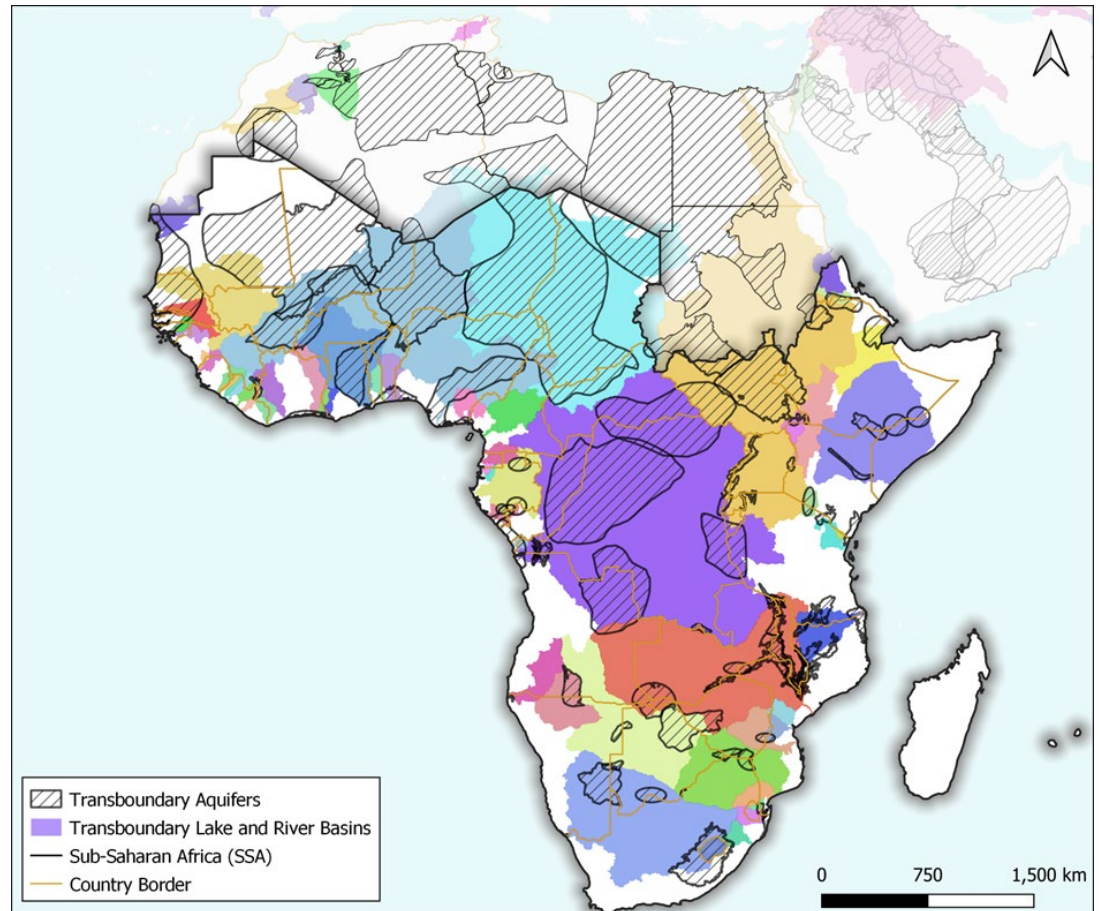
- Short paper submitted for a special issue of Water International: *Water management in Basins of rivers, lakes and aquifers: the challenges ahead after 30 years of innovation*



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Background

- There are 57 transboundary lake and river basins in SSA, covering 75% of the region.
- Several of them are covered by international agreements and have a dedicated lake or river basin organization (L/RBO).
- 17 L/RBOs are members ANBO, covering some 83% of transboundary lake and river basins in Africa.
- There are currently 97 known TBAs across Sub-Saharan Africa, covering 35% of the region.



- Integrating groundwater management and TBA cooperation in L/RBOs has long been on the agenda.
- In 2003, in the *Africa Water Vision 2025*, UNECA, AU & AfDB called for *“Adopting the river basin as the unit for water-resources management; Strengthening river-basin and aquifer management”*.
- In 2008, the African Ministers Council on Water (AMCOW) recommended *“That the River and Lake Basin organizations institutionalize groundwater management”*.
- Yet, an assessment carried out in 2012 highlighted that groundwater was not properly addressed in African L/RBOs, mainly due to capacity issues (BGR et al. 2012).

Institutional progress

- Water Charter of the Lake Chad Basin Commission (LCBC), 2012.

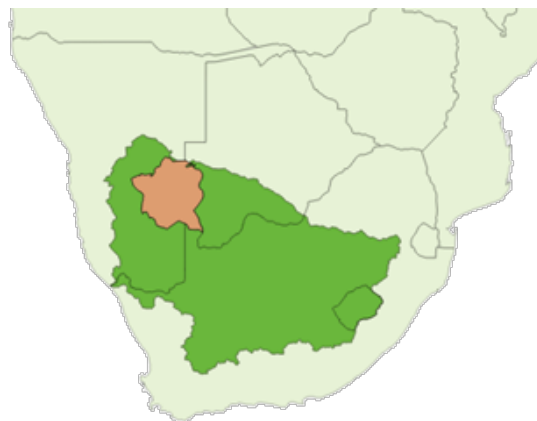
Specific objectives include *“Groundwater management along with the establishment of principles and rules on transboundary groundwater management”* (Article 4)

It contains several groundwater-specific provisions, such as on groundwater abstraction (Article 17), transboundary aquifers or aquifer systems extending beyond the spatial scope of the Water Charter (Article 20), groundwater quality (Article 21) or the exchange of groundwater data and information (Appendix 5).

- Draft charter of the Gambia River basin organization (OMVG, which also includes the Kayanga/Géba and Koliba/Corubal River basins)

“Shared aquifers are considered in the scope of application” (article 3) and *“Aquifers connected to the basin are taken into account when considering data”* (article 6).

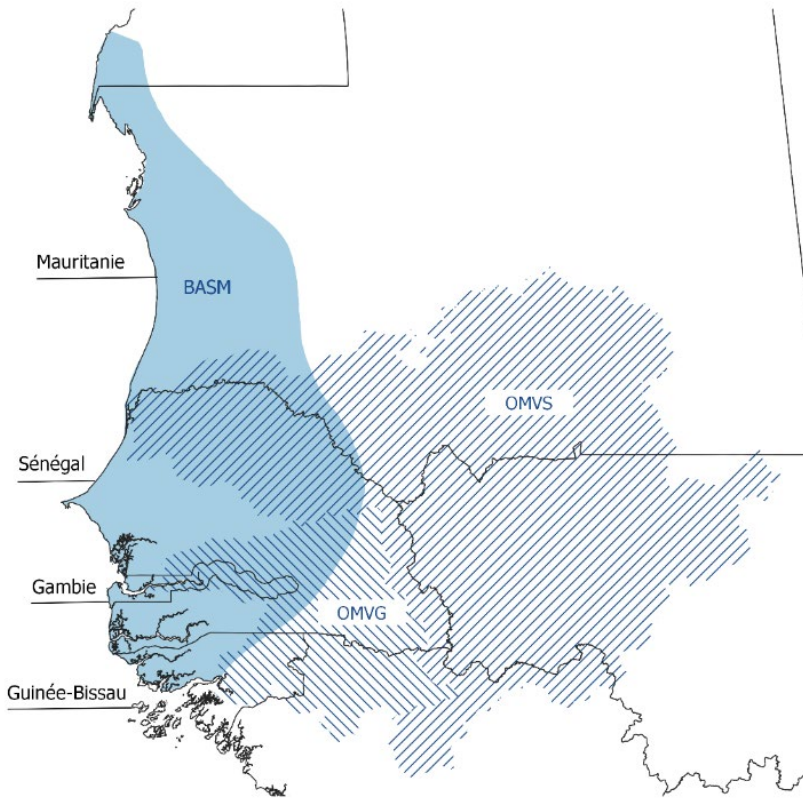
- The Ground Water Hydrology Committee was established in 2014 at the Orange-Senqu River Commission (ORASECOM), to oversee and advise on the development and management of groundwater resources in the basin.



- ORASECOM then adopted a resolution in 2017 to nest the Stampriet Transboundary Aquifer System (STAS) Multi-Country Cooperation Mechanism (MCCM) within its Ground Water Hydrology Committee.

- The Limpopo Watercourse Commission (LIMCOM) set up the Limpopo Groundwater Committee (LGC) in 2019, with a special mandate for TBAs: the Ramotswa Aquifer, the Tuli Karoo Aquifer and the Limpopo Aquifer Basin.
- More activities also in the Zambezi and Cuvelai river basins, with instrumental support of the SADC Groundwater Management Institute.

- A Regional Working Group was established by the Gambia, Guinea-Bissau, Mauritania and Senegal in 2020, with the mandate to establish a mechanism for transboundary cooperation on the Senegalo-Mauritanian Aquifer Basin (SMAB), in close cooperation with the Senegal and the Gambia River basins (OMVG and OMVS).



Operational progress

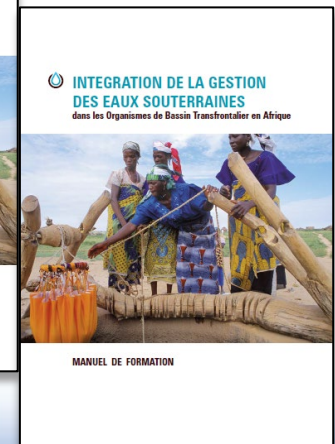
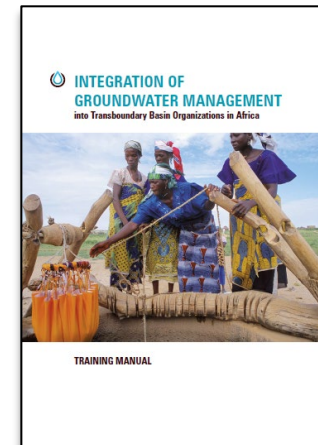
- Basin-wide groundwater assessments have been produced in several lake and river basins



Groundwater resources of the Volta Basin

Emmanuel Obuobie, Boubacar Barry and William Agyekum

- Capacity development projects have specifically addressed the integration of groundwater within L/RBOs.
- Training manual on the Integration of Groundwater Management into Transboundary Basin Organizations in Africa.



Outstanding challenges and recommendations

- Our experience is that, in practice, very few L/RBOs collect groundwater data and actively engage in groundwater assessment and management activities on a regular basis, whether at the basin-scale or at the TBA level.
- Very few L/RBOs have in-house hydrogeologists with the skills needed to take on such activities.
- Moreover, the majority of groundwater-related activities in L/RBOs depend on externally-funded projects.
- Our understanding is that the capacity of L/RBOs in SSA has not been structurally augmented to address groundwater management issues.

- Suggestion #1: Hiring hydrogeologists in L/RBOs and in regional institutions like SADC-GMI.
 - Groundwater-related job positions in the Sahel region are often occupied by non-hydrogeologists.
 - Sahelian hydrogeologists are driven to seek career opportunities abroad (*brain drain*).

MAPPING THE CAREER OF SAHELIAN GROUNDWATER EXPERTS: A SOCIO-ANTHROPOLOGIST ANALYSIS ON GROUNDWATER NATIONAL EXPERTISE IN THE SAHEL REGION (BURKINA FASO, CHAD, MALI, MAURITANIA, NIGER, SENEGAL)



- In addition, university programs in hydrogeology are not widespread (vicious circle).
- Occasional training workshops or other ad-hoc capacity-building activities are not substitute to higher education in hydrogeology.

- Suggestion #2: Adopting open water data policies.
 - There is no relationship between data sharing protocols and effective data sharing (Mukuyu et al., 2020).
 - The maintenance of data sharing platforms is challenging.
 - Since groundwater flow systems are usually slow, it would be enough to provide a yearly update of groundwater monitoring and borehole datasets in the form of a simple download link.
 - L/RBOs can actively promote open water data policies, leading by example and using the data once they are shared.
 - An examination of water data sharing in African basins suggests that data sharing is more likely to be enforced if it serves practical uses (IWMI, 2021).

Thank you for your attention!



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