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RESILIM : Resilience in the Limpopo River Basin Program

JOINT STRATEGIC ACTION PLAN FOR THE RAMOTSWA TRANSBOUNDARY AQUIFER AREA - ROADMAP

December 2016

Submitted by:

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Implemented by:

IWMI International Water Management Institute

CGIAR Research Program on Water, Land and Ecosystems

In partnership with:

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This report was made possible by the support of the American people through the United States Agency for International Development (USAID). Its contents are the sole responsibility of IWMI operating as a subcontractor to Chemonics International, and do not necessarily reflect the views of USAID or the United States Government.

SAP Roadmap Report – December 2016

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Acknowledgments

This document is the product of country consultations and joint stakeholder meetings. The fruitful discussions from all participants in these meetings have been central to the shaping and development of the SAP Roadmap, and all involved, inclusive of contributors listed above, are acknowledged with thanks.

This report serves as deliverable No. 8: 'Joint Strategic Action Plan' under subcontract RG-006 (for RESILIM under AID-674-C-12-00006) between Chemonics International and International Water Management Institute (IWMI).

Executive Summary

This document provides a roadmap for the development of the Strategic Action Plan (SAP) for the Ramotswa Transboundary Aquifer Area (RTBAA). The objective of the SAP is to contribute to the sustainable and equitable development of the RTBAA through consensus building on priority activities and investments in the use and development of the transboundary Ramotswa Aquifer and related resources. The SAP is a key output of the Transboundary Ramotswa Aquifer (RAMOTSWA) Project.

The report provides a status of the progress of the SAP development as of December 2016 and outlines the path towards SAP completion by the end of 2018. The process around the SAP development was initiated and agreed by key national partners in Botswana and South Africa, namely, the Department of Water Affairs (DWS), Botswana; the Water Utilities Corporation, Botswana; and the Department of Water and Sanitation (DWS), South Africa, during a project meeting in September 2016.

The document first reviews the key issues and challenges related to the RTBAA, as initially identified in the RTBAA baseline report. These were: 1) understanding the resource, 2) groundwater contamination and vulnerability to pollution, 3) incongruity between water requirements and available water, 4) limited policy implementation, and 5) access to water and sanitation for vulnerable people. Based on these challenges, the document then lays out the steps for developing the SAP as a consensus-building process around identifying and implementing priority activities and investments in the area. The role of the partners in developing the SAP, as well as the structure and format it will take, are also described.

The SAP builds on a joint vision for the RTBAA as well as a common framework, under which the activities and investments are categorized. The emerging version of the vision statement is: *water security and sustainable socioeconomic development in the Ramotswa TBA area through joint research and management*. The emerging version of the SAP framework contains three components; i) managing water for sustainable use, availability and access; ii) enhancing institutions and capacity, and iii) expanding research and knowledge. Preliminary identification of actions in each of these three components is discussed. The document then considers the institutional context, in particular how emerging SAP actions will build on existing water cooperation and fit into the context of national laws and policies.

Finally, next steps to be taken are identified. These include finalizing the vision and SAP framework and identifying 'low-hanging fruit' solutions that may be initiated before project closure. In addition, key questions that require special attention are flagged. Such questions include: i) identification and treatment of direct transboundary water issues versus shared concerns, ii) planning activities that will be implemented during versus after the project lifespan, and iii) elaborating decision-making processes surrounding selection and prioritization of SAP actions.

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Acronyms and abbreviations:

DWA	Department of Water Affairs (Botswana)
DWS	Department of Water and Sanitation (South Africa)
EWR	Ecological Water Requirements
IGRAC	International Groundwater Resources Assessment Centre
IWMI	International Water Management Institute
JPTC	Joint Permanent Technical Committee
LIMCOM	Limpopo Watercourse Commission
RAMOTSWA	Resilience in the Limpopo Basin: The potential role of the transboundary Ramotswa Aquifer project
RESILIM	Resilience in the Limpopo Basin program
RIMS	Ramotswa Information Management System
RTBAA	Ramotswa Transboundary Aquifer Area
SADC	Southern African Development Community
SAP	Strategic Action Plan
TDA	Transboundary Diagnostic Analysis
USAID	United States Agency for International Development
WLE	CGIAR Research Program on Water, Land and Ecosystems

I. Introduction to Strategic Action Plan for the Ramotswa Transboundary Aquifer Area

What is a Strategic Action Plan (SAP)?

In the context of water management, a SAP can be defined as a tool or framework for identifying investments and interventions that help improve water use and increase the composite benefits derived therefrom. The scale at which SAPs are undertaken often correspond to a hydrologic unit such as a basin, sub-basin or aquifer. Given that such units often cross borders, SAPs are often transboundary in nature. A SAP has been referred to as "a tool that describes the framework for management of the water and related land resources in the basin" (GWP, 2012). It has also been called "…a framework for cooperation among the riparian countries to utilize the full potential of sustainable benefits of the water and related resources" (Mortensen, 1997). A SAP has also been described as "a negotiated policy document that identifies policy, legal and institutional reforms and investments needed to address water and environmental issues. It identifies priorities for action by all the riparian countries involved to resolve the transboundary problems that have been identified in the transboundary diagnostic analysis (TDA). The SAP is also a long-term framework for management, through which infrastructural investments for socioeconomic development can be mobilized in a sustainable, equitable and efficient manner" (Volta Basin Authority, 2014).

The SAP builds on previous identification of priority issues, and begins with convergence toward a vision and objectives (Figure 1).

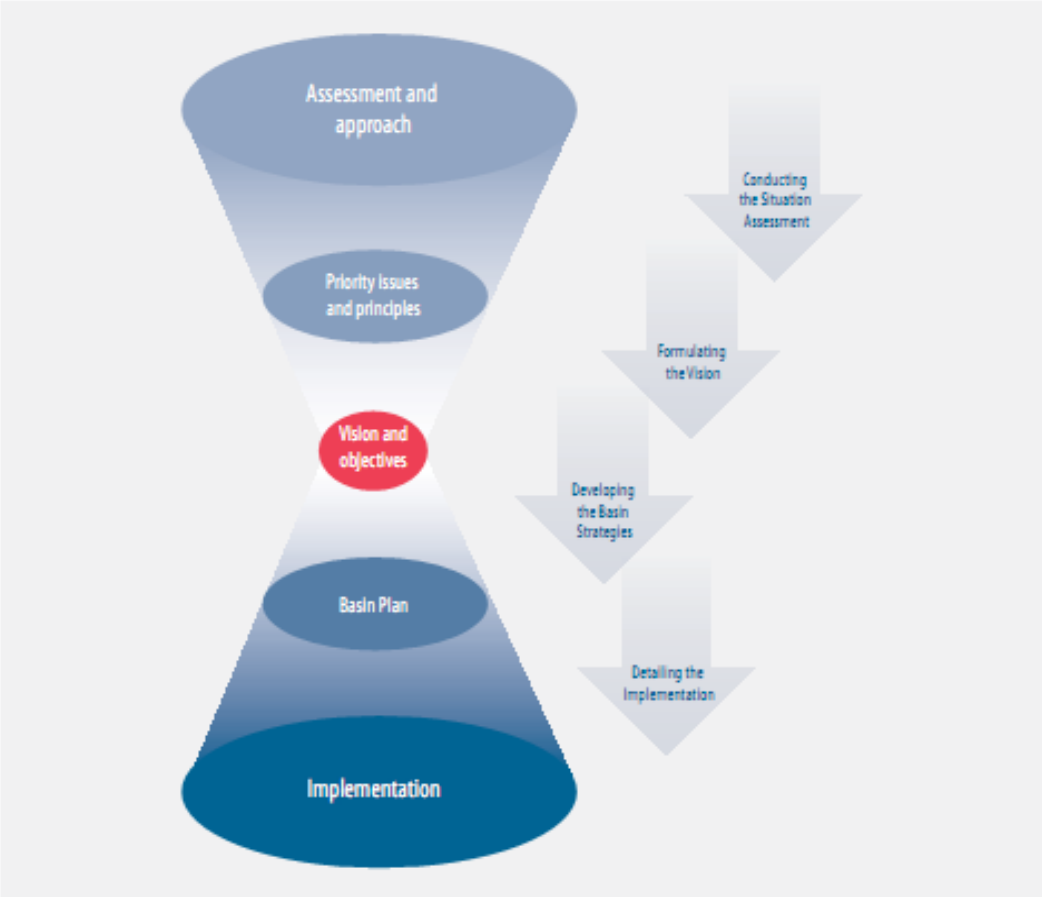

Figure 1: From TDA to Basin Plan/ SAP (Pegram et al., 2013)

Rationale for undertaking a SAP in the RTBAA

The Ramotswa Transboundary Aquifer Area (RTBAA) SAP is undertaken to identify and prioritize investments and actions that can be pursued to enhance the benefits derived from the Ramotswa transboundary aquifer. Investments and actions will respond to key challenges identified in the baseline report (Alchenko et al., 2016), but will go beyond addressing challenges to consider ways to also harness opportunities accruing from integrated management of the RTBAA system. Ultimately, identification and strategic formulation of interventions in the RTBAA is expected to contribute to optimizing management of the aquifer system and, through this, to contribute to broader developmental goals in the area and region, such as resilience-strengthening and socioeconomic development, which are the overall goals of the RAMOTSWA project. The SAP development and implementation are expected to merge with other activities in the second phase of the RAMOTSWA project (2017-2018).

The RTBAA SAP Roadmap document

This roadmap document for the RTBAA SAP provides a description of the process of the SAP development, an assessment of the current status of SAP development, as well as an outline of the path forward for SAP completion and early implementation. Section II gives the background to the Ramotswa project and the baseline report. The latter was developed jointly and laid the foundation and evidence base for undertaking this SAP. Section III provides an overview of the prescribed SAP process. Section IV outlines the emerging SAP vision and framework as well as the actual process and timeframe around its development. Section V outlines the institutional context in which the SAP development will sit. Finally, section VI outlines next steps to be taken for SAP completion, and flags questions that require special attention as the SAP process moves forward.

II. Background

The Ramotswa Aquifer and the Ramotswa Transboundary Aquifer Area

The Ramotswa aquifer is located in the Upper Limpopo River Basin, corresponding roughly with the flight zone in Figure 2. The aquifer underlies parts of Botswana and South Africa. The focus area of the Ramotswa project is the RTBAA (within the bold red outline in Figure 2), which encompasses the aquifer itself and adjacent areas which are presumed to contain hydrologic and socioeconomic linkages to the aquifer. In Botswana, the RTBAA contains the the most densely populated in the country. In South Africa, the RTBAA is a relatively rural area.

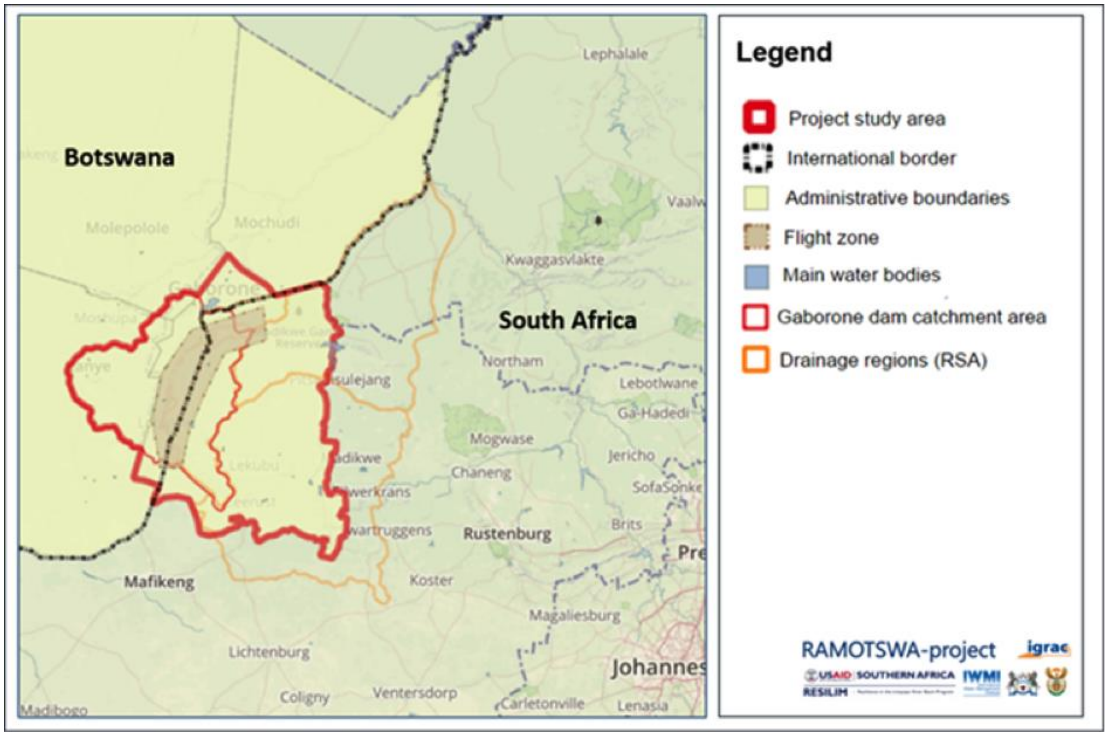

Figure 2: Map of the Ramotswa Transboundary Aquifer Area (RTBAA), demarcated by the outline of the bold red line

The Ramotswa Project

The overall objective of the *Resilience in the Limpopo Basin: The potential role of the transboundary Ramotswa Aquifer* project (referred to as the RAMOTSWA project) is to support cooperation and a long-term joint vision on the shared groundwater resources of the Upper Limpopo region, where states share significant and valuable underground freshwater resources, as well as space for enhanced subsurface water storage. The project aims to facilitate and promote joint management and better groundwater governance focused on coordination, scientific knowledge, social redress and environmental sustainability, in order to reduce poverty and inequity, increase prosperity, and improve livelihoods and water and food security in the face of climate variability and change. The first phase of the Ramotswa project, which runs from July 2015 through February 2017, is funded by the Resilience in the Limpopo Basin (RESILIM) program[1] with matching funding from the CGIAR Research Program on Water, Land and Ecosystems (WLE),[2] the International Groundwater Resources Assessment Centre (IGRAC) and XRI Blue. RESILIM is funded by the United States Agency for International

[1] Chemonics as the contracting party for RESILIM, funded by USAID.
[2] led by the International Water Management Institute (IWMI)

Development (USAID). A second phase of the Ramotswa project is set to launch in early 2017, lasting through 2018.

The SAP was identified as a key deliverable of the RAMOTSWA project and agreed by partners as part of the inception phase. The SAP contributes to the objectives of the RESILIM Program and specifically to those of the RAMOTSWA project, namely and in particular:

Establish national and cross-border dialogue and cooperation on the Ramotswa and further encourage international cooperation on transboundary aquifers in the SADC region.

The transboundary diagnostic analysis and the baseline report

The RTBAA baseline report development was undertaken between September 2015 and November 2016 and involved participation from key partners, namely: the Water Utilities Corporation, the Department of Water Affairs (DWA), and the University of Botswana (Botswana) and the Department of Water and Sanitation (DWS), University of Witwatersrand and University of Free State (South Africa). It is a compilation of existing data and information on biophysical and socioeconomic conditions in the RTBAA. The report presents climatic conditions, known characteristics of surface and groundwater resources, and water supply and sanitation conditions in the RTBAA. Socioeconomic context and livelihoods are also covered. Further, the report highlights the stakeholders involved in water management and identifies key environmental issues and existing data gaps in RTBAA. Ultimately, the expanded knowledge base on the RTBAA contained in the baseline report is distilled into five key management issues and challenges for the sustainable use of the RTBAA.

Key issues for sustainable use of the Ramotswa Transboundary Aquifer Area

The work undertaken to arrive at the baseline report was synthesized into five key management issues. These issues are:

1. *Understanding the resource* The baseline report identifies substantial data gaps, which will need to be addressed in order to lay a basis for informed decision making on use of the groundwater. For example, management parameters related to groundwater recharge and withdrawal remain uncertain. Broader data needs cut across different areas, including climate, hydrology, hydrogeology, socioeconomics and water supply and sanitation.
2. *Groundwater contamination and vulnerability to pollution* One of the major issues concerns the risks associated with the proximity of pit latrines to boreholes. Given that boreholes are a main source of water, especially in rural areas and in small urban areas such as Ramotswa and Lobatse where the risk of nitrate and fecal bacteria contamination from human excreta is recognized, this presents an eminent threat. Other sources and risks of groundwater contamination may be relevant but so far un-recognized.
3. *Incongruity between water requirements and available water* The discrepancy between local water availability and aggregate water requirements poses challenges to water security. These are manifested in two ways. Firstly, physical water scarcity – mainly on the Botswanan side of the border – by which water is simply not available to meet requirements; and secondly, economic water scarcity – mainly on the South Africa side of the border – evidenced by low levels of infrastructure and service delivery that constrain use of water to meet requirements.
4. *Limited policy implementation* Challenges in the implementation of policies and institutional compliance have hampered the effectiveness of water management. Such challenges may result from a lack of capacity rooted in limited staff and financial resources, as well as constraints regarding the technical skills and expertise of staff.

5. *Access to water and sanitation for vulnerable people* Inadequate water and sanitation access for vulnerable people refers to the lack of financial resources to ensure sufficient and continuous service during drought conditions or infrastructure/service delivery failure. Data from census reports in both countries reveal disparity in socioeconomic levels, which may manifest itself in inadequate access to water and sanitation for certain population groups.

III. The Strategic Action Plan: Process and Roles

Launching the SAP the process of its development

In principle, the SAP development process will follow the steps given in Figure 3, with potential feedback loops. The development of the Ramotswa SAP began in a project training workshop in Mahikeng in September 2016 (list of participants in Annex 2). The background, rationale and process of the RTBAA SAP were introduced and discussed here. Subsequently, separate consultations were held with partners in Botswana and South Africa in November 2016 (list of participants of each consultation is found in Annex 3).

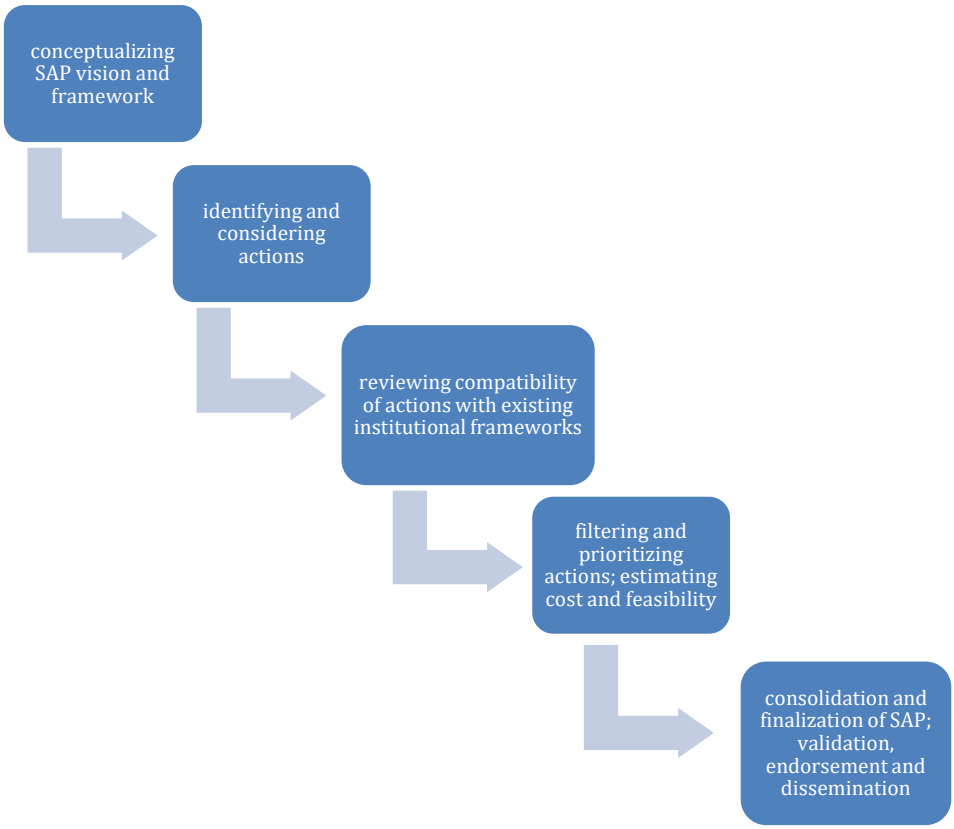

Figure 3: Schematic process for developing the Strategic Action Plan

Important first steps in SAP development, largely undertaken through the September workshop and November consultations, were: i) generating an overarching vision for the joint transboundary management of the RTBAA, ii) working toward a framework within which particular actions would fall, iii) beginning to identify actions or investments within the framework, and iv) understanding the institutional context through which the SAP will be implemented.

Major steps that remain, depicted in Figure 3, include: completing work on identifying and agreeing upon actions; understanding the compatibility of the proposed SAP with the existing legal and institutional context; filtering and prioritizing actions and assessing the cost and feasibility of their implementation; finalizing the SAP and obtaining endorsement from countries and relevant transboundary bodies, such as the Joint Permanent Technical Committee (JPTC). Finally, dissemination of the SAP to potential investors and regional networks will

then take place. These steps are intended to be complete within two years, i.e., by the end of 2018.

Partner roles and engagement

Ongoing, substantive partner engagement is critical to achieving joint ownership of the SAP. As such, partners have been and will be given frequent opportunities to give input to and feedback on the SAP. Consultations will be held frequently with partners in each country, preferably in joint meetings, which have been advocated by the countries. Consultations will be facilitated by the Focal Point on each side: Sakhile Mndaweni (Department of Water and Sanitation, South Africa) and Charles Nkile (Department of Water Affairs, Botswana). Focal points are expected to engage other relevant institutes in their respective countries as deemed required to ensure adequate participation in consultations, and provide input to and feedback on evolving versions of the SAP document.

IV. Joint Vision and Framework

Generating a joint SAP vision and framework

As noted above, separate consultations were held with partners in Botswana and South Africa in November 2016. Each consultation took approximately three hours, and were focused on validating key challenges to sustainable use of the RAMOTSWA Aquifer as identified in the baseline report, and brainstorming a SAP vision statement and framework to structure the management plan. Development of the SAP framework was focused on identifying the set of components, into which priority actions can be logically clustered.

Consultation in Botswana: Visioning and developing a framework

Brainstorming around key elements of a vision in Botswana led to five key areas: sustainable socioeconomic development, sharing and cooperation, guaranteeing future use, sustainable use, and protection of the resource. These key areas were synthesized into the following vision statement (Figure 4):

'To achieve cooperative and sustainable groundwater use and protection in order to guarantee future use and contribute to sustainable socioeconomic development.'

Five components of the SAP emerged. A first component focused on water quality, and included contamination, vulnerability and pollution sources. A second component focused on water quantity and filling knowledge gaps; this also included data monitoring and harmonization. A third component focused on water management, which included issues of demand management and vulnerability. A fourth component focused on capacity building, including training and retaining expertise and staff. A final area focused on climate change adaptation, which places focus on identifying climate change impacts on the aquifer. These five areas were consolidated into the four areas shown in Figure 4.

Figure 4: Working SAP Vision and Framework, based on Botswana Consultation

Consultation in South Africa: Visioning and developing a framework

Discussions in South Africa focused on areas that could fit into either or both the vision and framework. Key areas emerging included water security for different uses, improving understanding of the aquifer, activities in aquifer area, use, protect, manage (the principles of South African water policy), capacity, sustainability, resource protection, harmonization with existing legal frameworks, joint monitoring and data sharing, and cooperation on all levels including stakeholders. Participants of the consultation ultimately distilled these key areas into the following vision statement (Figure 5):

'To improve understanding and management of the aquifer area to achieve water security, ensuring sustainable socioeconomic development and environmental needs.'

Discussions on vision statements fed directly into conceptualization of a framework. A tentative framework emerged that focused on five key areas: 1) improving knowledge and understanding, 2) protection of the resource (quality and quantity), 3) resource availability and access, 4) sustainable use for socio-economic and environmental needs, and 5) strengthening capacity on all levels (financial, human resources / staff / expertise). Overlap was subsequently determined in some of these key areas. A refined framework was therefore produced, which included four key components; this framework is shown in Figure 5.

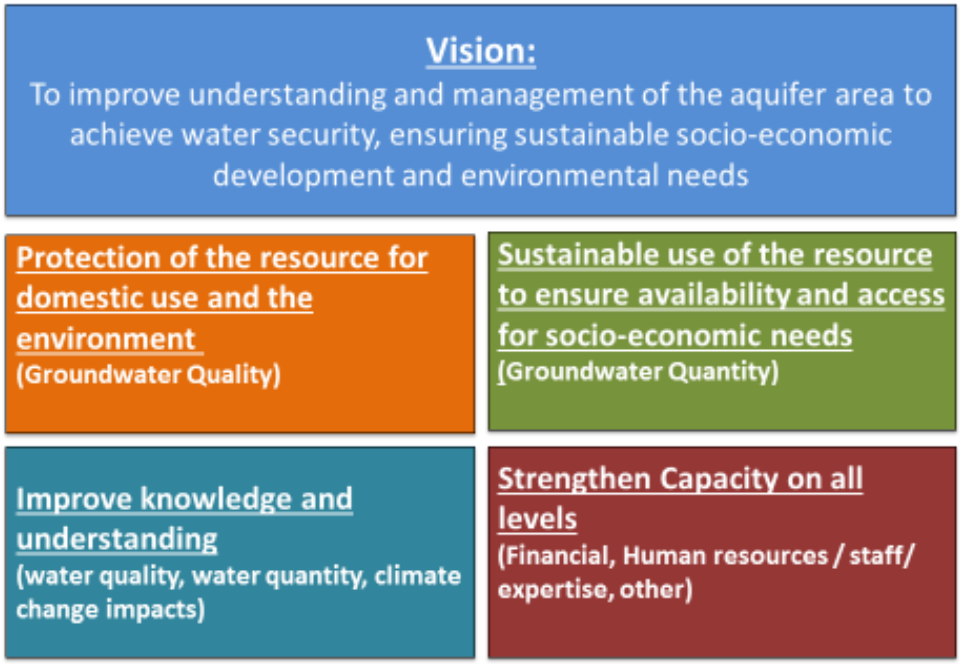

Figure 5: Working SAP Vision and Framework, based on South Africa Consultation

Converging towards a shared vision and framework

Following separate drafting of a SAP vision and framework in both aquifer-sharing states, efforts were made by IWMI to achieve a consolidated joint framework for the RTBAA. Vision statements were merged in a way that should ultimately capture elements critical to both sides. A consolidated vision and framework was then presented and further refined at a Ramotswa project training 01-02 December 2016 in Johannesburg (participant list in Annex 4). Main refinements made to the vision relate to condensing its length, for a more precise statement. The framework, in turn, was reduced from four to three components as separate components

focusing alternately on water quality issues on the one hand, and water quantity issues on the other, were merged into a consolidated component on water management. The joint working version of the vision was (Figure 6):

'Water security and sustainable socioeconomic development in the Ramotswa TBA area through joint research and management.'

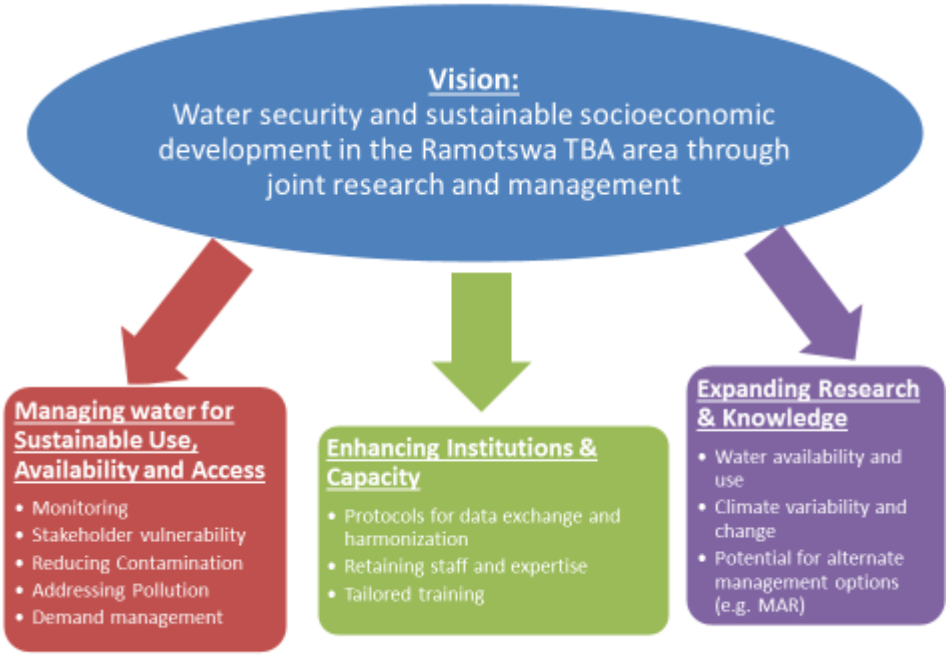

Figure 6: Working Version of the Joint Vision and Framework

Preliminary Identification of actions

The process of discussing priorities for actions and investments commenced at the Ramotswa project training workshop 01-02 December in Johannesburg. As a result of the discussions, suggested key action points emerging in the first of the three components (**managing water for sustainable use, availability and access**) included:

- monitoring water levels and water abstractions, modelling;
- water apportionment (allocation);
- monitoring water quality trends;
- developing measures to control pollution such as groundwater remediation; and
- developing appropriate treatment methods.

Key points of action emerging in the second component (**enhancing institutions and capacity**) included:

- fostering harmonization across different institutional structures concerning the RTBAA, such as the JPTC and the Limpopo Watercourse Commission (LIMCOM);
- facilitated technical trainings; developing and seeking endorsement for protocols for data and information exchange; and
- proposing transboundary agreement(s) focused on issues on which countries may wish to cooperate. Importantly, tools for capacity needs assessment and evaluating the

enabling environment were deemed important to help guide implementation of actions in this component (Box 1).

Key points of action emerging in the third component (**expanding research and knowledge**) included:

- development of a customized monitoring program for particular needs;
- communication and profile raising related to the RTBAA; and
- integration of different databases in partnership with the Ramotswa Information Management System (RIMS) online platform.

Box 1: Applying an institutional capacity self-assessment tool and evaluating the enabling environment for effective transboundary groundwater management

Employing a Capacity Assessment Tool A capacity assessment tool can support efforts toward capacity strengthening. The tool is a participatory diagnostic instrument intended to be implemented with moderate facilitation for self-assessment of existing capacity. The areas of performance that can be assessed relate to critical capacity areas of policy and planning, organizational strength, knowledge/information needs, professional development and the enabling environment for managing transboundary groundwater resources. The final content of each section of the tool and the detailed implementation process are co-developed with country partners to ensure relevance to the sector and the region. Scores from implementing the tool provides an indication of areas on which to focus capacity development efforts along with specific suggestions for actions by stakeholders. The results are also inputs for a capacity improvement plan. In addition, the statements of high performance standards outlined in the tool may be used as indicators to monitor improvement over time. Indeed, the overarching purpose of the tool is to implement a baseline and periodic capacity assessment of competencies, capabilities and the enabling environment toward *improving the governance and management of transboundary groundwater resources across countries.*

Evaluating the enabling environment for effective implementation Progress toward a suitable legal framework can help to create an environment that best enables implementation of the targets and actions agreed upon in the SAP. A legal analysis may therefore be undertaken to evaluate the degree to which the current legal and institutional framework in the RTBAA create an environment that enables effective implementation of SAP actions. This analysis will go beyond simply determining the degree to which actions align with existing legal frameworks, to apply core indicators regarding the suitability of the existing agreements, laws and policies on all levels. These indicators will be based firmly on the inclusion of core principles and provisions provided for in the international and national (??) legal frameworks. Ultimately, the results of the legal analysis can be coupled with results from the capacity assessment to identify specific action points for enhancing cooperation over the RTBAA.

V. Institutional Context

The targets and actions to be agreed upon in the joint development of SAP need to be anchored within and supported by existing institutions for natural resource management in the RTBAA. There has been notable codification of water cooperation at various scales, in which the RTBAA is nested, and so there is a need to situate joint actions emerging from the SAP in this institutional context (Table 1).[3] Further, national laws and policies of the two aquifer-sharing states may already contain commonalities that lend themselves to joint actions; these common points can be identified and acknowledged. Finally, it is critical to determine the degree to which actions emerging from the SAP align with existing institutions at all scales, in order to flag areas that may require redressing before proceeding to implementation. With these goals in mind, work on the institutional context will center on three main areas, each giving rise to certain questions:

- *Existing Water Cooperation* How can the joint SAP be contextualized in and build on existing water cooperation?
- *Alignment of National Institutions* Does joint consideration of laws and policies in Botswana and South Africa reveal points of intersection that can facilitate the execution of actions? Conversely are there areas that are not aligned and need to be harmonized?
- *Emerging Actions in institutional context* Are all proposed actions consistent with existing institutions at all scales or are there some inconsistencies? If there are inconsistencies, these will be identified and remedial actions (e.g. harmonizations) proposed.

Existing global water cooperation

While either non-binding or of limited application given that both states in the RTBAA have not adopted them, two international instruments should be acknowledged to hold some potential to influence the nature of water cooperation in the RTBAA. The first is the 1997 UN *Convention on the Non-navigational Uses of International Watercourses*. The second is the 2008 *Resolution 63/124 on the Law of Transboundary Aquifers*. While the 1997 UN Watercourses Convention only applies to surface water and hydrologically connected groundwater (thus excluding certain 'unconnected' aquifers), the 2008 Draft Articles' scope applies to aquifers as permeable water-bearing geological formations *and* the water contained therein. Both convey the same message for transboundary cooperation, most prominently: the equitable and reasonable utilization of the resources or benefits of an aquifer and factors relevant to establishing this, the obligation not to cause significant harm to another aquifer state, the general obligation to cooperate, the regular exchange of data and information, as well as the protection of ecosystems.

Existing regional water cooperation

The Revised SADC Protocol on Shared Watercourses signed in 2000 by states within the Southern African Development Community (SADC), including both South Africa and Botswana, represents the regional framework relevant to the RTBAA. Drawing upon the principles within the international legal framework, its objective is to "foster closer cooperation for judicious, sustainable and coordinated management, protection and utilization of shared watercourses and advance the [SADC] agenda of regional integration and poverty alleviation". Thus, while there are no specific transboundary aquifer legal instruments in the SADC region, the SADC Protocol on Shared Watercourses provides a legal basis for governing transboundary

[3] For the purposes of this document, 'institutions' are understood as 'laws', 'policies' and 'organizations', in the sense that they are "stable, valued, recurring patterns of behavior" (Hart 1961, p.54) that manifest in structures or mechanisms of social order.

surface water and hydrologically connected groundwaters. Notably, the SADC Protocol on Shared Watercourses provides the guiding regulatory framework for the Water Resources Management and Sanitation unit of the SADC Water Division, which oversees the harmonization of national water policies and encourages water management at the transboundary level.

Table 1: Transboundary Water Institutions

	Laws	Policies	Organizations
Global	• 2008 UN ILC Draft Articles on the Law of Transboundary Aquifers (UNGA resolution 63/124) • 1997 UN Convention on the Non-navigational Uses of International Watercourses (36 ILM 700; signed 21 May 1997; in force 17 August 2014) *(Signed by South Africa; not signed by Botswana)*		United Nations
Regional	• 2000 Revised SADC Protocol on Shared Watercourses	SADC Regional Water Policy	Southern African Development Community (SADC); SADC Water Division
At or within Basin	• 2014 Agreement between Sedibeng Water Board of the Republic of South Africa and Water Utilities Corporation of the Republic of Botswana Relating to the Supply of Water from the Molatedi Dam on the Marico River (Twasa Agreement) • 2008 Agreement between the Government of the Republic of South Africa and the Government of the Republic of Botswana on Water Supply Across the Border • 2003 Agreement on the Establishment of the Limpopo Watercourse Commission (LIMCOM) signed between Botswana, South Africa, Mozambique, and Zimbabwe • 1987 Agreement on the Establishment of the Joint Permanent Technical Water Committee (JPTC) between Botswana and South Africa • 1986 Agreement on the Establishment of the Limpopo Basin Permanent Technical Committee (LBPTC) between Botswana, South Africa, Mozambique, and Zimbabwe		Limpopo Watercourse Commission (LIMCOM); Limpopo Basin Permanent Technical Committee (LBPTC); Joint Permanent Technical Water Committee (JPTC).

Existing water cooperation at the basin scale

Cooperative agreements within the Limpopo basin have not been in short supply. Some five agreements have been concluded since 1986. On the level of the basin, riparian states (Botswana, Mozambique, South Africa and Zimbabwe) signed an agreement in 2003 on the

Establishment of the Limpopo Watercourse Commission (LIMCOM). The LIMCOM agreement built on an earlier 1986 agreement creating a committee, and encourages focused cooperation through technical committees. The content of both agreements are fairly broad in scope, which presumably allows flexibility to respond to the most pertinent issues. Nonetheless, the degree to which LIMCOM has identified and progressed toward realization of a supporting organization and associated positions is unclear and needs further attention.

Existing local water cooperation

Three agreements have been concluded at more local levels. A bilateral agreement between Botswana and South Africa was signed in the 1980s, establishing the Joint Permanent Technical Committee (JPTC) as a forum for discussing matters of transboundary interest in the Limpopo Basin. The JPTC already acts as a formalized and functional forum for cooperation across the border. The JPTC has recently (2015) established a subcommittee on the joint management of water quality and aquatic weeds in the Upper Limpopo River Basin, which has proposed practical measures to reduce proliferation of water hyacinth. Dialogue associated with the JPTC also resulted in an agreement over the Molatedi dam in South Africa in 1988, shortly following its construction, and recently, conclusion of the 2014 Tswasa agreement (revising the original agreement) of transfer of water from the dam in South Africa to Botswana. A 2008 Water Supply agreement was also concluded between Botswana and South Africa, providing a general framework for bilateral cooperation to facilitate authorized water supply between the two countries.

How can emerging opportunities for RTBAA joint management build on existing water cooperation?

The relatively smaller scale covered by the JPTC (i.e. only two countries as opposed to four for LIMCOM), coupled with its ability to facilitate practical actions, suggests that cooperative actions emerging on the RTBAA may be best channeled through the JPTC. Efforts to coordinate with the JPTC are already underway. A consensus was reached at a JPTC meeting on 08 December 2016 for Ramotswa project progress to be regularly reported to the JPTC. A proposal calling for two JPTC members (one from each country) to sit on the Ramotswa project Advisory Committee will be tabled at the forthcoming JPTC meeting—tentatively scheduled for the end of March 2017. In sum, the JPTC constitutes an existing and operational cooperative mechanism between the two countries, and the JPTC is supportive of institutionalizing focus on cooperative management of the RTBAA and potentially broader TBA cooperation. This would therefore seem a logical avenue for identifying and supporting international water cooperation in the RTBAA.

Alignment of National Institutions

Approach National institutions in Botswana and South Africa are likely to already contain key actions and targets related to the RTBAA. These laws, policies and organizations, shown in Table 2, will be reviewed in order to identify key substantive, procedural, and organizational/structural parameters that will be used to populate a database that is structured to capture the presence, absence and nature of key institutional elements. Through identification of the intersections of countries' national institutions, imminent action points can be ascertained and prioritized where an existing institutional framework based on mutual values enables their implementation. Areas that are not aligned will also be identified, which will in turn be examined to determine if misalignment poses risks. Where risk is determined, options for addressing these risks will be proposed, for example through harmonization efforts. Ultimately, this work will reveal how the national institutions in both countries presently correspond to each other, uncovering opportunities for transboundary cohesion, as well as exposing contradictions and gaps. Understanding areas of alignment and flagging points that may need to be harmonized will lay an improved basis for management of the RTBAA.

Table 2: National Institutions Related to Water

	Laws	Policies	Organizations
Botswana	• 2011 Environmental Assessment Act • 2005 Draft Water Bill • 1978 Water Utilities Corporation Act • 1977 Town and Country Planning Act • 1968 Water Act • 1956 Boreholes Act	• 2013 Botswana Integrated Water Resources Management and Waste Efficiency Plan • 2012 National Water Policy • 2003 National Master Plan for Sanitation and Wastewater • 2001 Wastewater and Sanitation Management Policy	Ministry of Land Management, Water and Sanitation Department of Water Affairs Water Utilities Corporation District Councils Water Apportionment Board
South Africa	• 2014 National Environmental Management: Waste Amendment Act • 2008 National Environmental Management: Waste Act • 2002 Mineral and Petroleum Resources Development Act • 2000 Municipal Systems Act • 1998 National Water Act • 1998 National Environmental Management Act • 1997 Housing Act • 1996 South African Constitution and Bill of Rights	• 2016 Draft National Sanitation Policy • 2013 National Water Resource Strategy • 2016 draft Groundwater Strategy (to be finalized, March 2017) • 2009 Free Basic Sanitation Implementation Strategy	Department of Water and Sanitation Catchment Management Agencies Water Research Commission Council for Scientific and Industrial Research Council for Geoscience Water Institute of South Africa

Contextualizing Actions

Approach Following the analysis of national water institutions, the set of actions identified in the SAP framework will be placed in the context of institutions at all scales. In particular, the degree to which proposed actions are consistent with existing institutions at all scales will be evaluated. This will be done by systematically considering each action against the procedural, substantive and structural elements of the institutional framework as a whole in its current state, drawing out the opportunities for, and obstacles to, their implementation. Actions that can be acted upon sooner due to the existence of supporting laws, policies and organizations can consequently be prioritized relative to those requiring institutional reforms to support their realization. The needed institutional reforms may, for example, include a harmonization of water quality standards and monitoring structures, so that the management in one country does not contradict or cause impediments to the management goals of the other country. The identified reforms and remedial actions proposed will ultimately contribute to formulating a coordinated, harmonized institutional framework for cooperation in the RTBAA and implementation of the SAP.

VI. Next Steps

Development plan

The draft SAP will be developed in the course of 2017. Development of the SAP will be iterative, with approximately four consultations (+/- every third month) envisioned in each country to obtain inputs and seek feedback on progress. The first half of 2017 will be heavily devoted to finalizing the vision, framework and actions. Given the existing progress on vision and framework, this will mean emphasis on elaborating actions (Table 3). Actions will be qualitatively elaborated in the main body of the SAP report, with more detailed quantification and categorization – according to parameters such as cost, time-frame, and direct transboundary versus shared concern (defined below) – in an annex. The second half of 2017 will focus on elaborating the institutional context and applying that context to filter and prioritize potential actions. The second half of 2017 will also focus on development of an approach for monitoring and evaluating SAP implementation. Subsequently, 2018 will be used to seek validation and endorsement of the SAP from stakeholders, authorities in the two countries, and the JPTC. Refinements will be made as needed based on feedback received from such bodies.

Table 3: SAP Development process, 2017-2019

	2017				2018			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q3
Background and key threats from baseline report	X							
Transitioning from key threats to SAP framework: Methods for developing the SAP	X	X						
SAP framework, components and actions	X	X						
Institutional Context		X	X					
Monitoring and Evaluation			X	X				
Annex: Table with details (cost, timeframe, etc.) for achieving particular actions	X	X	X	X				
DRAFT SAP				20 Dec				
Implementation of Selected Actions					potential			
Validation and Endorsement					X	X	X	X
Finalization							X	X
FINAL SAP								20 Dec

Envisioned SAP structure

The Ramotswa SAP document is envisioned to consist of seven main sections (Annex 1). The first section is intended to review the key consulted and consolidated threats from the baseline report and provide an introduction to the SAP. The second section will explore the process through which the SAP was developed, and how it builds on the baseline report and coherently incorporates various different elements. The third section will elaborate the SAP framework and actions, and the process around identifying and ranking priority actions. The fourth section will review the institutional context into which the SAP implementation will fit. The fifth section will focus on categorizing SAP actions according to the timeframe in which they can be implemented, placing particular focus on identifying actions that hold potential for implementation in the life of the project (2017-2019). Finally, the approach for performance monitoring and evaluating SAP implementation – with proposed indicators – will be outlined, followed by an annex that contains tables with estimated costs, targets, timeframes and potentially other information for each action.

Uptake and Dissemination

While the SAP is primarily intended for use by RBTAA-sharing states, it will carry broader importance as one model of collaboration and cooperation on a shared aquifer. As such, the completed SAP will be announced and disseminated to regional and global institutes active in groundwater and transboundary water management. In particular, the SAP will be shared with donors and other third parties (media, the public, transboundary and regional bodies) will be to attract attention, support and funding to foster progress on the SAP implementation.

Issues requiring special attention in SAP development

Four issues concerning the SAP were apparent from exercises and discussions with partners in the trainings and consultations. The first issue is the centrality of resource monitoring to all components of the SAP. The second issue relates to the reality that not all actions in the RTBAA require transboundary cooperation or joint actions; some may indeed be able to be pursued unilaterally. The third issue relates to the timeframe that the SAP is intended to cover. There is particular confusion among project partners on whether the SAP is simply a project document or is envisioned to lay out plans beyond the 2-year project life. The latter option is clearly the correct approach according to the aims of the SAP as outlined in this document, though some activities may be able to be launched during the project life. The fourth issue relates to the process through which decisions will be taken related to identification and prioritization of actions.

Resource Monitoring: where does this fit?

As noted, resource monitoring is a recurring theme in all framework components of the SAP and careful thought needs to be applied to unpacking and allocating different aspects of monitoring to different components. Based on initial discussions, it would appear that regular water resources monitoring should fall within the first component on managing water resources. Drafting and fostering adoption of a protocol for data and information exchange and joint monitoring should in turn form part of the second component on enhancing institutions and capacity. Finally, research is likely to contain elements of targeted monitoring, perhaps focused on more specific issues than the regular monitoring undertaken for water resources management. Nevertheless, monitoring undertaken in the context of expanding research and knowledge should no doubt support the monitoring activities undertaken in the context of water management.

Transboundary direct vs. shared concerns

A distinction has been drawn between transboundary water concerns that are direct versus shared, to clarify the reality that not every issue in a transboundary watercourse has a transboundary impact or concern. Direct transboundary concerns are defined as concerns where impacts on one side of border affect conditions on the other side of border. Shared concerns, conversely, are defined as issues that have only national effects, but are common to both countries. In the RTBAA, there seems to be little doubt that many relevant issues fall into the category of shared concerns, and some fall into the category of direct transboundary concerns. As the SAP moves forward, it would be worthwhile to clarify possible variation in importance that should be accorded to actions that address direct transboundary issues vis-à-vis those that merely address shared concerns.

Planning activities during versus after project life

Another issue that requires special focus moving forward is the timeframe to which the SAP is intended to apply. The SAP is intended to identify actions that can be pursued in the short, medium and long-term time horizon. While it may be feasible to initiate certain "low-hanging fruit" activities during the project lifespan, the vast majority of actions are likely to be undertaken after project completion. The aim is for the SAP to be finalized and endorsed during

the project life, and then actions contained in the SAP to then be pursued. Further, efforts will be undertaken to foster interest and buy-in to the SAP through regional channels such as SADC and the SADC-GMI, as well as broader international channels (e.g., UN-related) associated with transboundary groundwater management.

Inclusive decision-making that balances process and product

The process through which decisions will be taken related to identification and prioritization of actions in the SAP remains to be finalized. Focal points on each side are expected to facilitate input and feedback, and IWMI as the coordinating institute will mediate and consolidate inputs as best possible. Nonetheless, issues may arise related to accurate and equitable synthesis of inputs. It is hoped that frequent iterations and consultations with both sides provide ample opportunity to refine the evolving versions of the SAP. However, care must be taken to balance aims of participative process, with the need for constructive progress toward completion of a product, i.e., the final SAP report.

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Annex 1: Strategic Action Plan Document Structure

Section	Description	Status
1. Background and key issues from baseline report	Reviews key findings from the baseline report, highlights transition to SAP.	Under development; section II in this report
2. Methods for developing the SAP	Explains the process through which the SAP was developed	Under development; evidenced throughout this report
3. SAP vision, framework, actions	The core of the SAP. Contains Joint Vision and Framework, as well as the set of actions	Under development; evidenced in section IV immediately below
4. Institutional Context	Reviews the institutional context in which the SAP falls; evaluates compatibility of SAP actions with existing institutions	Under development; evidenced in section V below
5. Implementation	Examines the timeframe for undertaking individual actions, and devotes special focus to implementation parameters for actions that can be undertaken in project life span (-2019)	Yet to begin
6. Monitoring and Evaluation	Creates an approach including indicators, for measuring progress for SAP implementation – mainly oriented toward actions after SAP completion	Yet to begin
7. Annex: Details (Cost, targets, timeframe, etc) for particular actions	Provides more detail on the estimate costs, particular targets, and other parameters for specific actions	Yet to begin

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Annex 4: Participants in Ramotswa Training (1-2/12/16)

Signed participant attendance register attached below.

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Birchwood Hotel, Johannesburg, South Africa, 01 December 2016

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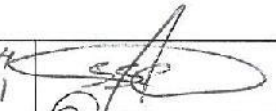
10	Sakhile Mndaweni	Department and Water & Sanitation	MndaweniS@dws.gov.za	012 336 8764 083 654 9001	
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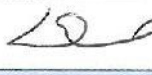
13	Dirk Wijnbeek	Groot Marico River Conversation Association (MRCA)	maricom@yahoo.com	0824482433	
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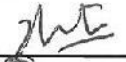
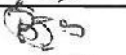
14	Thato Setloboko	DWA – Botswana	tssetloboko@gov.bw	+267 3607231	
15	Bochengedu Somolekae	DWA – Botswana	bsomolekae@gov.bw	+267 3223216	
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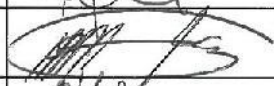
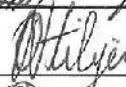
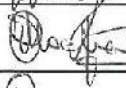
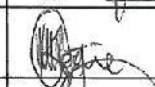
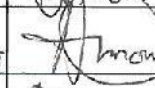
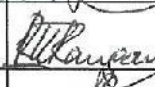
18	Phemo Moleje	DGS – Botswana	pmoleje@gov.bw	+267 72799839	
19	Onkgopotse Ntibinyane	DGS – Botswana	ontibinyane@gov.bw	+267 74549624	
20	Moses Moehadu	WUC – Botswana	mmoehadu@wuc.bw	+267 73969468	
21	Keatlaretse Gaoagelwe	WUC – Botswana	kgaoagelwe@wuc.bw	+267 73972197	
22	Amogelang Molefe	WUC – Botswana	AMolefe@wuc.bw	+267 73969537	
23	Rubeni Ranganai	UB	RANGANAI@mopipi.ub.bw	+267 7165776	
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CGIAR RESEARCH PROGRAM ON Water, Land and Ecosystems

USAID FROM THE AMERICAN PEOPLE | SOUTHERN AFRICA

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