
**GROUNDWATER RESOURCES
GOVERNANCE
in TRANSBOUNDARY AQUIFERS
(GGRETA Project)**



**The GGRETA Project: Stampriet case study:
Context, methodology and progress**

Andrew Ross

Senior groundwater governance specialist UNESCO-IHP



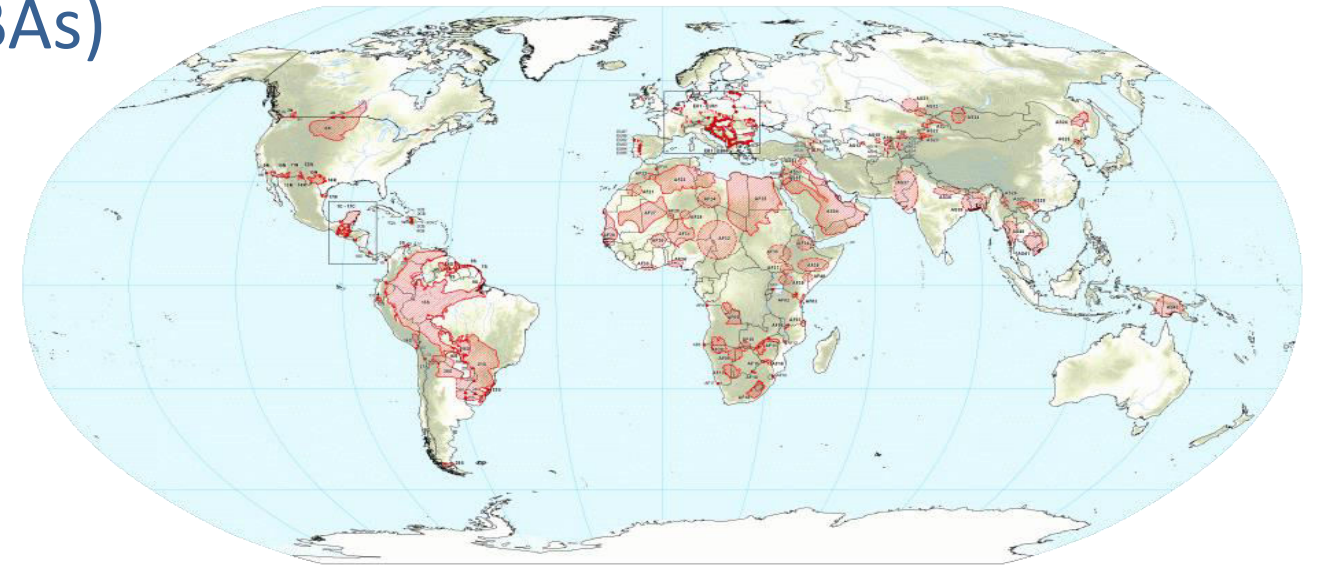
A Ross
27 May 2015
Edinburgh

Contents of this presentation

- Context UNESCO-IHP activities related to groundwater
- GGRETA project on transboundary groundwater governance - design, methodology
- Stampriet case study - progress, challenges, next steps

UNESCO's leading role in transboundary GW governance

- ISARM \implies TWAP \implies GGRETA
- ISARM:
 - International Shared Aquifers Resources Management
 - Inventory of Transboundary Aquifers (TBAs)
- TWAP:
 - TB waters assessment program
 - Global assessment 166 TBAs & 43 SIDS
- GGRETA:
 - Groundwater Governance of Resources in Transboundary Aquifers
 - In-depth assessment of TBA case studies
 - Spatially differentiated information, maps



Swiss Agency for Development

GROUNDWATER RESOURCES GOVERNANCE in TRANSBOUNDARY AQUIFERS (GGRETA Project)



Nations
Scientific and
Cultural Organization



International
Hydrological
Programme

GGRETA project

- Objectives

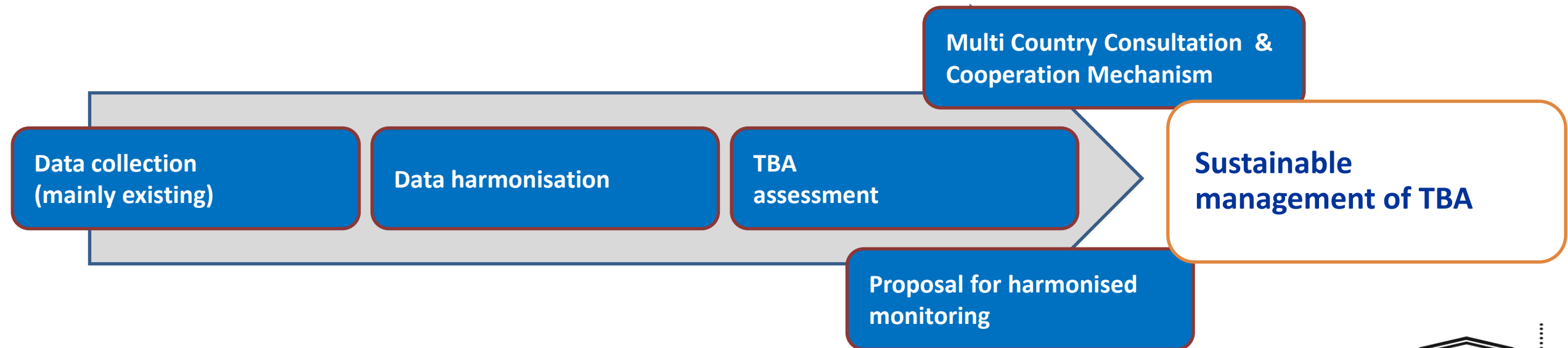
- Improve recognition of the importance and vulnerability of TBA's
- Strengthen cross border dialogue and cooperation
- Develop shared management tools
- Facilitate governance reforms to improve livelihoods, economic development and environmental sustainability

- Case Studies

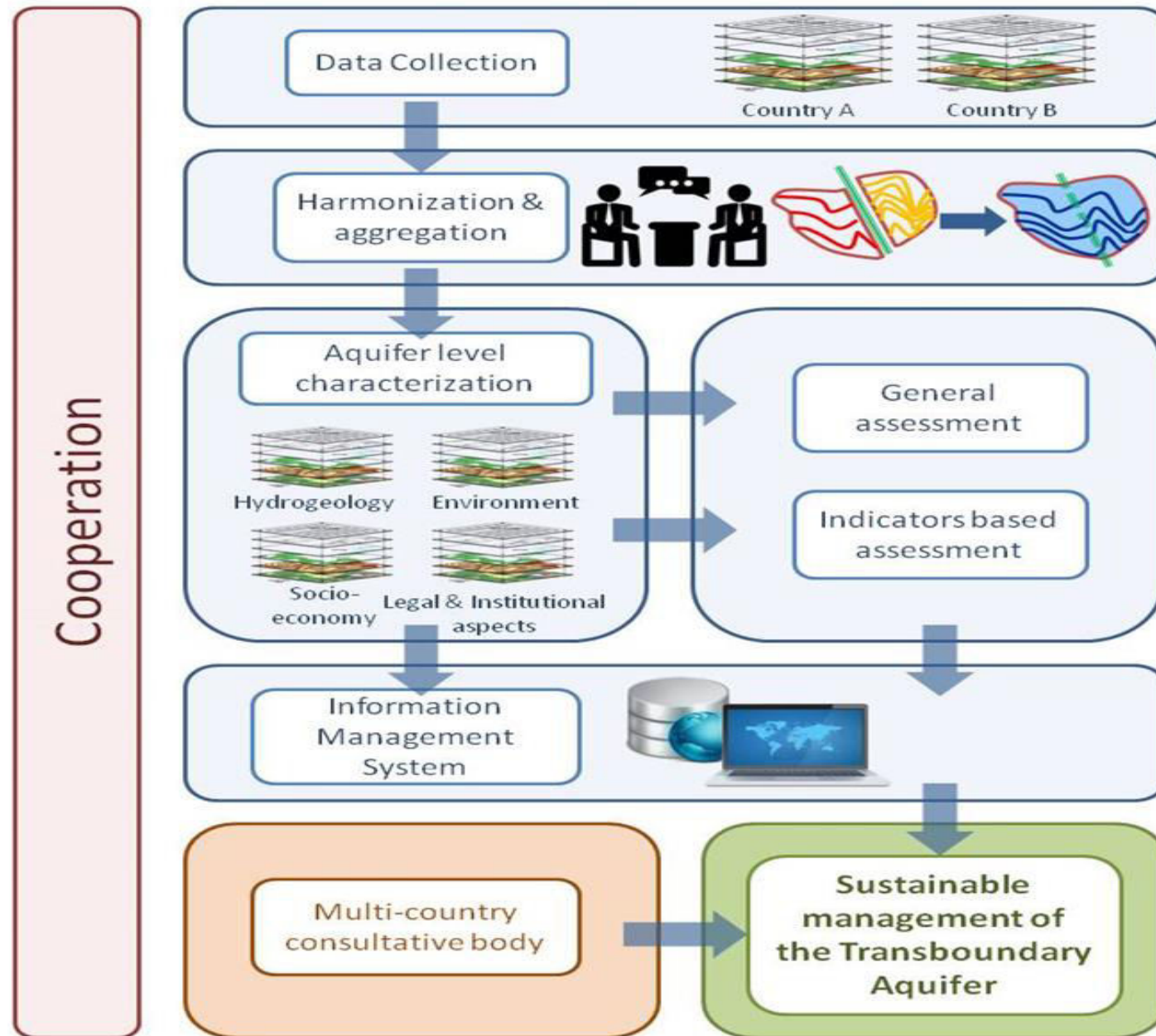
- **Stampriet transboundary aquifer system (Botswana, Namibia, South Africa)**
 - **focus later in this presentation**
- Pre-Tashkent aquifer (Kazakhstan, Uzbekistan)
- Trifinio aquifer (El Salvador, Guatemala, Honduras)

GGRETA Two-step approach

1. Building recognition of the shared nature of the resource, and mutual trust through joint fact finding and a science based multidisciplinary transboundary aquifer assessment
2. Reaching consensus on muticountry consultation and cooperation governance mechanism (MCCM)



Project workflow and outputs



- Thematic maps
- Overview tables and images
- Graphs (time dependent data)
- Conceptual model (cross-sections)
- Upload of data to project information management system
- Integrated assessment report
- Program of activities
- Multicountry consultation and cooperation mechanism (MCCM)

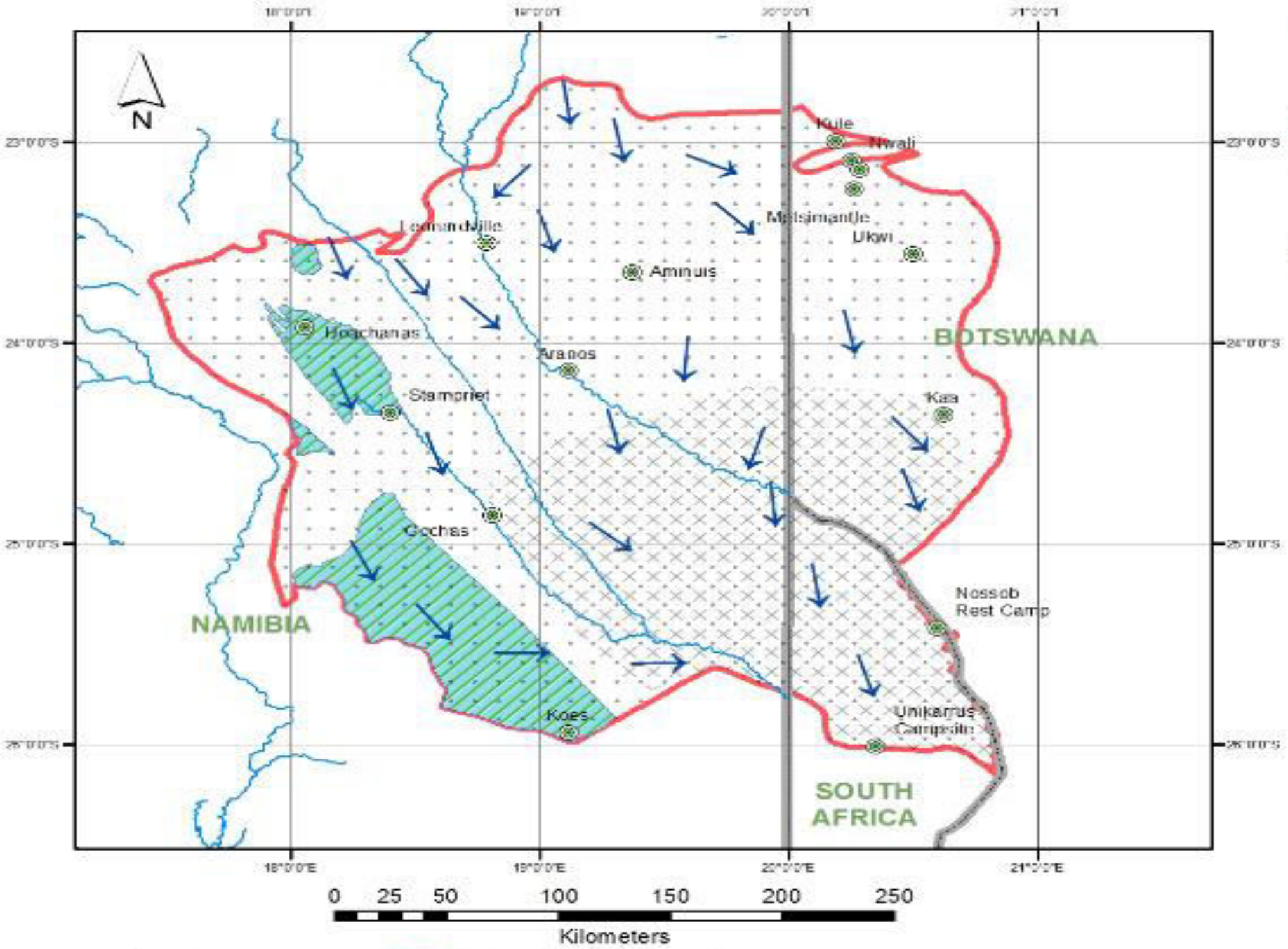
Innovation in gender analysis and water diplomacy

- The World Water Assessment Programme has initiated a project on gender sensitive water monitoring. This is being integrated in the Stampriet case study by
 - Collection of available data on a limited number of generic indicators
 - Preparation of detailed work program related to gender, further data collection and surveys
- UNESCO's Potential Conflict Cooperation Potential program provides tools to increase trust and cooperation. The Stampriet case study is providing
 - an opportunity to develop and test a water diplomacy toolkit and
 - provide training to enhance capacity and skills



GROUNDWATER RESOURCES GOVERNANCE in TRANSBOUNDARY AQUIFERS (GGRETA Project)

Stampriet Transboundary Aquifer System Conceptual Model



- Legend**
- Villages and settlements
 - Groundwater flow
 - Rivers
 - Kalahari Recharge Area
 - Salt block - Discharge area
 - STAS Recharge area
 - National Boundaries
 - STAS Boundary

- Area 86000 km² Population 16000 in settlements (40000 total?)
- Rainfall 150-300mm year Temperature highly variable (1-37°C)

Key initial findings: Integrated assessment: Stampriet Transboundary Aquifer System (STAS)

- STAS is not over used at current levels of development
- Variable quality of groundwater, worse in S of aquifer (salt block area)
- No known pollution of the deep aquifer(s) (further work needed), local pollution of shallow aquifer(s)
- Legal framework and institutional framework is adequate, but problems implementing national legislation
- Options for multicountry consultation mechanism (MCCM)
 - Committee of national water authorities
 - ORASECOM geo-hydrology Committee

Risks and challenges

- The biggest potential risk to the STAS comes from possible large-scale irrigation or mining development. Current management challenges include:
- Data deficits especially time series data
 - Where data exists it is incomplete, poorly organized, difficult to retrieve
- Risk of local pollution around settlements
 - Pit latrines, oxidation ponds, waste dumps, poorly maintained bores
- Implementation of law and policy
 - Gaps in regulations, limited inspection and controls

Next steps

- Completion of integrated aquifer assessment and options for multicountry consultation mechanism (MCCM)
- Stakeholder consultation
- Agreement by governments on MCCM option
- Development of program of activities for MCCM
 - Could include joint monitoring of aquifer, activities to mitigate GW pollution and build capacity for implementation of GW regulations.

Thank you for your attention

a.ross@unesco.org

Telephone 33 (0)1 45 68 39 43



International Groundwater Resources Assessment Centre



Swiss Agency for Development
and Cooperation SDC



United Nations
Educational, Scientific and
Cultural Organization



International
Hydrological
Programme