



Session 7.07: Transdisciplinary and participatory approaches in groundwater research and management



# Groundwater Futures in Sub-Saharan Africa: an integrated approach to assessing sustainable groundwater use for poverty alleviation



## The GroFutures Consortium\*

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[www.grofutures.org](http://www.grofutures.org)



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- groundwater development and management in Sub-Saharan Africa hindered by a lack of data



*artesian borehole, Singida (central Tanzania)*



• dependence upon groundwater to rise substantially in order to increase access to drinking water and..



Great Ruaha Sub-catchment, Tanzania



- to improve food security



*Upper Awash Basin, Ethiopia*

- but what will the development pathways look like?



*large-scale groundwater-fed irrigation (Zambia)*



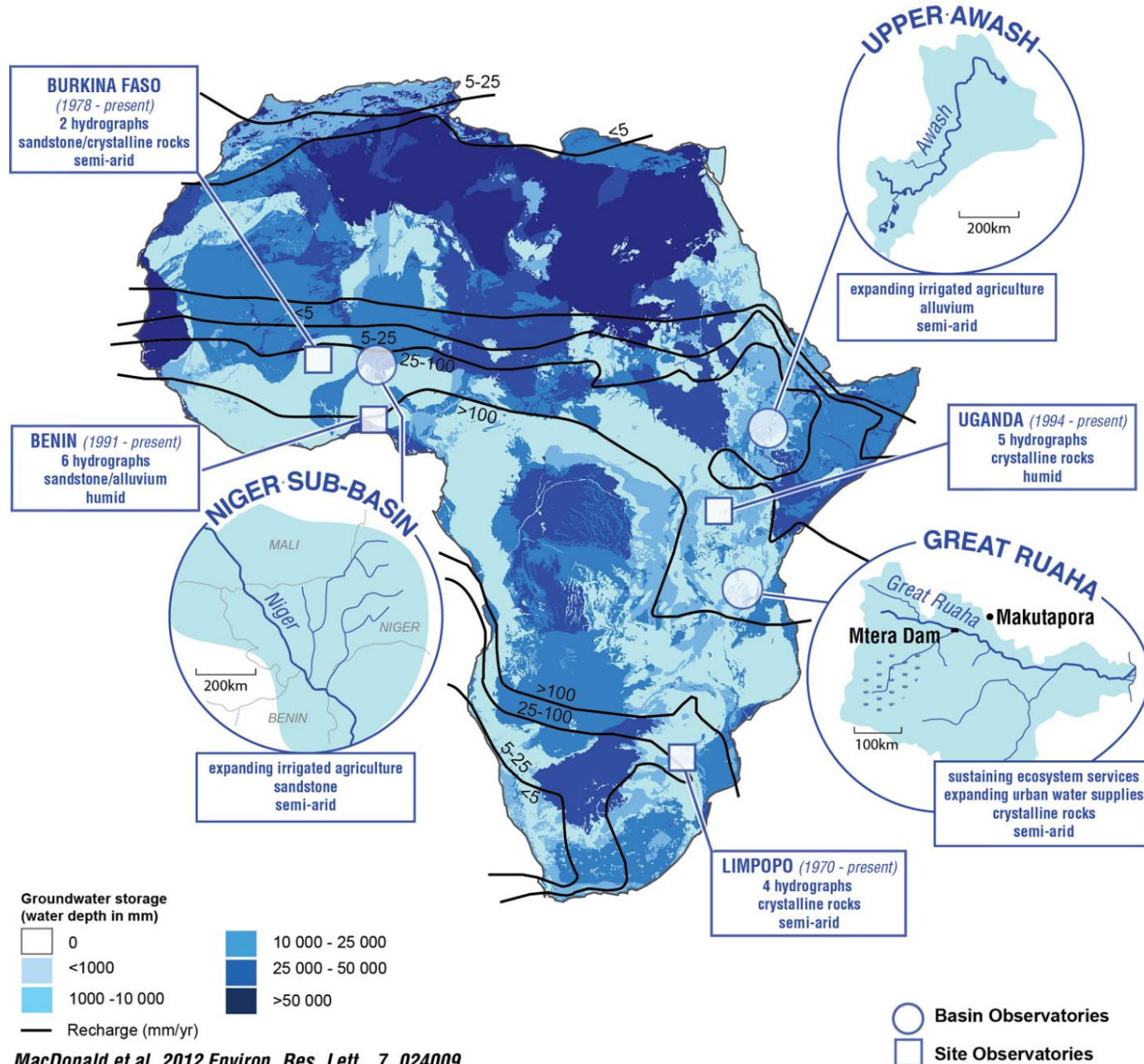
*small-scale groundwater-fed irrigation (Upper Awash Basin, Ethiopia)*



- and who decides and how?

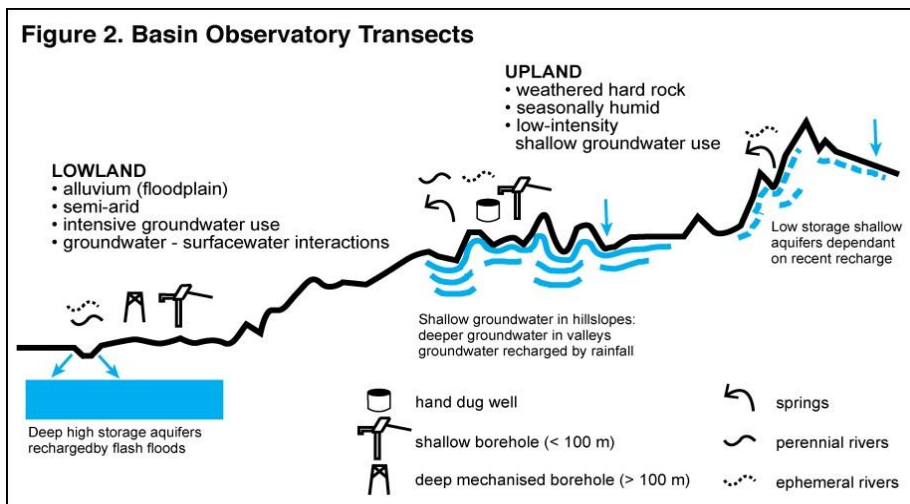
*participatory decision-making (Kenya)*

# Network of African Groundwater Observatories (NAGO)



# GroFutures: NAGO

- **Site Observatories:** long-term '*chronicles*' of groundwater storage changes to analyse the impact of human withdrawals as well as climate and land-use change
- **Basin Observatories:** high-frequency, detailed observations to assess hydrogeological processes (where we assess how people use groundwater) and to establish baselines upon which groundwater development can be measured



# GroFutures: Pathways Approach

- construct set of groundwater development pathways via an inclusive, stakeholder-driven process from water-user groups to government ministries and international basin organisations
- groundwater models, based on NAGO evidence, test viability of proposed pathways (under climate change) through an iterative and interactive process



# GroFutures: Final Points

- *NAGO*: link together with other monitoring networks to strengthen and broaden observational database for all
- *Pathways Analysis*: opens up and broadens out the range of groundwater development pathways to explicitly consider poverty alleviation alongside other objectives
- *Groundwater Game*: employed to improve conceptual understanding of groundwater by stakeholders as well as their recognition of trade-offs and opportunities

