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



**Overview of project activities
- June 2016 to May 2017 -**

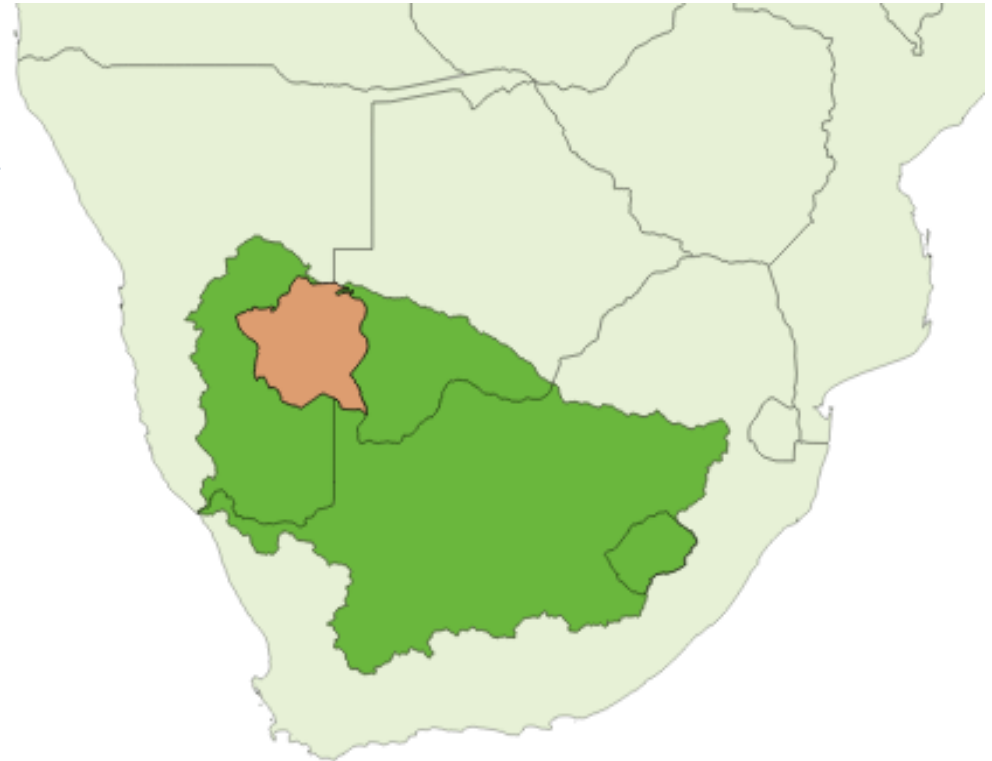
*3rd ORASECOM Ground Water Hydrology Committee Meeting
17 May 2017*



**Tales Carvalho Resende
UNESCO-IHP**

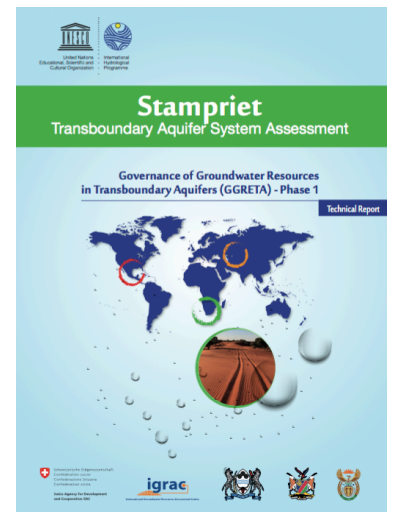
The Stampriet Transboundary Aquifer System (STAS)

- The STAS lies **entirely within the Orange-Senqu River Basin**.
- The STAS covers a total area of 86 647km² (73% of the area in Namibia, 19% in Botswana, and 8% in South Africa).
- The STAS is a large farming area with approximately 1200 farms (mostly in Namibia), out of which 80 are irrigation farms
- Groundwater use: 52% irrigation, 32% stock watering, 16% domestic use
- No mining and industrial activities
- Area lightly populated (approximately 50 000 inhabitants)
- Annual groundwater abstraction: 20Mm³ (around 70% in the Stampriet area)



The GGRETA project

- **Governance of Groundwater Resources in Transboundary Aquifers (GGRETA) project:**
 - Funded by the Swiss Agency for Development and Cooperation (SDC)
 - Implemented by UNESCO International Hydrological Programme (IHP)
- **Phase 1 (2013-2015):** In-depth assessment of the STAS
- **Phase 2 (2016-2018):**
 - Capacity-building modules on groundwater modeling, legal and institutional, and gender issues
 - Development of the STAS numerical model
 - Set the baseline for institutionalizing cooperation over the STAS



Capacity-building modules

Regional trainings

- **2nd Regional Training on Tools for the Sustainable Management of Transboundary Aquifers (November 2016, Johannesburg, South Africa)**
 - Focus on international water law and gender
 - Share experiences from the STAS and Ramotswa assessments
 - Organized in collaboration with SADC-GMI and IWMI
 - 80 participants from 12 SADC Countries



Regional trainings

- **UNESCO-SADC Regional Training on Groundwater Modelling (March 2017, Johannesburg, South Africa)**
 - Build capacity of SADC countries experts in groundwater modelling including surface water-ground water interaction
 - Organized in collaboration with SADC-GMI and FREEWAT
 - 25 participants from 12 SADC Countries
 - Training for trainers approach

(Softwares + Tutorials available at www.freewat.eu)



FREEWAT
Free and Open Source Software Tools for Water Resource Management
EU HORIZON 2020 Project



Sant'Anna
School of Advanced Studies – Pisa



National trainings

- **National Trainings on legal and institutional, and gender issues (March 2017, Namibia, Botswana and South Africa)**
 - Legal and institutional trainings: Focus on international and national water law
 - Gender trainings: Focus on sex-disaggregated data collection

Namibia



Botswana



South Africa

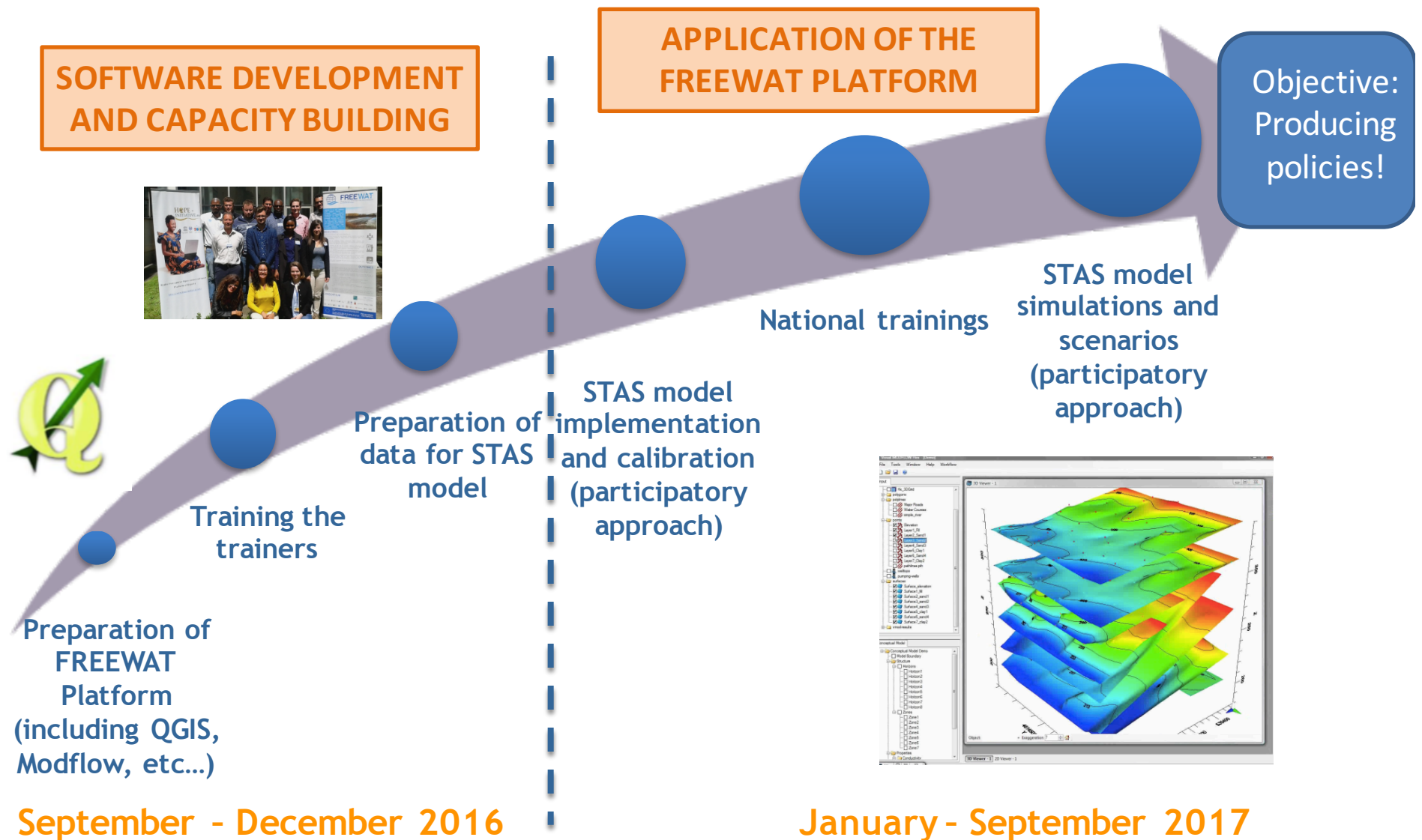


Development of the STAS Numerical Model

STAS Numerical Model - Overview

- **Developed on FREEWAT Platform (www.freewat.eu)**
- **FREEWAT Platform:**
 - Open source and public domain GIS-integrated modelling platform allowing data storage and analysis and simulation of several processes for WRM.
 - Integrates several existing **free software modules** (e.g. QGIS, MODFLOW, MT3DMS) in one single and user-friendly GIS environment.
- **“Training for trainers” approach:**
 - Replication of trainings will be possible through tutorials
 - Web-tutorials for the STAS are currently under preparation
- **Participatory approach:**
 - National teams have been nominated to jointly develop the model

STAS Numerical Model - Time schedule



Baseline for institutionalizing cooperation over the STAS

STAS High Level Meeting (November 2016)

- High Level Representatives (PS level) officially endorsed GGRETA Phase 2 workplan of activities.
- Main decisions:
 - Set-up of a Working Group for the establishment of the STAS Multi-Country Cooperation Mechanism (MCCM)
 - Set-up of National Transboundary Technical Groups (NTTGs) for groundwater modelling, legal and institutional, and gender issues.



ORASECOM Forum of the Parties (December 2016)

- Presentation of the results and way forward of the project by Mr Piet Kenabatho (STAS Assessment Report Coordinator and Botswana National Coordinator) to Ministers in charge of water resources from the three Countries.

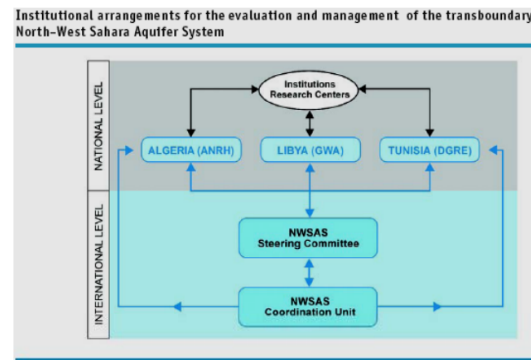
Ministerial Consultations (March 2017)

- Presentation of the results and way forward of the project to High Level Representatives (PS level) in Namibia, Botswana and South Africa.
- Main outcomes:
 - Emerging consensus to nest the STAS Multi-Country Cooperation Mechanism (MCCM) into ORASECOM structure.



Next steps

- Study visit to the Observatory of the Sahara and the Sahel (OSS) in Tunisia is being organized from 28-31 August 2017.
- Main objectives:
 - Share experiences on the setting up of the North-Western Sahara Aquifer System (NWSAS shared by Morocco, Tunisia and Algeria) Multi-Country Cooperation Mechanism.
 - Validation of the STAS numerical model simulations.



THANK YOU FOR YOUR ATTENTION!

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