IMPROVING GROUNDWATER KNOWLEDGE IN SELECTED TRANSBOUNDARY AQUIFERS

Stakeholder's Workshop Proceedings Report

August 2018

Report No. ORASECOM 005/2018

The *Support to* ***the Improving Groundwater Knowledge in Selected Transboundary Aquifers*** Study was commissioned by the Secretariat of the Orange-Senqu River Commission (ORASECOM) with technical and financial support from the German Federal Ministry for Economic Cooperation and Development (BMZ), in delegated cooperation with the UK Department for International Development (DFID), implemented through Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).

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ORASECOM SECRETARIAT

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Stakeholder's Workshop Report

Approved by the Consultant:

……. …….

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OASECOM SECRETARIAT

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……. …….

Date

IMPROVING GROUNDWATER KNOWLEDGE IN SELECTED TRANSBOUNDARY AQUIFERS

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Document History

Rev.	Date Revised	Editor Details	Note of Changes Conducted
V1.0	August2018	K. Sami	Initial report distributed to Client

DOCUMENT INDEX

Index Number	ORASECOM Report Number	Report Title
1		Inception report
2		Draft Recharge Report with estimates for the main recharge areas in the Karroo Sedimentary and the Khakhea/Bray Dolomite Aquifers
3		Groundwater Monitoring Background Report
4		Groundwater Monitoring Framework report
4		Joint Survey Process Report
5		**Report indicating inputs made at the stakeholder's workshop**
6		Final Recharge report
7		User manual of the established groundwater information system.
8		Report on the joint survey

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1 INTRODUCTION

1.1 Background

One of the objectives of the 'Improving Groundwater Knowledge in Selected Transboundary Aquifers' Project is to:

- Develop a draft final report on updated recharge estimates in the two aquifers based on literature review and received data Develop a final report on updated recharge estimates in the two aquifers based on inputs from the stakeholders' workshop; and to
- Develop a final report on the agreed transboundary aquifer characterisation, and groundwater quantity & quality monitoring framework/programme based on inputs from the stakeholders' workshop.

The Groundwater stakeholder's workshop was a venue to discuss the results, reach consensus and draw conclusions as to a way forward.

1.2 The Stake holder's Workshop

A workshop was held in Gaborone Botswana on 6 August 2018 to fulfil these objectives. The objectives of the workshop were to:

- Present results of the Recharge and Monitoring Reports of the Transboundary Aquifer Project
- Discuss findings and implications of results on a country level and aquifer
- Reach consensus on country needs and limitations, and a way forward for GWHC members to take back to their respective departments for further discussion

1.3 Agenda of Workshop

GROUNDWATER STAKEHOLDER'S WORKSHOP		
MONDAY 6TH AUGUST 2018, Woodlane Hotel, Gaborone, Botswana		
0900-0915	Welcome and Objectives	Facilitator
0915-0920	Introductions	ALL
09-20-0930	Opening Remarks	• ORASECOM • GIZ
0930-1000	Presentation of Findings on Recharge Regimes in Transboundary Aquifers	Consultant
1000-1030	Questions and discussions on Recharge Report	ALL
1030-1100	**Tea/Coffee Break**	**ALL**
1100-1130	Presentation of Findings on National and Transboundary Groundwater Monitoring	Consultant
1130-1200	Questions and discussions on Monitoring report	ALL
1200-1300	Discussion on broad Regional needs for recharge estimation and	Led by Facilitator ALL

	the monitoring of the transboundary aquifers	
1300-1400	**Lunch**	**ALL**
1400-1500	Breakdown of workshop into 2 Groups to discuss: (i) specific country needs and limitations, and; (ii) specific needs for each transboundary aquifer	Led by a GWHC member of each country group
1500-1530	Feedback from each group	
1530-1545	**Tea/Coffee Break**	**ALL**
1545-1615	Feedback from each group Cont'd	ALL
1615-1700	Comments and Consensus from Group feedback	ALL
1700	**Closing Remarks**	**ORASECOM**

1.4 Structure of Workshop

The format of the workshop consisted of presentations, open for discussion during presentation, and group discussions.

Presentation 1

- Review of recharge
- Recharge to the Karoo sedimentary and Khakea/Bray aquifers

Presentation 2

- Status Quo of Monitoring and monitoring data
- Framework for future monitoring of transboundary aquifers
- Current Monitoring in the 4 transboundary aquifers

Group Session 1

- Discussion on broad Regional needs. The discussion was held during the presentations, rather than a subsequent discussion session as planned in the agenda

Break away sessions (2 groups)

- Specific country needs (management)
- Specific needs in each aquifer (technical)

Group Session 2 - Consensus

- Each group presents back consensus reached
- Group discussion on feedback and achieve consensus

1.5 Omissions

The South African members of the GWHC were not able to attend due to a temporary ban on ravel for South African Department of water Affairs staff

2 OUTPUTS OF WORKSHOP

2.1 Recharge

- The group identified that the general shortage of data prevents the identification of recharge zones beyond a conceptual level, and recharge estimates are severely constrained by data limitations
- Monitoring needs to be improved in the study areas
- Recharge estimates need to be produced in a standardised format i.e. Volumetric as Mm^3/a and as a flux in mm/a.
- Botswana is planning to utilise the STAS to the volume 4000 m^3/d from the Ncojane wellfield, hence recharge volumes and impacts are increasingly important.

2.2 Monitoring

- The need for chemical and microbiolical monitoring was identified
- The GWHC should be tasked with overseeing the proposed monitoring framework, not be responsible for producing the outputs. There is uncertainty as to which group should produce the outputs, however, the use of consultants was suggested. The output would be annual monitoring reports, in the suggested format shown in the Monitoring Framework Report.
- The STAS aquifer needs monitoring stations of 3 boreholes to monitor each aquifer layer, or a single borehole with 3 recorders at aquifer levels isolated from each other. The potential for leakage between layers in a borehole suggests 3 boreholes would be preferable.
- The Lesotho Monitring network has shrunk recently due to the conversion of some boreholes to production, or vandalism of monitoring stations .It now consists of only 42 boreholes, all located in the lowlands.

2.3 General

- A discussion revolved around the potential use of telemetry to facilitate rainfall and water level monitoring. Opinion diverged due to the prevalence of theft of the solar panels, and vandalism of boreholes. If monitoring boreholes are too close to communities, they are prone to comtamination, limiting their use for water quality monitoring. At a further distance, they are prone to vanadalism.
- While discussing the lack of Harvest Potential data in all the member states except South Africa, , Namibia suggested they use 2005 groundwater levels, which was the most significant recent drought, as the basis for future groundwater use allocations. The objective would be to keep water levels above 2005 levels. This strategy has permit, but it is difficult to determine to what level water levels will drop when allocating licences. The method can be used for curtailing future abstraction.

2.4 Future Efforts

- Namibia stated that a grant has been received to upgrade the national hydrogeological map and that the new map will be more quantitative, thereby quantifying groundwater resources. This should partly address the problem of quantification of available resources.
- Lesotho stated that they will obtaining the WISH groundwater database and interface software. This software is MS-Excel compatible. Currently, no groundwater database software is in use.
- The SADC-GMI is currently undertaking a capacity and needs assessment, which will assist in identifying key bottlenecks and limitations in improving monitoring networks.
- The importance of increased community involvement and engagement in monitoring was discussed to minimise the risk of vandalism of monitoring networks. It was suggested that this involvement be linked to service delivery.
- Data collection is to remain within internal budgets, however, such budgets are under severe constraints.
- To transfer the transboundary monitoring data to ORASECOM will require technical expertise at ORASECOM to over see data collection and storage.
- The drilling of dedicated monitoring boreholes for transboundary conditions will require funding, thereafter, monitoring would become a national responsibility. To obtain funding requires addressing issue of the Benefit and Cost.

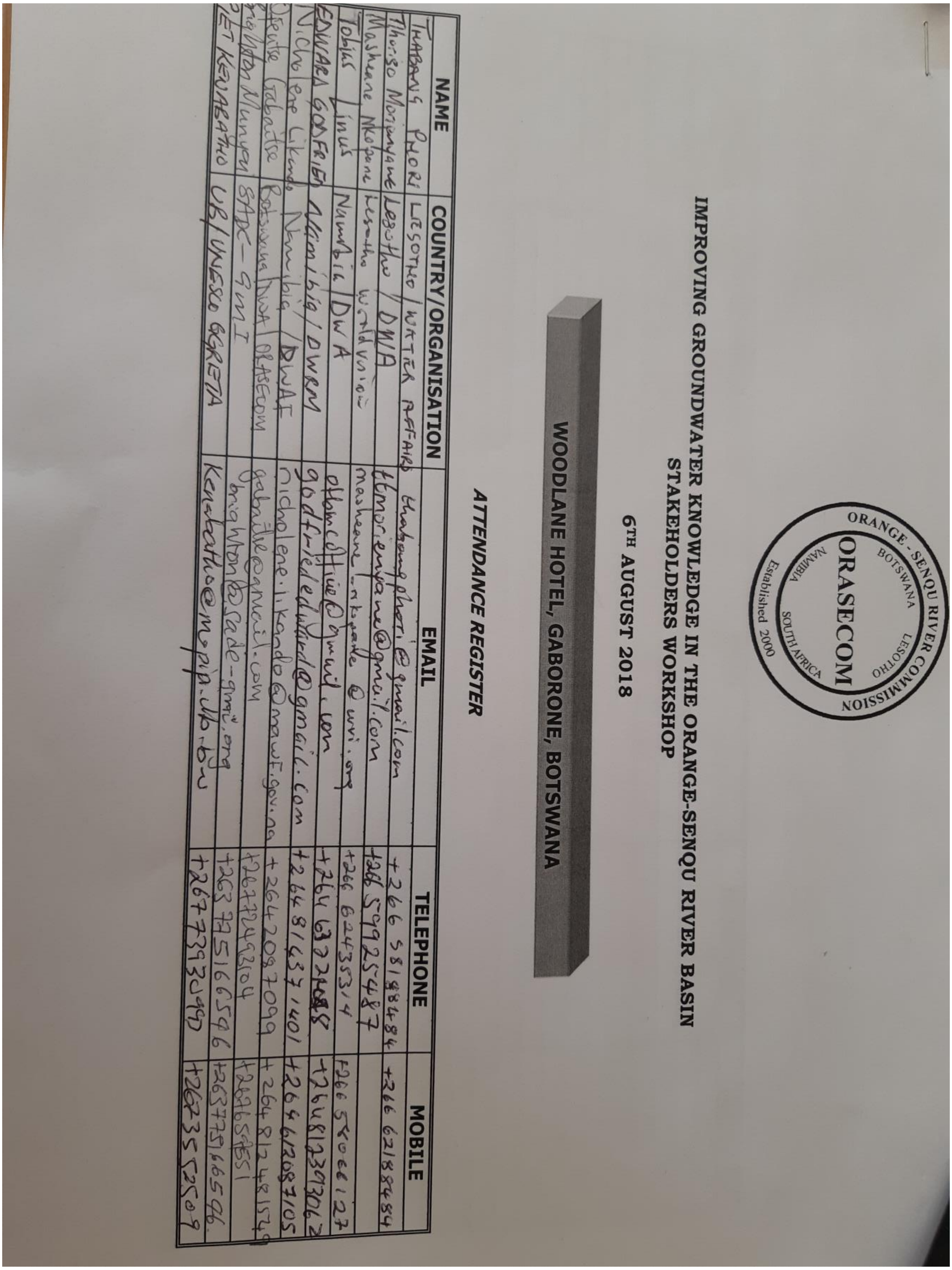
3 WAY FORWARD

The workshop provided a valuable forum to discuss results and implications for future monitoring. A way forward to implement the findings was identified in the final group discussion.

To implement the transboundary monitoring framework, national teams will be required to:

1. Draw up a plan clearly identifying the Benefits and Costs of such monitoring for presentation to the various Ministries and as a basis for funding
2. If the GWHC is to only oversee the preparation of annual transboundary monitoring reports, rather than be the structure which produces such reports, a technical team drawn from within the various national departments, or the private sector will have to be identified. An external team would have additional funding implications

4 ATTENDANCE REGISTRY



ORANGE - SENQU RIVER COMMISSION
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IMPROVING GROUNDWATER KNOWLEDGE IN THE ORANGE-SENQU RIVER BASIN STAKEHOLDERS WORKSHOP

6TH AUGUST 2018

WOODLANE HOTEL, GABORONE, BOTSWANA

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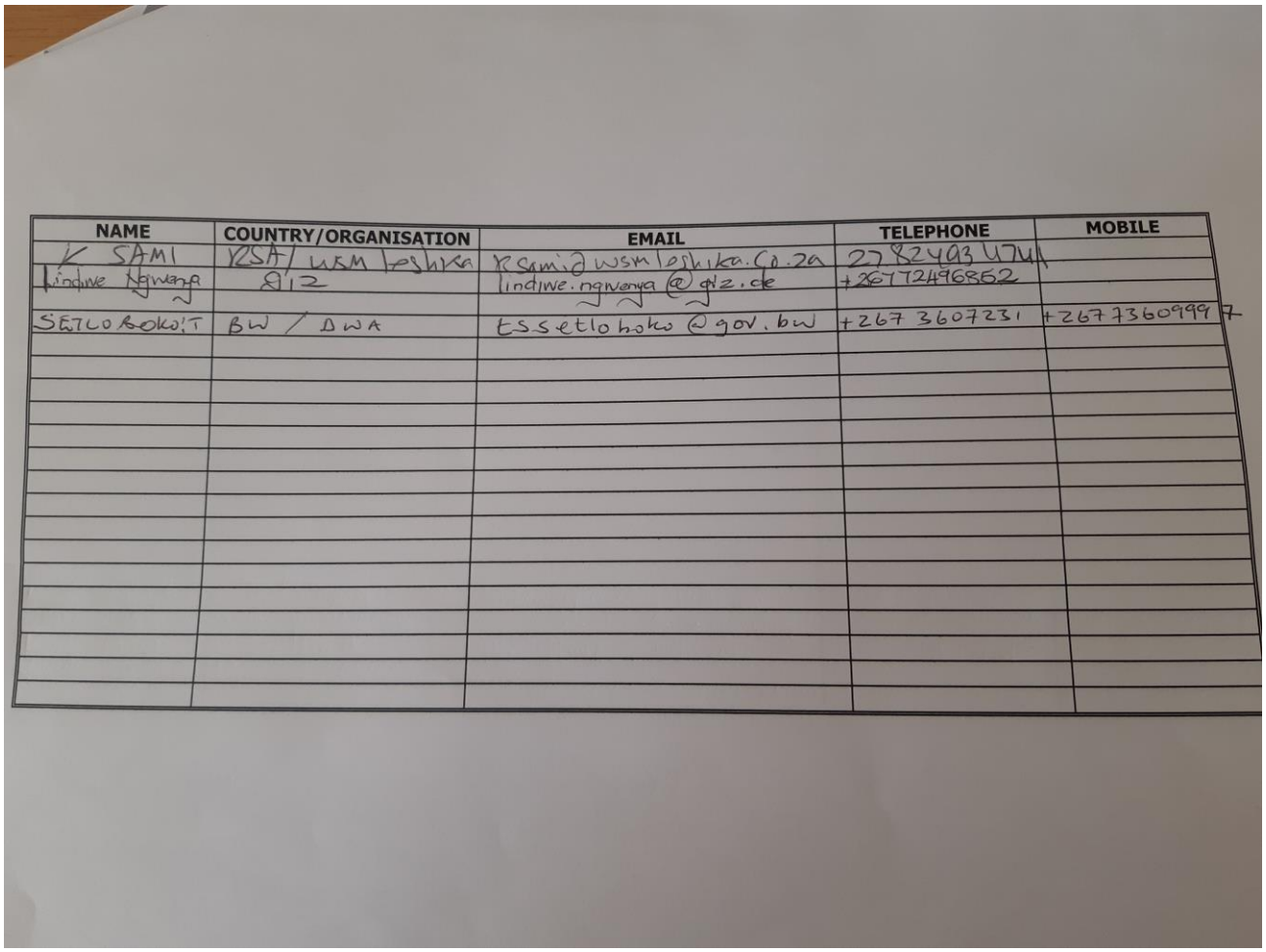

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