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Swiss Agency for Development and Cooperation SDC

Governance of Groundwater Resources in Transboundary Aquifers (GGRETA Project)

- Phase 2 -

Stampriet Transboundary Aquifer System (STAS)

CAPACITY-BUILDING TRAININGS
AND
HIGH LEVEL CONSULTATION MEETINGS

20 March - 4 April 2017

Botswana, Namibia, and South Africa

- FINAL DRAFT REPORT –

1. BACKGROUND

Within the framework of the "Governance of Groundwater Resources in Transboundary Aquifers" (GGRETA) project, funded by the Swiss Agency for Development and Cooperation (SDC), the Governments of Botswana, Namibia and South Africa, jointly with the UNESCO International Hydrological Programme (UNESCO-IHP) are undertaking an assessment of the Stampriet Transboundary Aquifer System (STAS). The importance of the STAS to the region draws from the fact that it is the only permanent and dependable water resource in the area, which covers 87,000 sq. km from Central Namibia into Western Botswana and South Africa's Northern Cape Province.

The first phase of the project (2013-2015) focused on an in-depth assessment of the STAS which allowed establishing a shared science based understanding of the resource. The activities of the second phase of the project (2016-2018) will focus on consolidating the technical results achieved and the tools developed in the first phase, and on strengthening capacity on groundwater governance at the national and transboundary levels in order to support the process of establishment of a Multi-Country Cooperation Mechanism (MCCM). The establishment of the STAS MCCM would be the first example of a mechanism for the management and governance of a transboundary aquifer in Southern Africa.

In this regard, the Governments of Botswana, Namibia and South Africa have conveyed their support to UNESCO-IHP to organize the following capacity-building trainings in March/April 2017:

- UNESCO-SADC Regional Meeting on Groundwater Modelling (20-24 March 2017, Johannesburg, South Africa),
- National trainings on legal and institutional and gender issues (27-28 March 2017, Windhoek, Namibia),
- National trainings on legal and institutional and gender issues (30-31 March 2017, Gaborone, Botswana),
- National trainings on legal and institutional and gender issues (3-4 April 2017, Pretoria, South Africa).

The national trainings were structured in the same way for the three countries and were followed by consultation meetings with High-Level Government Officials to discuss and officially endorse GGRETA Phase 2 plan of activities from March 2017 to April 2018.

2. MAIN OUTCOMES OF THE CAPACITY-BUILDING TRAININGS AND HIGH LEVEL CONSULTATION MEETINGS

The main outcomes of the capacity-building trainings and High-Level consultation meetings are listed as follows:

- Official endorsement to facilitate discussions for the nesting of the STAS MCCM in the Orange-Senqu River Commission (ORASECOM) structure.
- Official endorsement for the preparation by UNESCO-IHP of a Concept Note on the nesting of the STAS MCCM in the Orange-Senqu River Commission (ORASECOM) structure.
- Official endorsement of GGRETA Phase 2 plan of activities from March 2017 to April 2018 (Annex 1).
- Official endorsement to use the UNESCO-IHP Water Information Network System (WINS) as the repository for data collected by the GGRETA project.
- Support by project countries to UNESCO Special Envoy for Water in Africa, H.E. Mwai Kibaki - Former President of Kenya message on water cooperation.
- 11 experts capacitated on groundwater modeling (5 in Botswana, 3 in Namibia and 3 in South Africa) (Final agenda and list of participants in Annex 2).
- 30 experts capacitated on international water law, interactions between international and national water law, and domestic water legislation (10 in Botswana, 13 in Namibia, and 7 in South Africa) (Final agenda and list of participants in Annex 3).
- 26 experts capacitated the collection and analysis of sex-disaggregated water data (13 in Botswana, 8 in Namibia, and 5 in South Africa) (Final agenda and list of participants in Annex 4).

2. DETAILED SUMMARY OF THE CAPACITY-BUILDING TRAININGS AND HIGH LEVEL CONSULTATION MEETINGS

- **UNESCO-SADC Regional Meeting on Groundwater Modelling (20-24 March 2017, Johannesburg, South Africa)**

UNESCO-IHP and the SADC Groundwater Management Institute (SADC-GMI) partnered to conduct a training program on groundwater modelling and data management for SADC Countries representatives from 20-24 March 2017 in Johannesburg, South Africa. The groundwater modelling course, aimed at building capacity of SADC countries experts in groundwater modelling including surface water-ground water interaction, was conducted by eminent experts from the Sant'Anna University (Italy) and covered modules on groundwater

modelling using the FREEWAT platform (www.freewat.eu). The FREEWAT platform is an open source and public domain GIS integrated modelling environment for the simulation of water quantity and quality in surface water and groundwater with an integrated water management and planning module. It integrates several existing free software modules (e.g. QGIS, MODFLOW, MT3DMS) in one single and user-friendly GIS environment. The course was divided in two parts as follows:

- 20-22 March 2017: Introduction to FREEWAT and modules on groundwater modelling (for all participants). The training program also included a module on data management on the UNESCO Water Information Network System (WINS) (http://en.unesco.org/ihp-wins).
- 23-24 March 2017: Discussion on the development of the Stampriet Transboundary Aquifer System (STAS) numerical model (for Botswana, Namibia and South Africa participants only).

The meeting started with a presentation on groundwater flow modelling by Mr Shaminder Puri (UNESCO-IHP, GGRETA project Senior Hydrogeology Advisor). Mr Rudy Rossetto and Ms Giovanna De Fillippis (University of Sant'Anna) then delivered a 3-day training that covered topics related to assess groundwater data/model in daily work, create a groundwater model, model simulation, tips and tricks quantitative groundwater modelling, and surface water and groundwater interaction. This was done through a tutorial that allowed participants to develop a numerical model inspired to a synthetic case study. Finally, Mr Tales Carvalho Resende (UNESCO-IHP) delivered a training module on data management on the UNESCO Water Information Network System (WINS).

During the discussions on the development of the STAS numerical model, participants went through key parameters to address for the finalization of the model, i.e. model boundaries – extrapolation of the flow system, aquifer system – number of layers – simplicity / complexity, definition of the adopted layers – areal extent / thickness, allocation of key hydraulic parameters, transmissivity, storage / storage coefficient / specific storage, hydraulic conductivity, hydraulic head distributions – especially between aquifers, boundary conditions for the full system, annual recharge patterns for each aquifer, and abstraction. The results of a preliminary run of the model in its current state were presented to the participants who acknowledged the successful preliminary results which indicate a good correlation between in-situ data (hydraulic heads) and simulated results. Focus will now shift towards calibrating the model. For that doing, participants agreed that additional information needs to be incorporated into the model in order to revise the aquifers layers' thicknesses, which was considered by participants as the most important modelling parameter to be addressed. In this regard, participants agreed to go through to the archives of their respective Department of Water Affairs to collect stratigraphy information available in Boreholes Completion Certificates. This additional information will be crucial to fine-tune the interpolation of the

aquifers layers' thicknesses. The approach to consider other modelling parameters (e.g. recharge, boundary conditions, abstraction were validated by participants).

- **National trainings on legal and institutional issues**

The training courses on legal and institutional issues took place on 27-28 March 2017 in Windhoek, Namibia at the premises of the Department of Water Affairs and Forestry (DWAF), 30-31 March 2017 in Gaborone, Botswana at the Department of Water Affairs (DWA), and on 3-4 April 2017 in Pretoria, South Africa at the Water Research Commission (WRC). The courses were delivered by Mr Stefano Burchi (UNESCO-IHP, GGRETA project Senior Legal Advisor) and were divided into three modules: (1) international water law, (2) interactions between international and national water law, and (3) domestic water legislation.

Module 1 on international water law presented the principles and the practice of international law as it applies to transboundary water resources, with a special attention to transboundary aquifers. Module 2 mapped out and assessed the state of international water law, and addressed compliance by teasing out the linkages between international legal obligations and domestic water legislation as regards transboundary water resources. It illustrated how the transboundary nature of segments of a country's rivers, lakes and aquifers reverberate on the domestic water laws of those countries; and illustrated how domestic water laws are necessary to honor the obligations of States stemming from global, regional or bi-lateral freshwater treaties and agreements, and in general for purposes of compliance with such treaties and agreements. Module 3 presented a comparative overview of trends and developments in domestic water legislation by addressing the legal status of water resources, allocation for use, pollution control, and institutional aspects. The modules were followed by group exercises engaging the participants in the analysis and assessment of their respective Water Act as against the main management challenges ahead of the STAS. At the end of the exercise, the participants provided sharp responses, by pinpointing the provisions in the Water Acts which will support a domestic response to the STAS challenges ahead.

In Namibia, the project counterparts were keen to gauge the adequacy of, in particular, provisions in the 2013 Water Act in effect, and in General Regulations in preparation, to deal effectively with the eradication of proliferating *Prosopis* trees. As a result of extensive review and debate, it was recommended the addition in the General Regulations in preparation of language that would enable DWA to deal with the problem with the help of the forestry legislation in effect, and in collaboration with the Forestry Department. In Botswana, the training prompted the government project counterparts to reflect upon the reform of the Water Act now in force, which dates back to 1968 and is, in need of a thorough overhaul. References were made in the discussions to water law reform work underway, whose state

and progress. At the request of the government counterparts, it was agreed that the GGRETA-2 project would assist the DWA in furthering the reflection on the 1968 Water Act reform through a targeted, follow-on capacity-building event in Botswana. At such event, UNESCO-IHP will guide the participants in a critical review and assessment of the 1968 Water Act, or of a Bill for a new Water Act dated 2006 which the GGRETA-2 project had uncovered, but whose status will require verification by the government counterparts. They felt that such exercise would help bring the need for water law reform back on the government's agenda, and catalyze efforts to that end. In South Africa, the lectures drew several comments and questions from the participants, who showed a genuine interest in, and appreciation for, the knowledge imparted. The government project counterparts highlighted that the GGRETA-2 project could assist DWS in furthering preliminary reflection on the review of the 1998 Water Act.

- **National trainings on water and gender issues**

The training courses on water and gender issues were ran in parallel to the ones on legal and institutional issues. The courses were delivered by Ms Michela Miletto and Ms Elena Belcore (UNESCO World Water Assessment Programme) and were aimed at presented sex-disaggregated indicators that could be introduced into national water strategies and projects, and at improving the use of gender statistics and related analysis for informed adaptation of related water policies and strategies. This will contribute to the availability of sex-disaggregated water data and of a gender-sensitive monitoring of regional trends and progress towards the Agenda 2030 achievements.

In Namibia, the participants showed particular interest in the modules of the training concerning gender roles. They contributed with personal experiences and discussions on the gender-related effects of water scarcity in the north of the country. The presentation of the field data collected during GGRETA-1 projects was the starting point for a short gender analysis of relevant issues like water access, quality and WASH in the country. After the training, the participants showed awareness of the sex-disaggregated water data as a tool to better understand the interconnections between gender and water in the context of the social, economic and environmental dimensions. In Botswana, the participants actively participated to the activities of the training by enriching it with observations and discussions. They agreed on the fundamental importance of a gender component in transboundary commissions and recognized the role of sex-disaggregated water data in performing gender-sensitive decisions in transboundary groundwater realm. Furthermore, participants expressed positive feedbacks on the modules concerning data processing and statistics, which strengthened trainees' abilities to provide improved statistics on gender and water through simulation of data collection. In South Africa, the participants engaged on discussions on the need of sex-disaggregated water data to inform policy-makers and reach the equalization of

opportunities. The lack of prioritization of the gender issues by policy makers, the need of specific skills and tools were identified as major constraints to the collection and analysis of sex-disaggregated data. To overcome these limitations the trainees brought to the attention the necessity of more specific capacity building workshops and trainings on sex-disaggregated data. They suggested that a "training for trainers" approach that should foresee ad hoc UNESCO license to use the WWAP toolkit and enable the attendees to deliver trainings on sex-disaggregated water data collection and analysis.

- **<u>High level consultation meetings</u>**

A UNESCO Delegation comprised by Ms Michela Miletto (UNESCO WWAP), Mr Stefano Burchi (UNESCO-IHP), Mr Shaminder Puri (UNESCO-IHP), Mr Carvalho Resende (UNESCO-IHP) and H.E. Ambassador Ms Mary Khimulu (Office of the UNESCO Special Envoy for Water in Africa) undertook consultation meetings with High-Level Government Officials in the three STAS Countries to discuss and receive official endorsement of GGRETA Phase 2 plan of activities from March 2017 to April 2018.

The UNESCO Delegation was received by Mr Percy Misika (Permanent Secretary, Ministry of Agriculture, Water and Forestry) and Mr Abraham Nehemia (Deputy Permanent Secretary, Ministry of Agriculture, Water and Forestry) on 27 March 2017 at the premises of the Ministry of Agriculture, Water and Forestry in Namibia. Mr Tales Carvalho Resende presented the GGRETA Phase 2 plan of activities from March 2017 to May 2018 (Annex 1). During the discussions, Mr Percy Misika endorsed the line of action for institutionalizing cooperation over the STAS by nesting an MCCM in the Orange-Senqu River Commission (ORASECOM) structure. The government counterparts suggested that the government counterparts/focal points of the GGRETA-2 project in the three STAS countries "migrate" to the ORASECOM Ground Water Hydrology Committee (GWHC) operating under the Technical Task Team already in existence. This suggestion was dwelled upon at length prior to the meeting, and its doubtless merits explored in terms of:

  - very likely acceptance by the other two countries,
  - zero additional cost implications to the national treasuries,
  - economies of scale,
  - priority attention to the STAS, with room for other basin aquifers to be given attention in due course,
  - directness of reporting lines to the higher-level ORASECOM Council of country representatives,
  - access to the ORASECOM Council for decision-making, if required

At the project's suggestion, it was accepted that this course of action will be crystallized in a Concept Note that will be prepared by the GGRETA-2 project.

The UNESCO Delegation was received in Botswana by Mr Thato Raphaka (Permanent Secretary of the Ministry of Land Management, Water & Sanitation Services) on 30 March 2017 at the premises of the Ministry of Land Management, Water & Sanitation Services. The government project counterparts were also in attendance. The team provided a briefing on project activities and achievements so far, including in particular progress reached in Namibia regarding the potential future direction and shape of a MCCM for the STAS, and ORASECOM's host role of it. The High-Level Botswanan interlocutors conveyed their appreciation for the project and its efforts, and with the direction taken as regards of the STAS MCCM.

The UNESCO Delegation was received by Ms Deborah Mochotlhi (Deputy Director General, Planning and Information, Department of Water and Sanitation) and Ms Lindiwe Lusenga (International Water Support & ORASECOM Commissioner) on 3 April 2017 at the DWS Headquarters in Pretoria. The government project counterparts were also in attendance. At the consultation meeting, the government representatives were briefed by the UNESCO Delegation on the progress achieved by the project so far, including in the light of visits to Namibia and Botswana. There emerged palpable satisfaction from the government interlocutors with the consensus emerging among the countries sharing the STAS to take the ORASECOM option and route to a MCCM for the aquifer. The opportunity was also availed to discuss the project activities ahead in the second year of the project life, beginning in April/May 2017. As regards, in particular, capacity-building activities in the legal/institutional domain, the government counterparts concurred with their Namibian and Botswanan homologues, and asked that transboundary aquifers be given more prominence.

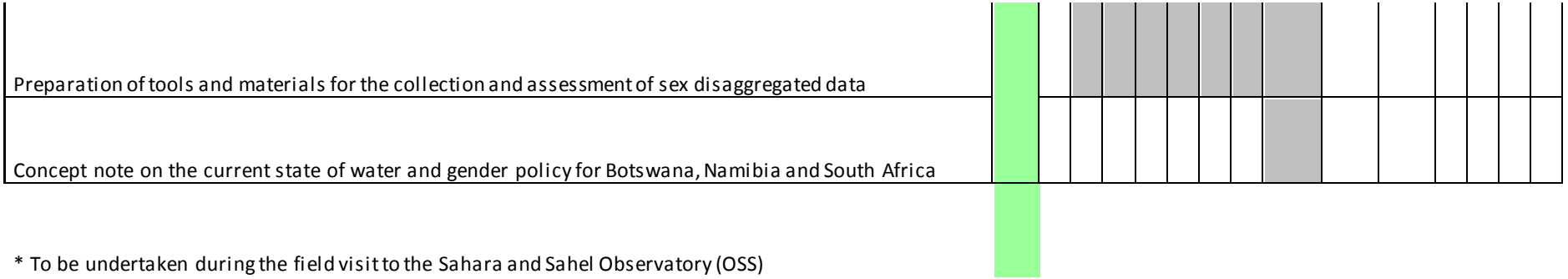
Annex 1 –Workplan for GGRETA Phase 2 activities from March 2017 to April 2018

Governance of Groundwater Resources in Transboundary Aquifers (GGRETA) Project - PHASE 2

TENTATIVE WORKPLAN - MARCH 2017 / APRIL 2018

ACTIVITIES / ACTIONS	PHASE II														
	2017										2018				
	3	4	5	6	7	8	9	10	11	12	1	2	3	4
Outcome 1: Improved resource knowledge and monitoring based on recognition of the importance and vulnerability of transboundary groundwater resources.														
Output 1.1: Improved knowledge of the resource														
Finalization of the STAS numerical model (in partnership with FREEWAT project)														
STAS model simulation scenarios agreed by Member States														
Finalization of a scientific paper on the impact of climate change on groundwater resources (utilization of satellite observations - GRACE)														
Output 1.2: Joint database and monitoring protocols prepared														
Update of the STAS joint borehole database on IHP-WINS (including time series data)														
Preparation of monitoring protocols based on the results of model simulation scenarios														
Outcome 2: Enhanced cross-border dialogue and cooperation														
Output 2.1: The Stampriet Core Group for the sustainable management of the aquifer established														

Regional meeting for the STAS model validation*	
Regional meeting for discussions on the structure of the Multi-Country Cooperation Mechanism (MCCM)	
Negotiations on the structure of the Mutli-Country Cooperation Mechanism (MCCM)	
Output 2.2: Regional Dialogue on Conjunctive Surface and Groundwater Management in Transboundary Contexts established	
Field study visit to the Sahara and Sahel Observatory (OSS)	
Outcome 3: Improved capacity in groundwater governance, hydro-diplomacy and gender, and effective communication aiming at replication of project experiences and approaches	
Output 3.1: Capacity building programme implemented and awareness raised	
UNESCO-SADC Regional training on groundwater modelling (20-24 March 2017) - Training for trainers	
Preparation of material for national trainings on groundwater modelling (based on "training for trainers") approach	
National trainings on groundwater modelling	
National training courses on domestic water legislation & institutions in support of transboundary groundwater cooperation	
Refinement of country assessments of domestic legislation and institutions conducted under GGRETA Phase 1 by national experts	
National trainings on sex-disaggregated data collection and engendering water policy	



* To be undertaken during the field visit to the Sahara and Sahel Observatory (OSS)

Annex 2 – Final agenda and list of participants of the UNESCO-SADC Regional Training on Groundwater Modelling (20-24 March 2017)

UNESCO-SADC Regional Training on Groundwater Modelling

Johannesburg, South Africa

Protea Hotel OR Tambo

20 – 24 March 2017

Training convened in the framework of:

- Governance of Groundwater Resources in Transboundary Aquifers (GGRETA Project) – Stampriet Transboundary Aquifer System (STAS) project

- FREEWAT (FREE and open source tools for WATer resource management) project

- Sustainable Groundwater Management in SADC Member States project

- International Waters Learning Exchange and Resources Network (IW:LEARN) Project

FINAL PROGRAMME

Background and Objectives of the Meeting

The UNESCO International Hydrological Programme (IHP) and the SADC Groundwater Management Institute will conduct a training program on groundwater modelling and data management for SADC Countries representatives from 20-24 March 2017 in Johannesburg, South Africa.

The groundwater modelling course will be conducted by eminent experts from the Sant'Anna University (Italy) and will cover modules on groundwater modelling using the FREEWAT platform (www.freewat.eu). The FREEWAT platform is an open source and public domain GIS integrated modelling environment for the simulation of water quantity and quality in surface water and groundwater with an integrated water management and planning module. It integrates several existing free software modules (e.g. QGIS, MODFLOW, MT3DMS) in one single and user-friendly GIS environment.

The course will de divided in two parts as follows:

- 20-22 March 2017: Introduction to FREEWAT and modules on groundwater modelling (for all participants). The training program will also include a module on data management on the UNESCO Water Information Network System (WINS) (http://en.unesco.org/ihp-wins).
- 23-24 March 2017: Development and finalization of the Stampriet Transboundary Aquifer System (STAS) numerical model (for Botswana, Namibia and South Africa participants only).

The aim of the training program is to build capacity of SADC countries experts in groundwater modelling including surface water-ground water interaction.

Software requirements

Participants should bring their computers and install the following free softwares prior to the training:

- QGIS (version QGIS 2.14 or later)
- LibreOffice
- MODFLOW (http://water.usgs.gov/nrp/gwsoftware/GW_Chart/GW_Chart.html)
- UCODE (http://igwmc.mines.edu/freeware/ucode/)
- FREEWAT platform.

Tutorial webinars will be provided prior to the training in order to allow participants to download the above mentioned softwares and get acquainted with FREEWAT platform.

Target audience

The training program is targeted to hydro(geo)logists, environmental scientists, and engineers from SADC Countries national institutions (e.g. Department of Water Affairs, Universities) and independent experts nominated by SADC Countries. UNESCO-IHP will cover the participation of experts nominated by the Governments of Botswana, Namibia and South Africa.

Draft agenda

DAY 1 • Monday, 20 March 2017

08:00-08:30	**Registration**
08:30-10:30	**Introduction to the groundwater modelling training**
	• Welcome, introduction, getting acquainted with the participants • Plenary session: Introduction to groundwater flow modelling ○ *Mr Shaminder Puri, International Association of Hydrogeologists (IAH)* • Plenary session: Introduction to FREEWAT platform and presentation of the course ○ *Mr Rudy Rossetto, Sant'Anna University (Italy)*
10:30-10:45	**Tea and coffee break**
10:45-12:30	**Simulation of groundwater flow in hydrogeological systems**
	• Presentation of FREEWAT tools for: - groundwater data/model in daily work, - create a groundwater model, - model simulation, - tips and tricks quantitative groundwater modelling, - surface water and groundwater interaction. ○ *Ms Giovanna De Filippis, Sant'Anna University (Italy)*
12:30-13:45	**Lunch**
13:45-15:30	**Overview of FREEWAT installation**
	• Assistance to participants for installing FREEWAT
15:30-15:45	**Tea and coffee break**
15:45-17:00	**Simulation of groundwater flow in hydrogeological systems**
	• Tutorial presented by Mr Rudy Rossetto, Sant'Anna University (Italy)

DAY 2 • Tuesday 21 March 2017

09:00-11:00	**Tutorial 1: Developing a numerical model inspired to a synthetic case study (ctd.)**
11:00-11:15	**Tea and coffee break**
11:15-13.00	**Tutorial 1: Developing a numerical model inspired to a synthetic case study (ctd.)**
13:00-14:00	**Lunch**
14:00-15:30	**Tutorial 1: Developing a numerical model inspired to a synthetic case study (ctd.)**
15:30-15:45	**Tea and coffee break**
15:45-17:00	**Tutorial 2: Developing a numerical model inspired to a synthetic case study**
	• Tutorial presented by Ms Giovanna De Filippis, Sant'Anna University (Italy)

DAY 3 • Wednesday 22 March 2017

09:00-11:00	**Tutorial 2: Developing a numerical model inspired to a synthetic case study (ctd.)**
11:00-11:30	**Tea and coffee break**
11:30-13:00	**Tutorial 2: Developing a numerical model inspired to a synthetic case study (ctd.)**
13:00-14:00	**Lunch**
14:00-15:30	**Training on data management (Information Management Systems)**
	• Presentation of UNESCO IHP Water Information Network System (WINS) ○ *Mr Tales Carvalho Resende (UNESCO-IHP)* • Working session on UNESCO-IHP WINS • Discussion
15:20-15:40	**Tea and coffee break**
15:40-16:40	**Training on data management (Information Management Systems) (ctd.)**
	• Working session on UNESCO-IHP WINS • Discussion
16:40-17:30	**Concluding Remarks**
	• Concluding remarks ▪ Feedback from participants

DAY 4 • Thursday 23 March 2017

09:00-11:00	**Presentation of the baseline for the development of the Stampriet Transboundary Aquifer System (STAS) numerical model**
	• Presentation of the baseline for the development of the STAS numerical model: - Introduction - Definition of the study area - Model grid - Active domain - Vertical discretization - Time discretization ○ *Ms Giovanna De Filippis, Sant'Anna University (Italy)* • Discussion
11:00-11:15	**Tea and coffee break**
11:15-13.00	**Presentation of the baseline for the development of the Stampriet Transboundary Aquifer System (STAS) numerical model (ctd.)**
	• Presentation of the baseline for the development of the STAS numerical model (ctd.): - Model layers parametrization - Initial conditions - Boundary conditions - Distributed recharge - Abstraction ○ *Ms Giovanna De Filippis, Sant'Anna University (Italy)* • Discussion
13:00-14:00	**Lunch**
14:00-15:30	**Working session: Development of the STAS numerical model**
15:30-15:45	**Tea and coffee break**
15:45-17:00	**Working session: Development of the STAS numerical model (ctd.)**

DAY 5 • Friday 24 March 2017

09:00-11:00	**Working session: Development of the STAS numerical model (ctd.)**
11:00-11:15	**Tea and coffee break**
11:15-13.00	**Working session: Development of the STAS numerical model (ctd.)**
13:00-14:00	**Lunch**
14:00-15:30	**STAS numerical model: way forward**
	• Discussion: - Definition of simulation scenarios and way forward
15:30-15:45	**Tea and coffee break**
15:45-17:00	**STAS numerical model: way forward (ctd.)**
	• Discussion: - Preparation of national workshops on groundwater modelling
17:00-17:15	**Concluding Remarks**

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30	James Sauramba	SADC-GMI	South Africa	jamess@sadc-gmi.org

Annex 3 – Final agenda and list of participants of the National Workshops on National and International Water Law

National Workshops on National and International Water Law

27 – 28 March 2017 (Windhoek, Namibia)

30 – 31 March 2017 (Gaborone, Botswana)

3 – 4 April 2017 (Pretoria, South Africa)

FINAL PROGRAMME

Background and Objectives of the Meeting

Within the framework of the "Governance of Groundwater Resources in Transboundary Aquifers" (GGRETA) project, funded by the Swiss Agency for Development and Cooperation (SDC), the Governments of Botswana, Namibia and South Africa, jointly with the UNESCO International Hydrological Programme (UNESCO-IHP) are undertaking an assessment of the Stampriet Transboundary Aquifer System (STAS). The importance of the STAS to the region draws from the fact that it is the only permanent and dependable water resource in the area, which covers 87,000 sq. km from Central Namibia into Western Botswana and South Africa's Northern Cape Province.

The GGRETA project aims to reinforce the capacity of Member States in managing groundwater resources; strengthen cooperation among countries sharing the aquifer; and develop a long term strategy for the monitoring and governance of the transboundary aquifer. One of the main findings of the first phase of the project (2013-2015) was that strengthening domestic capacities in implementation and enforcement of domestic water legislation is necessary to support cooperation for the management of the STAS. In this connection, the legal and institutional component of the second phase of the project (2016-2018) will concentrate on strengthening capacity on groundwater governance at the national and transboundary levels through a series of capacity-builiding modules as a means to support the process of establishment of a multi-country cooperation mechanism (MCCM). The establishment of the STAS MCCM would be the first example of a mechanism for the management and governance of a transboundary aquifer in Southern Africa.

Objectives

To illustrate and discuss the water laws of Namibia, in context with the cooperation underway on the Stampriet Aquifer System (STAS) with the neighbouring countries sharing that aquifer.

Draft programme

DAY 1 • Monday, 27 March 2017

08:00-08:30	**Registration**
08:30-09:30	**Introduction to the training**
	• Welcome, introduction, getting acquainted with the participants • Adoption of the agenda
09:30-10:45	**The global context – Global trends and developments in domestic water law**
09:30 – 10:30	• A comparative global review of contemporary domestic water legislation – trends, issues emerging, responses ○ *Mr Stefano Burchi, International Water Law Association, GGRETA Project Senior Legal Advisor*

10:30 – 10:45	• Q&A, debate
10:45-11:15	**Tea and coffee break**
11:15-12:30	**International water law and its linkages with the domestic water laws of Namibia**
	• International water law, with a focus on transboundary aquifers ○ *Mr Stefano Burchi, International Water Law Association, GGRETA Project Senior Legal Advisor* • Q&A, debate
12:30-14:00	**Lunch**
14:00-17:00	**International water law and its linkages with the domestic water laws of Namibia (ctd.)**
14:00 – 15:00	• Linking international water law with domestic water legislation – general principles ○ *Mr Stefano Burchi, International Water Law Association, GGRETA Project Senior Legal Advisor* • Q&A, debate
15:00-15:30	**Tea and coffee break**
15:30-17:00	**Group Exercise: Contextualizing Namibia's water laws in the STAS cooperation on-going**
17:00-17:15	**Concluding Remarks**

DAY 2 • Tuesday, 28 March 2017

10:00-12:30	**GGRETA 2 project legal and institutional activities**
	• Discussion on GGRETA Phase 2 legal and institutional activities and workplan (May 2017 – December 2017)
12:30-12:45	**Concluding Remarks**

	Name	Institution
NAMIBIA (27 – 28 March 2017)		
1	Aune Amwaama	Department of Water Affairs and Forestry (DWAF)
2	Simwanza Mwinda	Department of Water Affairs and Forestry (DWAF)
3	Godfried Edward	Department of Water Affairs and Forestry (DWAF)
4	Mercy Molefe	Department of Water Affairs and Forestry (DWAF)
5	John Galant	Department of Water Affairs and Forestry (DWAF)
6	Beajah Wohler	Department of Water Affairs and Forestry (DWAF)
7	Bertram Swartz	Department of Water Affairs and Forestry (DWAF)
8	Sakeus Ihemba	Department of Water Affairs and Forestry (DWAF)
9	Lothar Menge	Department of Water Affairs and Forestry (DWAF)
10	Gettie Mulokoshi	Department of Water Affairs and Forestry (DWAF)
11	Josephine Itengula	Department of Water Affairs and Forestry (DWAF)
12	Anna David	Department of Water Affairs and Forestry (DWAF)
13	Josephine Mutota	Department of Water Affairs and Forestry (DWAF)
BOTSWANA (30 – 31 March 2017)		
1	Kene Dick	Department of Water Affairs (DWA)
2	Kelly Gaboiphlwe	Department of Water Affairs (DWA)
3	Felicity Ziga	Water Utilities Corporation (WUC)
4	Gobuamang Mogomotsi	Water Utilities Corporation (WUC)
5	Anthony Ditedu	Attorney General Chamber (AGC)
6	Thuto Senwedi	Attorney General Chamber (AGC)
7	Odirile Otto Itumeleng	University of Botswana
8	Precious Kenosi	Botswana National Commission for UNESCO
9	Thato Setloboko	Department of Water Affairs (DWA)
10	Piet Kenabatho	University of Botswana

SOUTH AFRICA (3 – 4 April 2017)		
1	Moses Mukota	Department of Water and Sanitation (DWS)
2	Mirrander Mapanzene	Department of Water and Sanitation (DWS)
3	Mercy Masupye	Department of Water and Sanitation (DWS)
4	Sakhile Mndaweni	Department of Water and Sanitation (DWS)
5	Mpelegeng Lebeloane	Department of Water and Sanitation (DWS)
6	Teffo Mashala	Department of Water and Sanitation (DWS)
7	Ramogale Sekwele	Department of Water and Sanitation (DWS)

Annex 4 – Final agenda and list of participants of the national workshops on sex-disaggregated data collection and gender and water indicators

National Workshops on sex-disaggregated data collection and gender and water indicators

27 – 28 March 2017 (Windhoek, Namibia)

30 – 31 March 2017 (Gaborone, Botswana)

3 – 4 April 2017 (Pretoria, South Africa)

FINAL PROGRAMME

DAY 1

08:00-08:30	**Registration**
08:30-09:30	**Introduction to gender-related concepts**
08:30 – 09:00 *09:00 – 09:30*	• A "gender world" • Gender issue in freshwater framework: SDG 5 and 6 analysis
09:30-11:00	**Sex-disaggregated data collection**
09:30 – 10:00 *10:00 – 10:30* *10:30 – 11:00*	• Data, the lifeblood of effective researches, programmes and projects • Sex-disaggregated data • Introduction to WWAP toolkit for sex-disaggregated data collection
11:00-11:30	**Tea and coffee break**
11:30-12:30	**Identification of selected water indicators from the UNESCO WWAP Gender Toolkit (Part 1)**
	• Structure of WWAP toolkit
12:30-14:00	**Lunch**
14:00-15:30	**Identification of selected water indicators from the UNESCO WWAP Gender Toolkit (Part 2)**
	• Results from the first application of the WWAP toolkit
15:30-16:00	**Tea and coffee break**
16:00-17:00	**Gender guidance for water data surveys (Part 1)**
16:00 – 16:30 *16:30 – 17:00*	• Phases of a water data survey • Knowing the area of the study

DAY 2

09:00-11:00	**Gender guidance for water data surveys (Part 2)**
09:00 – 09:30 *09:30 – 10:00* *10:00 – 10:30*	• How to select the indicators: resources, scale and methodologies • From the indicator to the question • Questionnaires/interviews administering
10:30-11:00	**Tea and coffee break**
11:00-12:30	**From data to information**
11:00 – 11:30 *11:30 – 12:00* *12:00 – 12:30*	• Data entry & data recording • Data analysis • Data restitution
12:30-12:45	**Concluding Remarks**

	Name	Institution
NAMIBIA (27 – 28 March 2017)		
1	Tuuliki Kandjinga	Department of Water Affairs and Forestry (DWAF)
2	Josephine Itengula	Department of Water Affairs and Forestry (DWAF)
3	Rennie Muuyayi	University of Namibia
4	Reginalda Joseph	Department of Water Affairs and Forestry (DWAF)
5	Aline Katjitundu	Department of Water Affairs and Forestry (DWAF)
6	Ugeta T. Muzuma	Department of Water Affairs and Forestry (DWAF)
7	Nicholene Likando	Department of Water Affairs and Forestry (DWAF)
8	Hans Gerd Lueesse	Department of Water Affairs and Forestry (DWAF)
BOTSWANA (30 – 31 March 2017)		
1	Gaogane Tiny Mothobi	Department of International Affairs (DWA)
2	Lorato Force	University of Botswana
3	Kutlwano Makwatse	University of Botswana
4	Sethunya Simela	University of Botswana
5	Ontlugetse Dikgomo	Department of Water Affairs (DWA)
6	Moses O. Moehaam	Department of Water Affairs (DWA)
7	Charles Nkile	Department of Water Affairs (DWA)
8	Lindiwe Ngwenja	GIZ
9	Bothepha Mosetlhi	University of Botswana
10	Saniso Sakuringwa	Department of Water Affairs (DWA)
11	Kaketsego Montlhabanedi	Department of Water Affairs (DWA)
12	Baboloki Antlweise	Kalahari Conservation Society (KCS)
13	Wendy Seone	Department of Water Affairs (DWA)
SOUTH AFRICA (3 – 4 April 2017)		
1	Selebaleg Gaebee	Department of Water and Sanitation (DWS)

2	Aynda Dlamini	Department of Water and Sanitation (DWS)
3	Ngwako Muphoto	Department of Water and Sanitation (DWS)
4	Phuti Setati	Department of Water and Sanitation (DWS)
5	Wendy Mohlahludi	Department of Water and Sanitation (DWS)