# REGIONAL MEETING ON TOOLS FOR THE SUSTAINABLE MANAGEMENT OF TRANSBOUNDARY AQUIFERS

## Groundwater Resources Governance in Transboundary Aquifers

## (GGRETA Project)

## SUMMARY OF THE FIRST STAKEHOLDER CONSULTATION MEETING

Birchwood Hotel and Conference Centre, Johannesburg (South Africa)

28-31 July 2015

***FINAL REPORT***

## 1. BACKGROUND

The Governments of Botswana, Namibia and South Africa in conjunction with the United Nations Educational, Scientific and Cultural Organisation International Hydrological Programme (UNESCO-IHP) and the International Water Management Institute (IWMI) organised the Regional Meeting on Tools for the Sustainable Management of Transboundary Aquifers in Johannesburg, South Africa from 28 to 31 July 2015.

The purpose of the meeting was twofold. Firstly, it was held to share the results of the assessment of the Stampriet Transboundary Aquifer System (STAS) that is shared between Botswana, Namibia and South Africa with a broader audience including Non-Governmental Organizations (NGOs), national and regional stakeholders (First Stakeholder Consultation Meeting). The STAS project is co-ordinated by UNESCO-IHP and sponsored by the Swiss Agency for Development and Co-operation. Secondly, it was held to present the Ramotswa Transboundary Aquifer that is shared between Botswana and South Africa. The Ramotswa Transboundary Aquifer Project is co-ordinated by the Resilience in the Limpopo Basin (RESILIM) and the International Water Management Institute (IWMI) and sponsored by the United States Agency for International Development (USAID).

The discussions on the STAS focused on presenting the main findings of the aquifer assessment and the lessons learnt as well as the possible options for Multi Country Consultation Mechanism (MCCM). Two options were presented:

*1) Permanent Joint Technical Committee drawn from Botswana, Namibia and South Africa but operating outside the ORASECOM structure.*

*2) An ad hoc or standing ORASECOM Committee with representatives drawn from Botswana, Namibia and South Africa.*

The potential setting-up of a MCCM aims at institutional co-operation between Botswana, Namibia and South Africa by establishing and or an existing structure that will co-ordinate and manage the STAS, including regular collection and exchange of data and information as well as the development of strategies and plans to prevent pollution or contamination of groundwater. Botswana, Namibia and South Africa are expected to consider recommendations after making internal consultations.

The discussions on the Ramotswa Transboundary Aquifer (Botswana and South Africa) focused on presenting the project objectives, current knowledge on the aquifer and developing a joint work plan for the project by Botswana and South Africa. The project was found to be worth undertaking because of the current water shortages experienced by Botswana in the southern part of the country and South Africa in KwaZulu-Natal Province. Consequently, groundwater was deemed a viable option to reduce the burden on the already dwindling surface water resources. This project seeks to address the following:

- Identify knowledge gaps in the Ramotswa Transboundary Aquifer.
- Collection of baseline data, including geological maps.
- Collection of information on dolomites in Botswana.
- Undertake hydrogeological characterization and delineation.
- Layering of aquifer systems (deeper groundwater).
- Identify recharge areas for dolomites aquifers.
- Identify fountains and springs on Botswana side.
- Harmonization of geological nomenclature across the two countries.
- Identify critical stakeholders for the project and establish multi stakeholder engagement mechanisms.
- Establish joint aquifer database management.
- Identify aquifer management training needs.

The meeting raised awareness and promoted transboundary aquifer management co-operation between Botswana, Namibia and South Africa. It presented lessons learnt from the STAS which could be used on the Ramotswa Transboundary Aquifer Project. It was attended by leading regional and international water institutions such as the Resilience in the Limpopo Basin (RESILIM); African Ministers' Council on Water (AMCOW); International Water Management Institute (IWMI); International Groundwater Resources Assessment Centre (IGRAC); and International Association of Hydrogeologists (IAH).

**The remainder of this report will cover only activities related to the STAS First Stakeholder Consultation Meeting. The final agenda and list of participants is provided in Annex 1 and Annex 2, respectively.**

## 2. OUTCOMES OF THE STAS FIRST STAKEHOLDER CONSULTATION MEETING

- Presentation of main findings of the STAS assessment:

    - The Kalahari aquifers consist of hundreds of individual aquifers in all the three countries that are more or less loosely connected. They form an unconfined aquifer system that is considered as non-transboundary,
    - The confined Auob and Nossob aquifers are transboundary,
    - The STAS is not hydraulically connected to the Orange-Senqu River,
    - Potential for further abstraction is not very high but there is a huge potential to better use the aquifer.

- Indicators should be made available, separately, for the non-transboundary Kalahari aquifers and the transboundary Auob/Nossob aquifers.

- Presentation of two potential options of Multi-Country Consultation Mechanism (MCCM):

    *1) Permanent Joint Technical Committee drawn from Botswana, Namibia and South Africa but operating outside the ORASECOM structure,*
    *2) An ad hoc or standing ORASECOM Committee with representatives drawn from Botswana, Namibia and South Africa.*

    The three countries were given a chance to suggest the best option. However, nothing concrete was agreed as the countries were still going to consult with their respective countries, as well as across the three countries

- The workshop agreed the following workplan to finalize the STAS assessment report and upcoming activities:

| Activities | Time |
|---|---|
| Finalization of the final draft assessment report | Second half of October 2015 |
| Feedback from Governments | Second half of November 2015 |
| 2nd stakeholder consultation meeting (Mariental) | 25-26 or 26-27 November 2015 |
| Finalization of final assessment report | Early December 2015 |
| Final meeting (Paris) - Presentation of final assessment report to Political Heads | Week of 13-18 December 2015 |

- Agreement on priorities for a potential next phase of the project:

  *1) Establishment of a joint monitoring and data collection program for the STAS*

  *2) Capacity building in research institutions – Botswana, Namibia, South Africa (e.g. modelling activities in partnership with Universities)*

  *3) Putting into full operation the Information Management System (IMS) and data and putting it into full operation*

  *4) Further scientific work to give more precise answers to key questions:*

    *a. estimates of the acceptable level annual take from the aquifer*

    *b. standardised approach to assessing GW vulnerability to pollution*

    *c. descriptions of recharge mechanisms and estimates of recharge*

    *d. more complete and accurate cross-sections of the aquifer*

    *e. further work to validate estimates of water use and water quality through surveys*

    *f. potential for increased use of treated water from the salt block region*

  *5) Development of borehole management and maintenance guidelines, including:*

    *a. Recommendations on further boreholes to monitor the deep transboundary aquifers (Auob and Nossob),*

    *b. Recommendations on how to monitor and enforce compliance in countries where they already exist.*

  *6) Valuation of the transboundary aquifer (e.g. economic footprint), including valuation of invasive species (e.g. Prosopis)*

  *7) Investments to improve water supply and water use efficiency in remote areas*

  *8) Development of scenarios to indicate the effects of mining and irrigation development (c.f. modelling)*

- Workshop on hydro-diplomacy capacity building facilitated by UNESCO-From Potential Conflict to Cooperation Potential (PCCP), and UNESCO International Centre for Water Cooperation, hosted at Stockholm International Water Institute (SIWI).

- Mapping of stakeholders in the STAS.

- Entities responsible for uploading data in the IMS will be STAS countries' Department of Water Affairs.

## 3. BRIEF SUMMARY

**Day 1 of the workshop** started with welcome remarks from the Government of South Africa, Botswana and Namibia who expressed their support to the joint initiative to promoting transboundary aquifer management co-operation between Botswana, Namibia and South Africa. Plenary presentations by Mr. Ross (GGRETA Project Coordinator, UNESCO- IHP) and Ms. Villholth (IWMI) on the objectives of the workshop, i.e. presentation of STAS assessment within the framework of the first stakeholder consultation, and inception meeting of the Ramotswa Transboundary Aquifer assessment project, respectively. Presentations were followed by a water cooperation session in which Mr. Puri (IAH) and Mr. Carvalho Resende (UNESCO-IHP) presented UNESCO-IHP long standing expertise in water diplomacy and cooperation. Two examples of already existing Multi Country Consultation Mechanism were presented to participants, namely the North-Western Sahara Aquifer System (Algeria, Libya and Tunisia) and the Genevese Aquifer (France, Switzerland) Consultation Mechanisms.

The remaining sessions of Day 1 focused on the presentation of STAS assessment preliminary main findings and on the presentation of the Ramotswa Transboundary Aquifer. Both presentations were held in plenary.

**Day 2 of the meeting** was devoted to parallel sessions. STAS related parallel sessions aimed at 1) having in-depth technical discussions of the STAS assessment and 2) receiving recommendations for a potential next phase of the project. Main findings and recommendations are presented in Section 2.

**Day 3 of the workshop** was dedicated to workshop on hydro-diplomacy capacity building facilitated by UNESCO-From Potential Conflict to Cooperation Potential (PCCP), and UNESCO International Centre for Water Cooperation, hosted at Stockholm International Water Institute (SIWI). The workshop started with a presentation of defining **water diplomacy and water and energy nexus**. A video was screened to allow participants reflecting on the several linkages that exist between water and other sectors. The video screening was followed by a presentation on **multilevel governance of water cooperation**. This presentation showed the interconnection between institutions, policies, regulations, legislations, social norms and the stakeholders at different levels. The slides intended to show how this interconnection could be linked to other non-water related institutions. It was presented that other stakeholders such as subnational or local implementing agencies could add another dimension to the complex relationships and stream of influence in water governance. As an example, a case study from the State of Victoria, Australia, showed the complexity of mapping governance bodies and the existing interaction between stakeholders, institutions, legal instruments and scale (Figure 1).

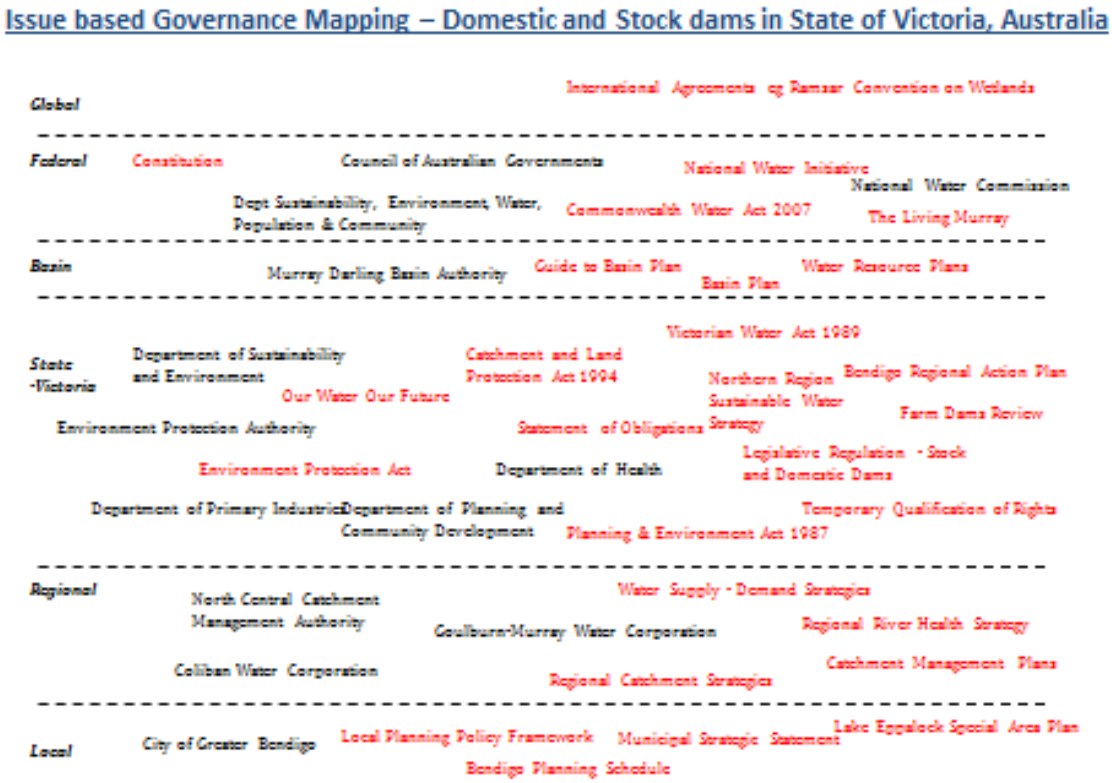



**Figure 1 – Issue based governance mapping – Domestic and stock dams in State of Victoria, Australia**

A group exercise was held to map and categorize stakeholders in the STAS using an orchestra setting example (Figure 2). For instance stakeholders should be categorized as:

- The orchestra,
- The audience,
- Loudspeakers,
- Instruments.

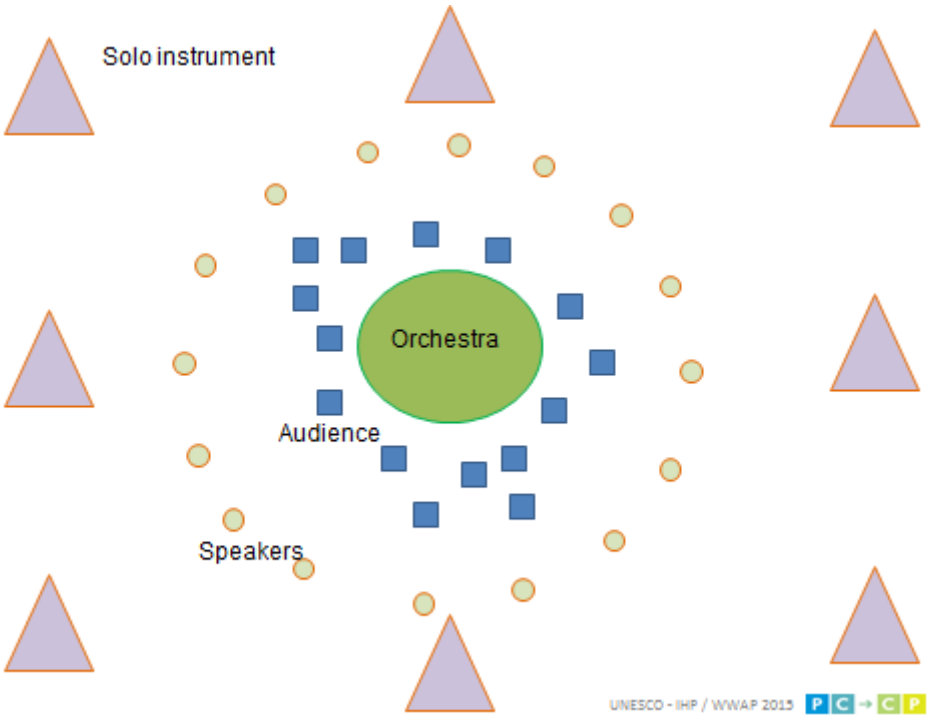



**Figure 2 - Categorize of STAS stakeholders using an orchestra setting**

After one hour of negotiation, drawings, and discussions, participants presented their results (Annex 3). The results of the discussions are as follows:

- STAS national boarders were not an impediment and were not mentioned in the discussions. The scale of discussions always focused at the basin itself.
- Policy makers were categorized mainly as the “main orchestra”, but also as “soloist” that need to rely on agencies (lobby and media) to redistribute their action in space and time.
- The role of the speakers was commonly attributed to international agencies, lobbies, syndicates and associations of farmers.
- The scientific community was often referred as an alerting agency.
- Participants pointed out several potential collaborations, such as academia, implementing agencies, farmers associations, traditional authorities, and media
- Lobby groups and farmers associations were particularly present during deliberation as triggers of action at different levels.
- International agencies were often seen as regulators in case of potential tensions between stakeholders. Surprisingly the question of sovereignty did not emerge.
- The role of “polluters” is a major category of stakeholders that should be defined and considered.

**Day 4 of the workshop** was dedicated to final deliberations and agreement on priorities for a potential next phase of the project and a workplan to finalize the STAS assessment report and upcoming activities (Section 2).

# Annex 1 - Agenda

## DAY 1 • Tuesday, 28 July 2015, Johannesburg

**Objectives:**

- **Presentation of the Stampriet Transboundary Aquifer System (STAS) integrated assessment findings**
- **Presentation of the Ramotswa Transboundary Aquifer Project (RAMOTSWA)**

| | |
|---|---|
| **8:30-9:00** | **Registration** |
| **9:00-10:15** | **Opening of the meeting** |
| | *Chair: Advocate Lebeloane (Dept. of Water and Sanitation, South Africa)* |
| *9:00-9:15* | Welcome remarks and opening of the meeting by the Governments of South Africa, Botswana and Namibia:<br>• **Ministry of Water and Sanitation / Dept. of Water and Sanitation (DWS)**, South Africa<br>o *Ms Deborah Mochotlhi*<br>• **Ministry of Minerals, Energy and Water Resources (MMEWR) / Dept. of Water Affairs (DWA)**, Botswana<br>o *Mr Piet Kenabatho*<br>• **Ministry of Agriculture, Water and Forestry / Dept. of Water Affairs and Forestry (DWAF)**, Namibia<br>o *Ms Aina Ileka* |
| *9:15-10:15* | Welcome remarks by UNESCO-IHP and IWMI:<br>• **UNESCO-IHP ,** Presentation of the GGRETA project and objectives of the meeting<br>o *Andrew Ross*<br>• **IWMI,** Presentation of the RAMOTSWA project<br>o *Karen Villholth* |
| *10:15-10:25* | Welcome remarks by Regional Organizations:<br>• **AMCOW**<br>o *Nelson Gomonda* |
| *10:25-10:45* | Roundtable for the presentation of the participants and adoption of the agenda |
| **10:45-11:00** | **Coffee break** |
| **11:00-12:00** | **Transboundary Aquifers Cooperation** |
| *11:00-11:30* | UNESCO-IAH cooperation on Transboundary Aquifers:<br>• Presentation of the Internationally Shared Aquifers Resources Management (ISARM) initiative and IAH Commission on Transboundary Aquifers<br>o *Shammy Puri (IAH)* |
| *11:30-12:00* | Examples of a Multi-Country Consultation Mechanism (MCCM)<br>o *Tales Carvalho Resende (UNESCO-IHP)* |
| *12:00-12:15* | Discussion |

| | |
|---|---|
| **12:15-13:00** | **STAS integrated assessment main findings** |
| *12:15-12:45*<br><br><br><br><br>*12:45-13:00* | Presentation of the STAS main findings:<br>• Integrated Assessment<br>• Preliminary issues and lessons learnt<br>• Preliminary options of Multi-Country Consultative Mechanisms (MCCM)<br>o *Tales Carvalho Resende (UNESCO-IHP)*<br><br>Discussion |
| **13:00-14:30** | **Lunch** |
| **14:30-15:30** | **Presentation of the RAMOTSWA project** |
| *14:30-15:15*<br><br><br><br><br><br><br>*15:15-15:30* | Presentation of the RAMOTSWA project:<br>• Background<br>o *Nkobi Moleele (RESILIM)*<br>• Objectives, approaches/work packages and timeframe<br>o *Karen Villholth (IWMI)*<br>• Database/Information system<br>o *Geert-Jan Nijsten (IGRAC)*<br><br>Discussion |
| **15:30-15:45** | **Coffee break** |
| **15:45-17:00** | **Reactions to STAS integrated assessment main findings and RAMOTSWA presentation** |
| *15:45-16:15*<br><br><br>*16:15-17:00* | Reactions to STAS integrated assessment main findings and RAMOTSWA presentation<br><br>General discussion and feedback |

## DAY 2 • Wednesday, 29 July 2015, Johannesburg

**Objectives:**

- **Parallel sessions to discuss in-depth technical discussions of the STAS assessment and Introduction to current knowledge on the Ramotswa Transboundary Aquifer Area (RTBAA)**

| | | |
|---|---|---|
| **9:00-9:05** | **Opening of Day 2** | |
| *9:00-9:20* | Welcome remarks and presentation of Day 2 objectives<br>o *Tales Carvalho Resende (UNESCO-IHP) and Karen Villholth (IWMI)*<br>Database/Information management system<br>o *Geert-Jan Nijsten (IGRAC)* | |
| **9:20-10:30** | **Parallel sessions** | |
| | **In-depth technical discussions of the STAS assessment** | **Introduction to current knowledge on the Ramotswa Transboundary Aquifer Area (RTBAA)** |
| | Overview of the aquifer hydrogeological aspects<br>o *Jürgen Kirchner (Namibia)*<br><br>Overview of the aquifer socio-economic and environmental aspects<br>o *Piet Kenabatho (University of Botswana)*<br><br>Discussion:<br><br>(i) *The STAS area* (location map, topography, climate, demography and other general features);<br><br>(ii) *Overview of the STAS* (geology, aquifers, artesian conditions; groundwater recharge/discharge/storage; natural groundwater quality);<br><br>(iii) *The role of groundwater in the area* (wells and boreholes; volumes abstracted by aquifer and by type of use; ecological functions of groundwater; groundwater pollution; excessive losses of water and other problems/threats) | Water resources and hydrogeological aspects<br><br>Current Knowledge of Water Resources and Hydrogeological Conditions in the Ramotswa Transboundary Aquifer Area, Based on Experience from the North West Province in South Africa<br>o Chadwick *Lobakeng (Department of Water and Sanitation, South Africa) (TBC)*<br><br>Current Knowledge of Water Resources and Hydrogeological Conditions and Groundwater Management Issues in the Greater Ramotswa Transboundary Aquifer Area<br>o *Peloteshweu Phofuetsile (Department of Water Affairs, Botswana) (TBC)*<br><br>Ramotswa Transboundary Aquifer Hydrogeology - Current Knowledge and Plans for Remote Sensing-Based Technology Application<br>o *Seth Broadfoot (XRI, USA)*<br><br>Hydrogeological and Groundwater Conditions of the Karst Belt in Region 10 of South Africa<br>o *Rainie Meyer (South Africa)*<br><br>Discussion |
| **10:30-10:45** | **Coffee break** | |

| | | |
|---|---|---|
| **10:45-12:30** | **Parallel sessions (ctd.)** | |
| | **In-depth technical discussions of the STAS assessment** | **Introduction to current knowledge on the Ramotswa Transboundary Aquifer Area (RTBAA)** |
| | Overview of the aquifer assessment – Diagnostic:<br>o *Andrew Ross (UNESCO-IHP)*<br>Discussion:<br><br>(iv) *Diagnostic* (value and relevance of groundwater – in particular the STAS -; opportunities, problems and threats, both at the domestic and the transboundary levels; uncertainties; recommendations for interventions and other actions).<br><br>(v) *Presentation of potential STAS Multi-Country Consultation Mechanisms options* (core mandate, legal arrangements, structure, funding arrangements, advantages and disadvantages).<br><br>Discussion | Management, socio-economic and environmental aspects:<br><br>Critical Issues Related to Management of Extensive Use of Dolomite Aquifers in the North West Province of South Africa<br>o *Jude Cobbing (South Africa)*<br><br>Development and Governance Issues Related to the Ramotswa Aquifer<br>o *Kevin Pietersen (South Africa)*<br><br>Increasing Water Security for the Ramotswa Transboundary Aquifer Area through Concerted and Efficient Reuse of Recharged and Retrieved Waste Water<br>o *Hillary Masundire (University of Botswana)*<br><br>Environmental and Socio-Economic Issues of Concern for the Ramotswa Transboundary Aquifer Area<br>o *Piet Kenabatho (University of Botswana)*<br><br>Discussion |
| **12:30-14:00** | **Lunch** | |
| **14:00-16:00** | **Parallel sessions (ctd.)** | |
| | **Reactions to STAS integrated assessment findings and way forward** | **Introduction to current knowledge on the Ramotswa Transboundary Aquifer Area (RTBAA)** |
| | Reactions to STAS integrated assessment findings:<br>• Reactions from South Africa<br>• Reactions from Botswana<br>• Reactions from Namibia<br><br>Political Economy Analysis and Private sector engagement in water resources management<br>o *Nick Tandi (SIWI)*<br><br>Recommendations for project's potential next phase:<br>• Presentation of the Swiss Development Agency for | Reactions to RAMOTSWA presentations, feeding into:<br>• Discussion of knowledge gaps in relation to RTBAA<br>• Discussion on stakeholders and multi-stakeholder engagement<br>• Discussion of baseline assessment<br>• Discussion on hydrogeological characterization<br>• Discussion on joint database<br>• Discussion on training and training needs |

| | | |
|---|---|---|
| | Cooperation and Development (SDC) - Strategic Framework 2013–2017 Global Programme Water Initiatives<br>o *Tales Carvalho Resende (UNESCO-IHP)*<br>• Recommendations from South Africa<br>• Recommendations from Botswana<br>• Recommendations from Namibia<br><br>Discussion | |
| **16:00-16:15** | **Coffee break** | |
| **16:15-17:00** | **Reactions to STAS integrated assessment findings and RAMOTSWA Project preliminary decisions** | |
| *16:15-16:30* | Reactions to STAS integrated assessment findings and way forward | |
| *16:30-16:45* | RAMOTSWA preliminary decisions | |
| *16:45-17:00* | General discussion and feedback | |

## DAY 3 • Thursday, 30 July 2015, Johannesburg

**Objectives:**

- **Provide a workshop on hydro-diplomacy capacity building facilitated by UNESCO-From Potential Conflict to Cooperation Potential (PCCP), and UNESCO International Centre for Water Cooperation, hosted at Stockholm International Water Institute (SIWI)**

United Nations Educational, Scientific and Cultural Organization

International Water Cooperation Centre, Stockholm

under the auspices of UNESCO

| **9:00-9:30** | **Opening remarks and presentations** |
|---|---|
| *9:00-9:30* | Presentation of previous UNESCO PCCP workshop results and collaboration with SIWI |
| *9:30-10:00* | Presentation of the UNESCO International Water Cooperation Centre, hosted at Stockholm International Water Institute (SIWI) and its expertise on hydro-diplomacy and groundwater. |
| *10:00-10:15* | Presentation of the methodology of the workshop |

| | |
|---|---|
| **10:15-10:30** | **Coffee break** |
| **10:30-12:30** | **Workshop on enhanced negotiation skills and capacity building** |
| | First part of the workshop on hydro-diplomacy |
| **12:30-14:00** | **Lunch** |
| **14:00-18:00** | **Workshop on enhanced negotiation skills and capacity building** |
| | Second part of the workshop on hydro-diplomacy<br><br>Presentation and discussion of the exercise / results |
| **15:45-16:00** | **Coffee break** |
| | Final part of the workshop on hydro-diplomacy<br><br>Presentation and discussion of the exercise / results<br><br>Concluding discussions |

## DAY 4 • Friday, 31 July 2015, Johannesburg

**Objective:**

- **Discuss potential linkages between STAS integrated assessment and RAMOTSWA project**
- **Make decisions on ways forward for the STAS and RAMOTSWA Projects**

| | | |
|---|---|---|
| **9:00-9:05** | **Opening of Day 4** | |
| | Welcome remarks and presentation of Day 4 objectives | |
| **9:05-11:00** | **Parallel sessions** | |
| | **Workplan for follow-up to the integrated aquifer assessment** | **Group work for the RAMOTSWA Project** |
| | Workplan for follow-up to the integrated aquifer assessment :<br><br>• Presentation assessment indicators<br>• Adoption of workplan for follow-up to integrated aquifer assessment<br>• Plan for 2nd Stakeholder Consultation meeting, *(Stampriet, Namibia, September/October 2015)*<br>• Plan for Final Regional Technical Workshop (*November/December 2015)*<br>• Prospects for a further phase of the project<br><br>Discussion | Group work to define project teams, tasks and approaches to apply<br><br>• Group 1: Socio-economics, environment, legal/institutional<br>• Group 2: Water resources and hydrogeology<br>• Group 3: Water recovery and storage options via RTBAA<br>• Group 4: Joint database<br><br>Each group to consider requirements/options for stakeholder engagement and training<br><br>Decisions on workplan, roles and timeline |
| **11:00-11:15** | **Coffee break** | |

| | |
|---|---|
| **11:15-12:30** | **Potential linkages between STAS and RAMOTSWA Projects** |
| *11:15-12:30* | Potential linkages between STAS and RAMOTSWA projects |
| **12:30-13:00** | **Closing remarks for both projects** |
| | Closing remarks from UNESCO-IHP<br><br>Closing remarks from IWMI<br><br>Closing remarks from Namibia<br><br>Closing remarks from Botswana<br><br>Closing remarks from South Africa |
| **13:00-14:30** | **Lunch** |

# Annex 2 – List of participants

| *Participant* | *Organization* | *Contact details* |
|---|---|---|
| **BOTSWANA** | | |
| **Mr. Piet Kenabatho** | University of Botswana<br>Department of Environmental Science<br>Senior Lecturer<br>GGRETA Project National Coordinator | kenabatho@mopipi.ub.bw<br>T : +267 3552509<br>M : +267 74599317 |
| **Ms. Bothepha Mosetlhi** | University of Botswana<br>Department of Environmental Science<br>Senior Lecturer | bothepha.mosetlhi@mopipi.ub.bw /<br>bothepha.mosetlhi@gmail.com<br>T : +267 3555029<br>M : +267 74583944 |
| **Mr. Hillary Masundire** | University of Botswana<br>Department of Environmental Science<br>Senior Lecturer | masundh@mopipi.ub.bw |
| **Mr. Nelson Lekgetho** | Ministry of Minerals, Energy and Water Resources<br>Department of Water Affairs | nlekgetho@gov.bw |
| **Mr. Edgar Sisa** | Ministry of Foreign Affairs and International Cooperation<br>Assistant Director for Multilateral Affairs | esisa@gov.bw |
| **Mr. Baboloki Autlwese** | Kalahari Conservation Society<br>Deputy Chief Executive Officer | baboloki@kcs.org.bw<br>T: +267 3974557 |

| NAMIBIA | | |
|---|---|---|
| **Ms. Aina N. Ileka**<br>**(National Coordinator)** | Ministry of Agriculture, Water and Forestry<br>Department of Water Affairs and Forestry<br>Chief Hydrogeologist: Geohydrology Division | ilekaa@mawf.gov.na<br>T : +264 61 208 7102<br>M: + 264 81 144 8972 |
| **Ms. Gettie Mulokoshi** | Ministry of Agriculture, Water and Forestry<br>Department of Water Affairs and Forestry<br>Hydrogeologist: Geohydrology Division | MulokoshiG@mawf.gov.na<br>T: +264 61 208 7075<br>M: +264 81 393 6206 |
| **Mr. Fransiskus Witbooi** | Ministry of Agriculture, Water and Forestry<br>Department of Water Affairs and Forestry<br>Deputy Director: Law Administration Division | WitbooiF@mawf.gov.na<br>T: +264 61 208 7226<br>M: +264 81 221 5399 |
| **Mr. Petrus Uushona** | Ministry of Agriculture, Water and Forestry<br>Department of Water Affairs and Forestry<br>Development Planner: Water Planning Division | puushona@gmail.com<br>T: +264 61 208 7187<br>M: +264 81 148 5606 |
| **Ms. Aune Amwaama** | Ministry of Agriculture, Water and Forestry<br>Department of Water Affairs and Forestry<br>Chief Hydrologist: Basin Committees, Hydrology Division | AmwaamaA@mawf.gov.na<br>T: +264 61 208 7259<br>M: +264 81 2777 855 |
| **Mr. Jurgen Kirchner** | GGRETA Project Regional Coordinator | g-wi@hotmail.de<br>T: +264 61 2087091<br>H: +264 61 222207<br>M: +264 81 2976543 |

| | | |
|---|---|---|
| | | M: +264 85 6490735 |
| **Mr. Piet Heyns** | Heyns International Water consultancy | heynsp@mweb.com.na |
| **Mr. Diganta Sarma** | Namibia Hydrosearch CC | diganta@geonamibia.net<br>diganta.nh@gmail.com |
| **Ms. Rennie Munyayi** | Desert Research Foundation of Namibia (DRFN)<br>Gender Expert | Rennie.munyayi@drfn.org.na<br>rcmrennie@gmail.com |
| **Ms. Britta Hackenberg** | Namibia Nature Foundation (NNF)<br>Head of Projects | bh@nnf.org.na |
| **SOUTH AFRICA** | | |
| **Ms. Deborah Mochotlhi** | Department of Water and Sanitation<br>Deputy Director General: Water Planning & Information Management<br>Focal Point for the IHP National Committee of South Africa | mochotlhid@dwa.gov.za<br>T: +27 12 336 7255<br>M: +27 83 629 2565 |
| **Mr. Ramogale Sekwele** | Department of Water and Sanitation: Water Resources Information Programmes<br>Scientist Manager: Coordination and Liaison | SekweleR@dwa.gov.za<br>T : +27 12 336 8867<br>M : +27 82 940 2643<br>Fax: +27(0)12 328 6397 |
| **Mr. Kwazikwakhe Majola** | Department of Water and Sanitation<br>Senior Hydrogeologist<br>GGRETA Project National Coordinator | MajolaK@dws.gov.za<br>T : +27 12 336 7105<br>M : +27 83 791 3575 |

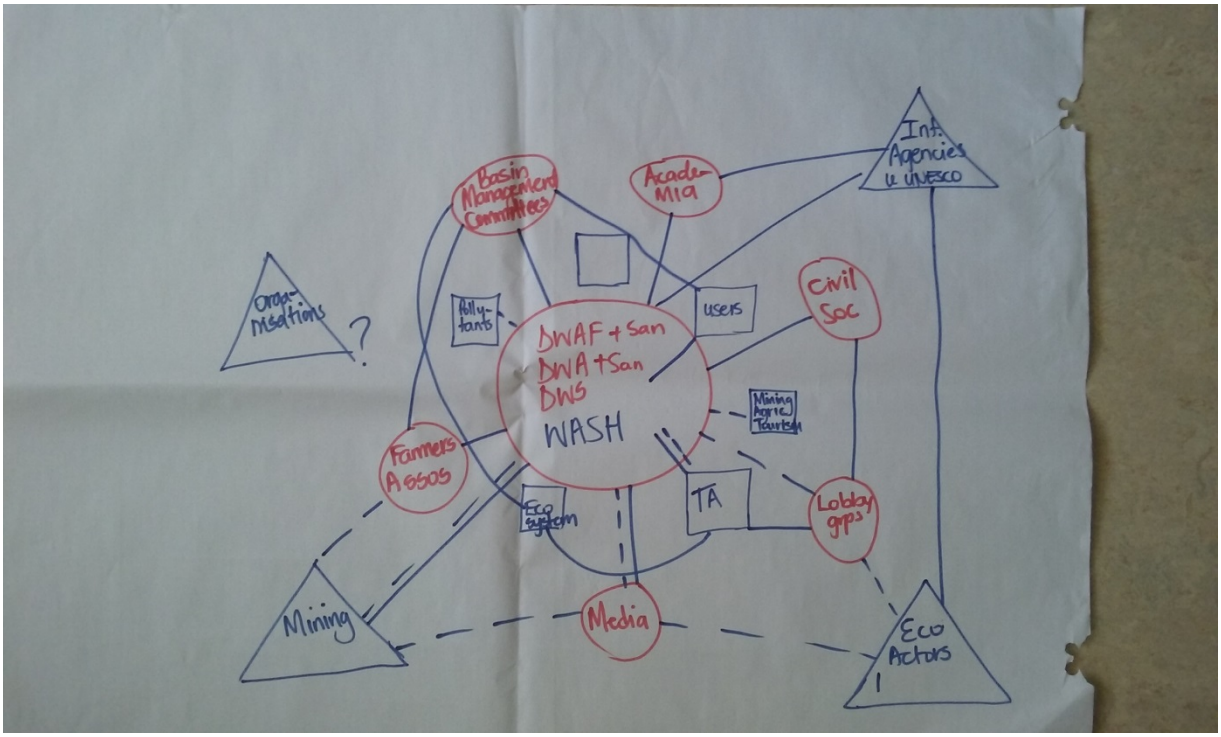
| | | |
|---|---|---|
| **Ms. Mpelegeng Lebeloane** | Department of Water and Sanitation<br>Legal Services | lebeloanem@dwa.gov.za<br>T: +27 12 336 7391 |
| **Mr. Teffo Mashala** | Department of Water and Sanitation<br>Legal Services | MashalaT@dws.gov.za<br>T: +27 12 336 7304 |
| **Ms. Nancy Motebe** | Department of Water and Sanitation | MotebeN@dws.gov.za |
| **Mr. Selebaleng Gaebee** | Department of Water and Sanitation | gaebeeS@dws.gov.za<br>012 336 8893 |
| **Mr. Sakhile Mndaweni** | Department of Water and Sanitation | MndaweniS@dws.gov.za |
| **Mr. Jan Makhetha** | Department of Water and Sanitation<br>Northern Cape Regional Office | makhethaJ@dws.gov.za<br>082 885 8392 |
| **Mr. Bayanda Zenzile** | Department of Water and Sanitation | zenzileB@dws.gov.za |
| **Ms. Mirrander Mapanzene** | Department of Water and Sanitation | MapanzeneM@dws.gov.za<br>012 336 7560 |
| **Mr. Zwakele Thabede** | Department of Water and Sanitation<br>Communications | thabedez@dws.gov.za |
| **Ms. Brenda Mpitsang** | Department of Water and Sanitation<br>International Water Cooperation | Mpitsongb@dws.gov.za |
| **Ms. Irene Jimenez del Sol** | Department of Water and Sanitation | delsoli@dws.gov.za |

| | | |
|---|---|---|
| **Mr. Arturo Jesus Lorenzo Ferras** | Department of Water and Sanitation | ferrasa@dws.gov.za |
| **Mr. Kwena Mokgalanele** | DIRCO | MokgalaneK@dirco.gov.za |
| **Ms. Grace Metswanere** | Water Research Commission | gracem@wrc.org.za |
| **Mr. Ugo Nzotta** | Council for Geo-Science<br>Senior Hydrogeologist | unzotta@geoscience.org.za |
| **Mr. Kevin Pietersen** | SLR Consulting<br>Director | kpietersen@slrconsulting.com<br>M : +27 83 290 7253<br>T : +27 21 851 3348 |
| **Mr. Jude Cobbing** | Independent Consultant | jcobbing@gmail.com |
| **Mr. Reinhard Meyer** | Independent Consultant | meyer567@gmail.com |
| **Mr. Siep Talma** | Independent Consultant | siep.talma@gmail.com<br>stalma@mweb.co.za |
| **Mr. Carlton Mukwevho** | South African National Commission for UNESCO | Mukwevho.C@dbe.gov.za |
| **Mr. Edward Salomane** | South African National Commission for UNESCO | Salomane.E@dbe.gov.za |
| **REGIONAL ORGANIZATIONS** | | |
| **Mr. Nelson Gomonda** | African Ministers' Council on Water (AMCOW) | ngomonda@amcow-online.org |
| | | |

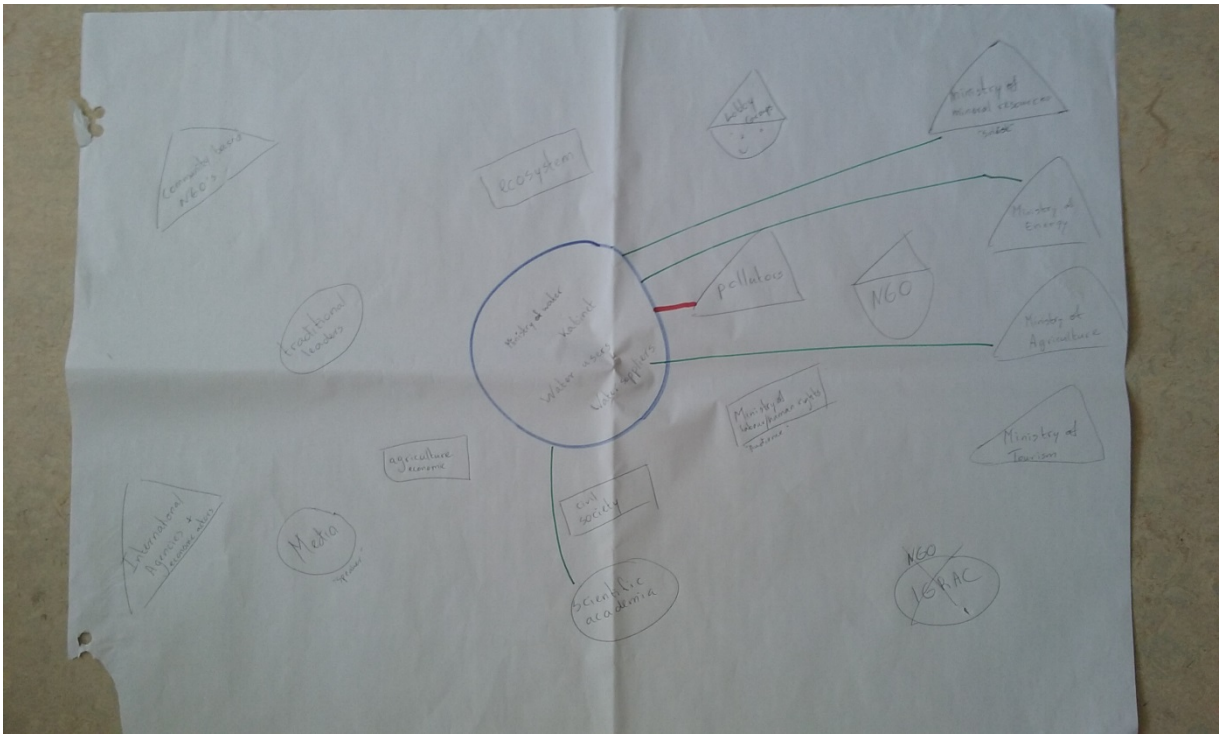
| PROJECT TEAMS | | |
|---|---|---|
| **Mr. Andrew Ross** | UNESCO<br>Water Sciences Division | a.ross@unesco.org<br>T : +33 (0)1 45 68 39 43 |
| **Mr. Tales Carvalho Resende** | UNESCO<br>Water Sciences Division | t.carvalho-resende@unesco.org<br>T : +33 (0)1 45 68 39 65 |
| **Mr. Ralph Mahfoud** | UNESCO<br>Water Sciences Division | r.mahfoud@unesco.org<br>T: +33 (0)1 45 68 39 14 |
| **Mr. Geert-Jan Nijsten** | IGRAC - International Groundwater Resources Assessment Centre<br>Senior Researcher | geert-jan.nijsten@un-igrac.org<br>T: +31 (0)15 215 1894<br>M: +31 (0)6 3002 2137 |
| **Ms. Karen Villholth** | International Water Management Institute (IWMI)<br>Principal Researcher - Groundwater Management | K.Villholth@cgiar.org<br>T: +27 (12) 845 9114 |
| **Mr. Yvan Altchenko** | IWMI<br>Senior Researcher - Hydrogeology | y.altchenko@cgiar.org<br>T: +27 726381474 |
| **Mr. Munir Hanjra** | IWMI<br>Economist – Agricultural Water Management | m.hanjra@cgiar.org |
| **Mr. Girma Ebrahim** | IWMI<br>Post Doctoral Fellow – Hydrogeology & Water Resources | g.ebrahim@cgiar.org |
| **Mr. Thokozani Dlamini** | IWMI<br>Communication Officer | T.Dlamini@cgiar.org<br>T: +27 (12) 845 9123 |
| **Mr. Sibusiso Nhlengethwa** | IWMI<br>Research Support Officer | S.Nhlengethwa@cgiar.org<br>T: +27 (12) 845 9117 |

| | | |
|---|---|---|
| **Mr. David Gadd** | Resilience in the Limpopo River Basin (RESILIM) Program<br>Program Manger | dgadd@resilim.com |
| **Mr. Nkobi Moleele** | RESILIM<br>Chief Scientist | NMoleele@resilim.com |
| **OTHER PARTNERS** | | |
| **Mr. Anton Earle** | Stockholm International Water Institute (SIWI)<br>African Regional Centre<br>Director | anton.earle@siwi.org |
| **Mr. Nick Tandi** | Stockholm International Water Institute (SIWI)<br>African Regional Centre | Nick.Tandi@siwi.org |
| **Mr. Stephen Donkor** | Stockholm International Water Institute (SIWI) | sdonkor@gmail.com<br>Stephen.donkor@siwi.org |
| **Mr. Shammy Puri** | International Association of Hydrogeologists<br>Secretary General | shammypuri@aol.com |
| **Mr. Graham Paul** | USAID<br>Program Development Specialist | gpaul@usaid.gov |
| **Mr. Tawonga Ng'ambi** | USAID | tngambi@usaid.gov |

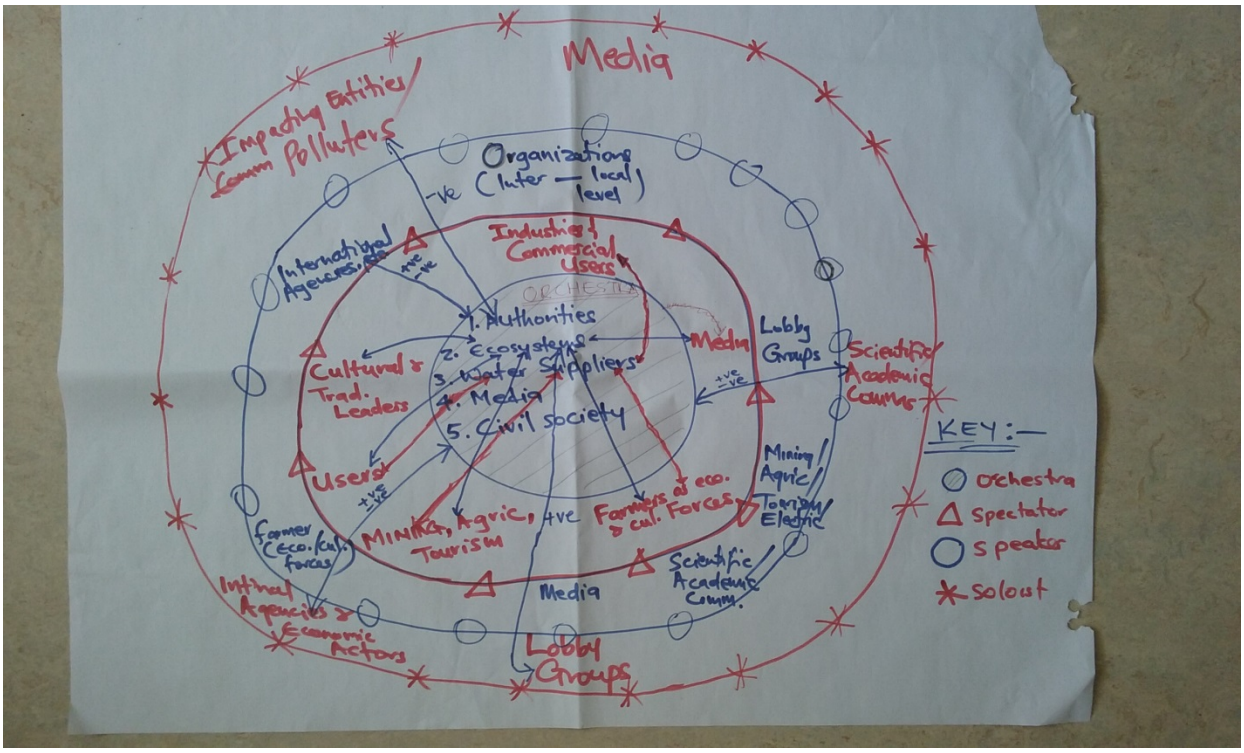
# Annex 3 – STAS stakeholders mapping



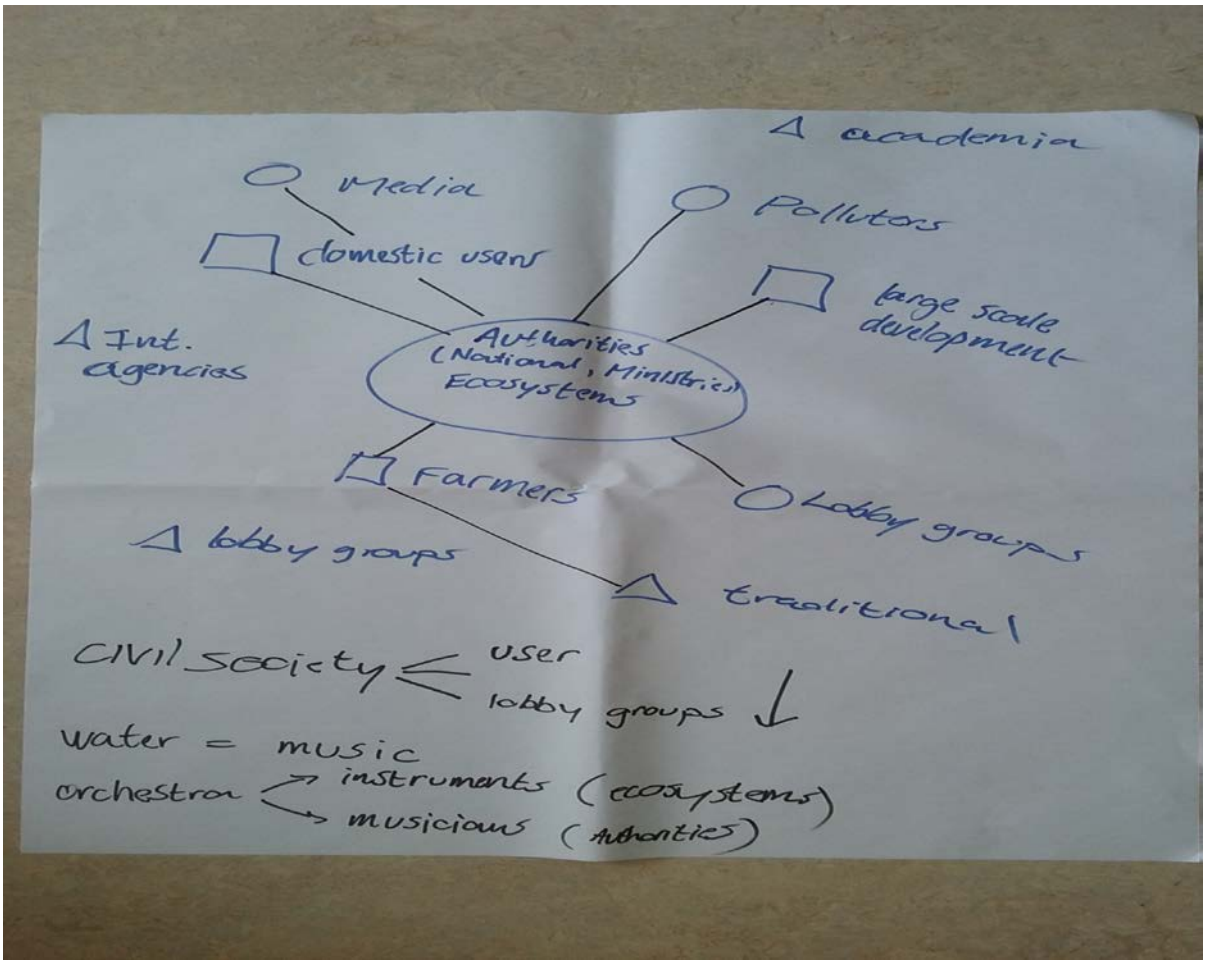
Group 1



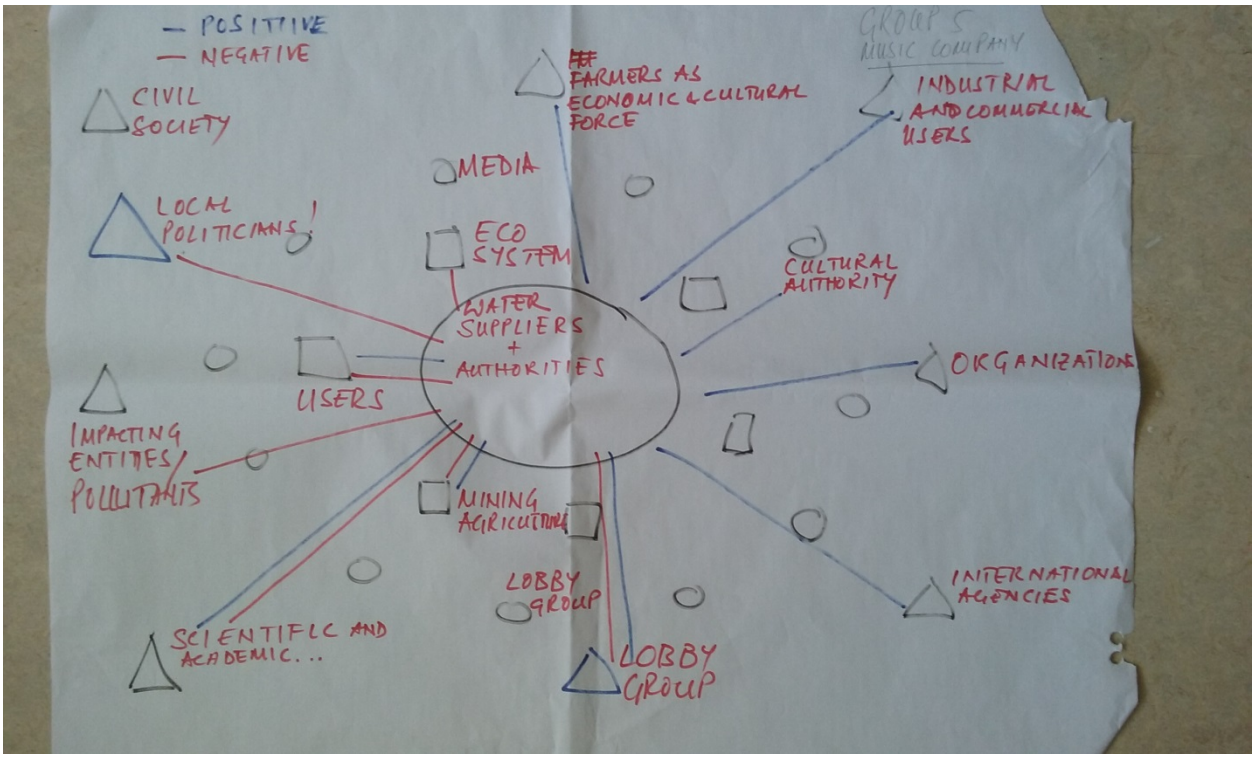
Group 2




Group 3




Group 4



Group 5

Group 6