

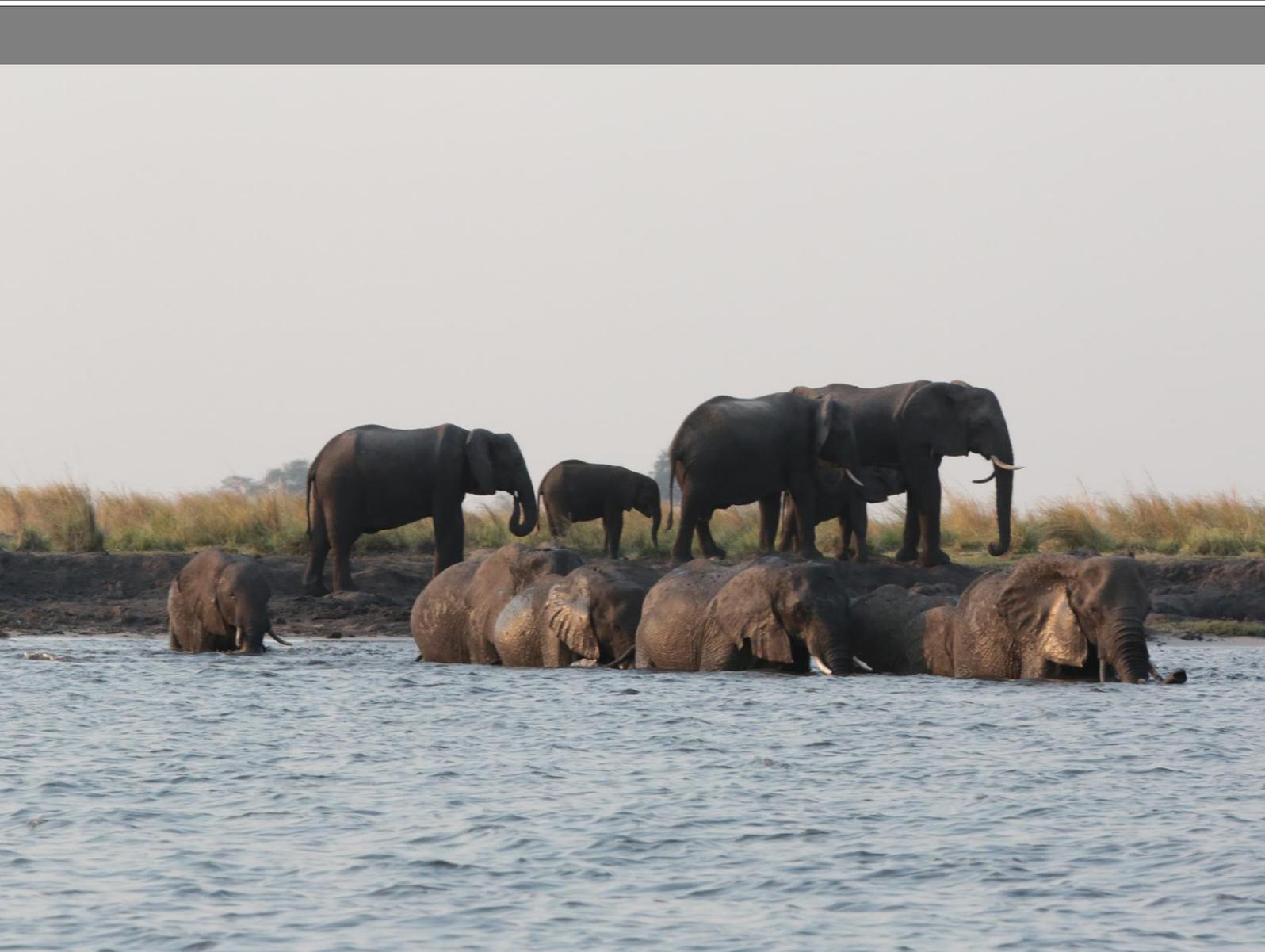


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# FY15 Q4 QUARTERLY REPORT WITH FY15 ANNUAL SUPPLEMENT

SOUTHERN AFRICA REGIONAL ENVIRONMENTAL PROGRAM

OCTOBER 2014 TO SEPTEMBER 2015



**October 2015**

This publication was produced for review by the United States Agency for International Development. It was prepared by Chemonics International Inc.

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## ACRONYMS AND ABBREVIATIONS

CA	Conservation Agriculture
CBNRM	Community-Based Natural Resource Management
CLTS	Community Led Total Sanitation
COP	Chief of Party
CORB	Cubango-Okavango River Basin
DCOP	Deputy Chief of Party
DSS	Decision Support System
DWA	Department of Water Affairs – Namibia
DWNP	Department of Wildlife and National Parks – Botswana
DWSSC	Directorate of Water Supply and Sanitation Coordination
GEF	Global Environment Facility
IEE	Initial Environmental Examination
IRBM	Okavango Integrated River Basin Management Project
IWQM	Integrated Water Quality Management
LUCIS	Land Use Conflict Information System
MAWF	Ministry of Agriculture, Water and Forestry – Namibia
MINAMB	Ministry of Environment – Angola
MINUA	Ministry of Urban Planning and Environment – Angola
MOMS	Management Orientated Monitoring Systems
NAP	National Action Plan
NGO	Nongovernmental Organization
NRM	Natural Resource Management
OBSC	Okavango Basin Steering Committee
ODRS	Okavango Delta Ramsar Site
OkBMC	Okavango Basin Management Committee
OKACOM	Permanent Okavango River Basin Water Commission
PACSE	Participation for Communities in Sanitation Education
PES	Payments for Ecosystem Services
PILUMP	Participatory, Integrated Land-use Management Plans
POWAG	Poisoning of Wildlife Action Group
QASP	Quality Assurance Surveillance Plan
SADC	Southern Africa Development Community
SAREP	Southern Africa Regional Environmental Program
SEA	Strategic Environmental Assessment
TDA	Trans-boundary Diagnostic Analysis
TLB	Tawana Land Board
USAID	United States Agency for International Development
USFS	United States Forest Service
WSS	Water Supply and Sanitation

## INTRODUCTION

The Southern Africa Regional Environmental Program (SAREP) was originally a five-year project to support the initiatives of the Southern Africa Development Community (SADC) to address threats to ecosystem services and biodiversity within priority shared river basins. The project works in collaboration with the Permanent Okavango River Basin Water Commission (OKACOM) to implement strategies and activities centered on conserving biodiversity, improving water supply and sanitation services, and strengthening regional capacity to respond to the effects of climate change and HIV/AIDS. The program has been awarded an extension of one year, taking it through to its new end date of 30<sup>th</sup> of September 2016.

This report presents SAREP's progress relative to expected results and outcomes during the reporting period from October 2014 to September 2015. Given the need to have reduced levels of activity during the months of July to September 2015 while the extension was negotiated, activities during the final quarter of this year are somewhat limited in comparison to earlier periods.

The report is structured to present a summary of quarterly reports completed during the reporting period by section. The first part of this report covers the final quarter in the year under review and therefore presents information relating to the months of July – September 2015, or FY15 Q4 in the official series. The section actually summarizing the whole year is appended to this final quarterly report as an Annual Supplement.

The annual progress report provides additional detail, including a comprehensive overview of activities under each program element; a summary of deliverables, reports, and publications submitted during the reporting period; and an overview of SAREP's progress in meeting additional contract requirements, including adhering to environmental compliance regulations and promoting inclusivity of marginalized groups. The SAREP Quality Assurance Surveillance Plan (QASP) indicator table is annexed; the table presents progress achieved for all program indicators.

## I. FY15 Q4 QUARTERLY SUMMARY: JULY – SEPTEMBER 2015

### A. Highlights of Key Activities

This last quarter was largely characterized by a general down-scaling of activities as SAREP worked through a no-cost extension until a modification was finalized to extend the contract through the end of September 2016. In this quarter the major highlights related to biodiversity and climate change included collaborating with the BioChobe project to support the roll out of LUCIS into the Chobe District of Botswana; maintaining connections with partners and consultants that will be working with SAREP over the coming year; exploring approaches to extend existing water supply and sanitation (WSS) activities across the basin; and monitoring ongoing livelihood activities such as the development of community arts and craft outlets at the Nhabe Museum in Maun. Highlights of activities during the quarter are presented below.

**The Land Use Conflict Identification System (LUCIS) used to develop land use plan of Seronga**  
*LUCIS has improved the sustainable allocation of land in the Seronga area of Ngamiland contributed to improving people's livelihoods by reducing their expose to human wildlife conflict and flood risk, whilst also helping to preserve sensitive habitats and wildlife corridors*

Over the past three years SAREP has collaborated with the Tawana Land Board (TLB) and Botswana's Department of Environmental Affairs (DEA) to assist with the development and implementation of a decision support tool to improve the sustainable allocation of land in Ngamiland, Botswana. In 2013 SAREP proposed to the TLB that a pilot project be implemented in the Seronga Sub-Land Board District where significant human-wildlife conflict occurs – especially where elephant raid community crops and fields. The project was in direct support of the TLB and DEA to help integrate the Okavango Delta Ramsar Site (ODRS) Strategic Environmental Assessment (SEA) into the land allocation process. SAREP proposed the application of the GIS-based *Land Use Conflict Identification System* (LUCIS), previously introduced to OKACOM as a decision support tool. This tool was successfully adopted by the Seronga Sub-Land Board to develop participatory land-use plans of the area and have subsequently used the plans to allocate land in the area more rationally and systematically.

During the past quarter, SAREP continued to liaise with OKACOM and the Tawana Land Board to determine how to organize the roll-out of LUCIS to other sub-district land boards in Ngamiland using support from the GEF/UNDP funded Sustainable Land Management (SLM) program, which is now operating in the district. SAREP will collaborate with SLM over the next year to provide technical support for the roll-out of LUCIS across the district.

In addition, SAREP collaborated with the BioChobe project to support the roll out of LUCIS into the Chobe District of Botswana; this occurred through a meeting held in Kasane at the Chobe Land Board with representatives of the KAZA TFCA and EcoExist. At this meeting, the LUCIS process was presented to the Chobe stakeholders, and proceedings helped participants integrate conservation in into the Chobe District land use plan.

**Facilitating the implementation of Park Management Plans for protected areas in SE Angola**  
*Discussions were held with MINAMB in Angola to meet with intended consultants who will develop park management plans for the Luengue-Luiana/Mavinga National Park in SE Angola*  
Chief of Party [REDACTED] and Deputy Chief of Party [REDACTED] travelled to Windhoek to meet with Namibian-based short-term consultants scheduled to carry out work on the Park Management Plan for the Luengue-Luiana/Mavinga National Park complex in SE Angola. The SAREP staff also concluded plans with Angola's Ministry of Environment (MINAMB) to hold a

consultative planning meeting in Windhoek in early October to gain agreement on implementation methodologies and approaches, as well as initiating the actual planning activity.

**Planning the scaling-up of WSS activities in selected areas of the basin.**

*Plans were made to scale-up some existing projects and extend others, including the finalization of the provision of water supplies to identified communities in the Kavango Region of NE Namibia, and SE Angola, while also extending the reach of the ongoing campaign of community led total sanitation (CLTS), in the Ngamiland District of NW Botswana and in SE Angola.*

Discussions were held with the WSS partner Bergstan (Pty) Ltd to explore their participation in the extension period, where they will have a reduced role, focusing on the provision of engineering support in water supply initiatives. Discussions also continued with Jeffares and Green, in Botswana, where SAREP's former WSS Specialist, [REDACTED] is now their official representative. Discussions explored their provision of the 'soft' WSS engineering services to SAREP, covering the strengthening of WSS governance at the community, local government and national levels, influencing the adoption of appropriate policies and strategies where necessary and generally facilitating better cooperation between government and SAREP.

**Promoting continued development of community arts and craft outlets at the Nhabe Museum**

*SAREP has continued to collaborate with the local Maun NGO Travel for Impact in their initiative to develop arts and craft outlets for producer communities in the Okavango Delta at the Nhabe Museum.* Using the impetus from SAREP's original initiative to facilitate improved access to markets by arts and craft producers, [REDACTED] a former consultant to SAREP, continued to press forward with various arts and crafts activities through her own organization, Travel for Impact. These activities, which followed directly from SAREP's initial investment, included developing marketing and sales stalls for producer communities from the Okavango Delta area as well as the construction of a coffee shop at the Nhabe Museum in Maun. The COP and DCOP continued to supply advice and coaching to these efforts in order to maintain the momentum of developing the arts and crafts wholesaling 'social enterprise' organization that SAREP originally set out to create. Funding for these activities has been sourced from other donors, including the Botswana Department of Gender Affairs, to upgrade the museum facilities and create rooms where artists can work and practice; funding for the development of the community craft stalls is being considered by the KAZA TFCA secretariat.

## B. Summary of Progress against Planned Activities

The below table summarizes the major activities completed by SAREP during this past quarterly reporting period, and plans for next the quarter.

Activity/Sector	Status/Progress To Date	Planned For Next Quarter
<b>Integrated Natural Resource Management</b>		
OKACOM	<ul style="list-style-type: none"> <li>OKACOM Vision development completed through a national visioning exercise in each country.</li> </ul>	<ul style="list-style-type: none"> <li>No further action</li> </ul>
Development of Strategic Partnerships	<ul style="list-style-type: none"> <li><i>United Nations Environment Program</i>: The United Nations Environment Program (UNEP) in Nairobi, Kenya terminated its involvement in the OKACOM PES process after a review and change of strategy in their HO in Nairobi, Kenya.</li> <li><i>USFS</i>: SAREP worked with the USFS to provide technical support and expertise in the development of a fire management plan for northern Botswana.</li> <li><i>KAZA TFCA</i>: The SAREP COP met with KAZA TFCA and WWF in Kasane to discuss areas of collaboration in enhancing monitoring of multi-sectoral components covered by both SAREP and KAZA.</li> <li><i>BioChobe</i>: Discussions held with project manager and collaboration on fire management activities discussed covering AFIS introduction in northern Botswana through government departments as well as introducing LUCIS to the Chobe District of the country.</li> </ul>	<ul style="list-style-type: none"> <li>Continue to support OKACOM in its internal PES activities, especially the development of an Endowment Fund.</li> <li>Collaborate with KAZA TFCA in developing a consolidated monitoring framework within the region.</li> <li>Collaborate with BioChobe project to develop fire management plans for northern Botswana and to roll-out LUCIS in the Chobe District.</li> </ul>
Strengthening Decision Support Systems	<ul style="list-style-type: none"> <li>Continued to work with the Seronga Sub-land Board to use the plans developed for land-use planning purposes on a day to day basis.</li> </ul>	<ul style="list-style-type: none"> <li>Work with the Tawana Land Board to extend the process across the other 5 sub-districts in Ngamiland in collaboration with the UNDP SLM program.</li> </ul>
Transboundary EIA, Notification Mechanism, and Basin wide SEA	<ul style="list-style-type: none"> <li>Discussions held with OKACOM and OBSC to resurrect the development of Transboundary Environmental Assessment Guidelines and basin wide SEA and agreement reached to continue where it was stopped a year ago.</li> </ul>	<ul style="list-style-type: none"> <li>Continue discussions with OKASec to resurrect the development of notification mechanisms.</li> </ul>
UNDP & Global Environmental Fund (GEF) Activities	<ul style="list-style-type: none"> <li>SAREP continued to discuss the implementation of the UNDP/GEF SLM project in the Ngamiland District and how its activities could support the extension of SAREP activities after its eventual closure in September 2016.</li> </ul>	<ul style="list-style-type: none"> <li>Support Botswana OBSC and DEA to start up and implement the program.</li> </ul>
Addressing regional law-enforcement efforts with regard	<ul style="list-style-type: none"> <li><i>KAZA TFCA</i>: The SAREP COP followed up with WWF in Namibia regarding the workshop held in the Zambezi Region of Namibia, which developed an anti-poaching strategy for KAZA and received a draft of the proceedings. SAREP has continued to discuss</li> </ul>	<ul style="list-style-type: none"> <li>Link in with the relevant agencies in Angola, Botswana and Namibia to support workshops to</li> </ul>

Activity/Sector	Status/Progress To Date	Planned For Next Quarter
to rhino and elephant poaching	<p>elements of the strategy with KAZA and WWF with a view to its implementation through KAZA.</p> <ul style="list-style-type: none"> <li>Supported 'Poisoning Of Wildlife Action Group' (POWAG) to hold a strategic planning workshop to combat the poisoning of vultures in the region. Proceedings of the workshop being produced.</li> </ul>	<p>determine local strategies.</p> <ul style="list-style-type: none"> <li>Monitor outcomes of the POWAG initiative. No active involvement in the process.</li> </ul>
Wildlife Corridor development Botswana-Caprivi-Angola/Zambia	<ul style="list-style-type: none"> <li>Planning for the supply of water to the populations for the Sobbe Game Corridor Project in the Kwando floodplain continued in the year with CRIDF carrying out due diligence surveys within communities. IRDNC have raised latent concerns about dependency syndromes arising with the provision of boreholes and ongoing maintenance into the future.</li> <li>Coordinated planning with KAZA and WWF's Advisor to KAZA for ongoing work in the Sobbe corridor.</li> </ul>	<ul style="list-style-type: none"> <li>SAREP's new WSS Coordinator to review the drilling of boreholes.</li> <li>Work with KAZA to coordinate corridor activities.</li> </ul>
<b>Strategic Activities Fund</b>		
Local Subcontracts	<ul style="list-style-type: none"> <li>All contracts with NGO implementing partners were completed.</li> </ul>	<ul style="list-style-type: none"> <li>No further action.</li> </ul>

### Angola specific activities

Activity/Sector	Status/Progress To Date	Planned For Next Quarter
<b>Institutional Support</b>		
Development of a Decision Support System	<ul style="list-style-type: none"> <li>Discussions held with Angola OBSC to remove this item from the list of possible support actions.</li> </ul>	<ul style="list-style-type: none"> <li>No further action.</li> </ul>
<b>Integrated Natural Resource Management</b>		
Protected Area Management Plans Cuando Cubango	<ul style="list-style-type: none"> <li>Initiated consultancy for development of management plans for the new Luiana/Luenge and Longa/Mavinga national parks to be activated during the extension period.</li> </ul>	<ul style="list-style-type: none"> <li>Hold stakeholder meetings in Menongue and Luanda in November.</li> </ul>
<b>Water Supply and Sanitation</b>		
Improving Water Supply	<ul style="list-style-type: none"> <li>Activities for the Calai Administration and the Provincial Department of Water in Cuando-Cubango were further delayed while an MoU was signed between CRIDF and the GoA.</li> <li>Plan to provide capacity for Operations and Maintenance of infrastructure in Calai by GoA contractors were taken over by CRIDF using [REDACTED] Jeffares and Green.</li> </ul>	<ul style="list-style-type: none"> <li>Monitor outcomes.</li> </ul>
Community Led total Sanitation	<ul style="list-style-type: none"> <li>Reports were received from ACADIR that CLTS triggering continued to take place in villages in SE Angola despite the lack of active support from SAREP during the phase of reduced activity in the no-cost extension. Numbers have not been quantified at this point but will be revisited in the extension period.</li> </ul>	<ul style="list-style-type: none"> <li>Extension facilitators to follow up and support during extension phase through a subcontract with ACADIR.</li> </ul>
<b>Livelihoods</b>		

Activity/Sector	Status/Progress To Date	Planned For Next Quarter
Natural Resources Beneficiation - Devil's Claw (DC).	<ul style="list-style-type: none"> <li>ECoSo Dynamics, a DC buyer, and SAREP's Angolan Activity Manager and Extension Facilitators continued to engage with the Angolan authorities who had confiscated 5,000 kg of DC material on the accusation that it was harvested illegally because the permits were not properly issued. No resolution to the problem was found by the end of the quarter.</li> </ul>	<ul style="list-style-type: none"> <li>Monitor discussions between DC buyer and GoA authorities.</li> </ul>
Conservation Agriculture	<ul style="list-style-type: none"> <li>49 vegetable garden farmers in Caiundo, Cuangar and Mucusso planted cabbage, rape, tomatoes, onions, and pumpkins on their 30x30m plots. The money they made has been used for domestic purposes, buying school uniforms for the children and giving to friends and relatives as well as donating some to schools, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Conservation agriculture activities in all program areas to be further supported – with the existing farmers being provided with further training and supported.</li> </ul>
MOMS activities	<ul style="list-style-type: none"> <li>In Angola, the major MOMS activity focused on monitoring the harvesting and processing of Devil's claw. Reports from these processes will be consolidated into a single MOMS report after the October sales are complete.</li> </ul>	<ul style="list-style-type: none"> <li>Follow up on development of the report.</li> </ul>
<b>Strategic Activities Fund</b>		
<ul style="list-style-type: none"> <li>Local Subcontracts</li> </ul>	<ul style="list-style-type: none"> <li>ACADIR implemented agreed activities according to its contract.</li> </ul>	<ul style="list-style-type: none"> <li>Deliverables to be monitored;</li> <li>Payments to be made according to deliverables.</li> </ul>

### Botswana specific activities

Activity/Sector	Status/Progress To Date	Planned For Next Quarter
<b>Integrated Natural Resource Management</b>		
Development of a Decision Support System (DSS) – LUCIS	<ul style="list-style-type: none"> <li>Participatory workshops held with Seronga Sub-Land Board to train their staff and some community representatives in use of GPS instruments and land-use allocation.</li> </ul>	<ul style="list-style-type: none"> <li>Work with the Tawana Land Board to extend the process across the other 5 sub-districts in Ngamiland in collaboration with the UNDP SLM program.</li> </ul>
Okavango Delta SEA Implementation and World Heritage Site Monitoring	<ul style="list-style-type: none"> <li>No action taken</li> </ul>	<ul style="list-style-type: none"> <li>Support to Inter-ministerial workshop for SEA endorsement.</li> </ul>
Lake Ngami Management Plan	<ul style="list-style-type: none"> <li>No action taken</li> </ul>	<ul style="list-style-type: none"> <li>Organize training courses in collaboration with DEA and DWNP to strengthen community governance in the new Lake Ngami Trust;</li> <li>Monitor implementation processes.</li> </ul>
Maun Ecotourism Park	<ul style="list-style-type: none"> <li>No progress reported.</li> </ul>	<ul style="list-style-type: none"> <li>Discussions to be held with NW District Council on way</li> </ul>

Activity/Sector	Status/Progress To Date	Planned For Next Quarter
		forward; support consultations if necessary.
Standardized Wildlife Monitoring Protocols	<ul style="list-style-type: none"> <li>The website became fully functional and was used by lodge guides in the Okavango Delta on a trial basis to identify problems and work to resolve them.</li> </ul>	<ul style="list-style-type: none"> <li>Start to undertake refresher courses on implementing the field monitoring activities for all the guides in the Delta.</li> </ul>
<b>Water Supply and Sanitation</b>		
GoB and World Health Organization (WHO) activities	<ul style="list-style-type: none"> <li>No action taken.</li> </ul>	<ul style="list-style-type: none"> <li>Work with GoB relevant departments to hold further consultative workshops aimed at developing District level strategies and policies on WSS.</li> </ul>
Improving Water Supply and Sanitation in Ngamiland Schools	<ul style="list-style-type: none"> <li>No action taken.</li> </ul>	<ul style="list-style-type: none"> <li>Continue support to sanitation education activities in Ngamiland with technical advice and guidance.</li> <li>Collect data and information on the implementation of the scorecard process and produce a case study report on successes and constraints.</li> </ul>
Community Led Total Sanitation (CLTS)	<ul style="list-style-type: none"> <li>Informal reports received [REDACTED] that some CLTS triggering continued to take place in the Ngamiland district. Not verified.</li> </ul>	<ul style="list-style-type: none"> <li>Continued field work to encourage construction of appropriate technology VIP pit latrines in supported communities.</li> <li>Continue to collect data on CLTS in Ngamiland.</li> <li>Plan a media campaign to create greater awareness about CLTS in Ngamiland.</li> </ul>
<b>Livelihoods</b>		
Arts & Crafts	<ul style="list-style-type: none"> <li>Renovation of the Shorobe Basket Co-operative building from the Department of Gender Affairs was carried out and completed.</li> </ul>	<ul style="list-style-type: none"> <li>Support further funding applications and development workshops.</li> <li>Maintain short term contract with main consultant to ensure momentum of the initiative is not lost.</li> </ul>
Management Oriented Monitoring System (MOMS)	<ul style="list-style-type: none"> <li>No action taken.</li> </ul>	<ul style="list-style-type: none"> <li>In extension period Community Coordination Manager to follow up with the trained community members as appropriate to ensure MOMS is functioning appropriately and as intended.</li> </ul>

Activity/Sector	Status/Progress To Date	Planned For Next Quarter
<b>HIV/AIDS Activities</b>		
	<ul style="list-style-type: none"> <li>No action taken.</li> </ul>	<ul style="list-style-type: none"> <li>No further action.</li> </ul>

### Namibia specific activities

Activity/Sector	Status/Progress To Date	Planned For Next Quarter
<b>Integrated Natural Resource Management</b>		
Wildlife Corridor development Botswana-Zambezi Region - Angola/Zambia	<ul style="list-style-type: none"> <li>Further dialogue was held with WWF in Namibia, IRDNC and KAZA TFCA relating to future plans and processes.</li> </ul>	<ul style="list-style-type: none"> <li>Support ongoing efforts to develop corridors.</li> <li>Meet with KAZA TFCA to plan future activities on corridor development.</li> </ul>
USFS support for PA management planning in Kavango, Namibia	<ul style="list-style-type: none"> <li>SAREP collaborated with a USFS team to explore how the AFIS fire alert system could be incorporated into the BioChobe project working in northern Botswana.</li> </ul>	<ul style="list-style-type: none"> <li>Facilitate further collaboration with USFS and BioChobe.</li> </ul>
Poisoning of Wildlife Action Group (POWAG)	<ul style="list-style-type: none"> <li>POWAG strategic workshop funded through US Embassies in Botswana and Namibian was held in February 2015 at Popsa Falls Restcamp in the Divundu area of Namibia, where more than 45 people attended. The workshop came up with a total of 28 attainable goals some of which have already been tackled by the Namibian delegates responsible. The proceedings have been made available to stakeholders.</li> </ul>	<ul style="list-style-type: none"> <li>Track outcomes of the workshop and their relevance to transboundary issues.</li> </ul>
<b>Water Supply and Sanitation</b>		
Improving Sanitation & Community Led Total Sanitation (CLTS)	<ul style="list-style-type: none"> <li>The CLTS training of members of DWSSC for all regions in the previous year resulted in the methodology being implemented in six villages in each of the 14 regions of the country during the first half of 2015.</li> <li>CLTS program implementation continued in the Kavango and Zambezi region.</li> </ul>	<ul style="list-style-type: none"> <li>Continue to collaborate with national CLTS program and activities through training of key personnel as trainers during extension phase.</li> </ul>
Improving Water Supplies	<ul style="list-style-type: none"> <li><i>Kwando Wildlife Migration Corridor</i>: CRIDF support for this activity was constrained by bureaucratic and administrative compliance issues as well as a feeling from IRDNC that a review of the plan was needed to ensure that a dependency syndrome was not present in community expectations for the maintenance of the equipment into the future.</li> <li><i>Kayangona Water Supply</i>: With the scaling back of the program it was agreed that the DWSSC and NamWater would continue to lay piping for</li> </ul>	<ul style="list-style-type: none"> <li><i>Kwando Wildlife Migration Corridor</i>: WSS Coordinator to facilitate a review of borehole drilling plans;</li> <li><i>RAIN Collaboration</i>: support further planning processes for water provision in extension period.</li> <li><i>Kayangona Water Supply</i>: Support completion as</li> </ul>

Activity/Sector	Status/Progress To Date	Planned For Next Quarter
	this element of the scheme and hopefully see it through to completion. Informal reports indicated that some further activity took place although work was halted at one period while material was procured.	necessary in extension period. <ul style="list-style-type: none"> <li>• <i>Allocation Plans</i>: No further action.</li> </ul>
<b>Livelihoods</b>		
TEKOA and Bio-Cultural Community Protocol (BCP)	<ul style="list-style-type: none"> <li>• Discussions were held with IRDNC to consider further support for this area of interest; support to the strengthening of the Kyaramacan Association is being considered.</li> </ul>	<ul style="list-style-type: none"> <li>• Support ongoing initiatives of the tracker training program and BCP.</li> </ul>
Natural Resources Beneficiation - Devil's Claw	Meetings were held with NNF to consider funding further Devil's claw activities covering a sustainability of harvesting analysis for the current season (April-October 2015) as well as training of further communities for the 2016 season.	<ul style="list-style-type: none"> <li>• Community Coordination Manager to follow up on agreed new activities.</li> </ul>

### C. Quarterly Summary by Program Elements

SAREP's approach to conserving priority, shared river basins within Southern Africa centers on collaboration with local, national, and transboundary actors to strengthen environmental governance and provide improved sanitation and water to rural populations. In collaboration with the Permanent Okavango River Basin Water Commission (OKACOM)—SAREP's key partner, and the transboundary mechanism of the governments of Angola, Botswana, and Namibia to conserve the Cubango-Okavango River Basin (CORB)—SAREP takes an integrated, multi-sector approach to protect natural resources. Our strategy diversifies rural livelihoods; conserves biodiversity and natural resources; improves rural water supply, sanitation, and hygiene; and strengthens the capacity of rural communities to respond to the effects of climate change.

Given the planned extension of the SAREP program through to the end of September 2016, and the need to have reduced levels of activity during the months of July to September 2015, this report for the last quarter has a limited amount to report, compared to full operating circumstances.

This section presents a short summary of activities and accomplishments by program element — biodiversity, WSS, global climate change, and HIV/AIDS — for FY 2015 Q4.

#### ***Biodiversity Program Element***

The intention of this element is to protect the CORB and its biodiversity.

#### **LUCIS Pilot program in Seronga Sub-Land Board, Botswana**

*LUCIS continues to be used in the Ngamiland District as a key land-use planning tool*

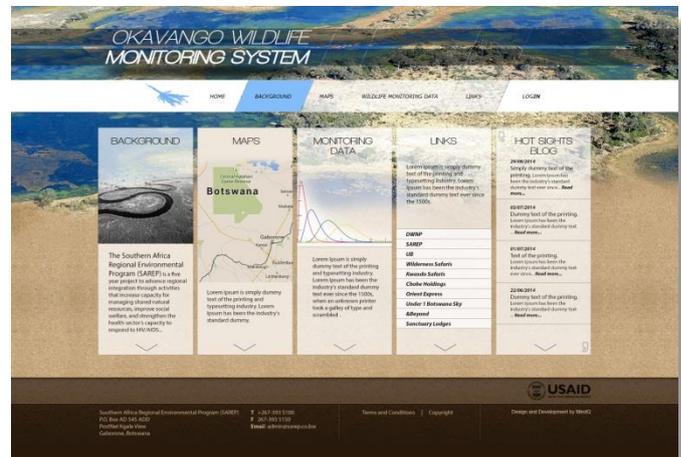
As reported in the three previous quarters, LUCIS is being used on an ongoing basis by the Seronga Sub-land Board in northern Ngamiland to facilitate a rational and systematic allocation of land according to agreed plans and zones, developed in consultation with local communities, such that any conflict with elephants and their use of daily movement corridors is prevented. SAREP's LUCIS consultant [REDACTED] worked closely with EcoExist who purchased hand-held GPS units, and trained local Land Board staff and community members in their use when allocating land in the field. Through this collaboration the software on the GPS units was modified to reduce the width of the elephant

corridors from two kilometers to one kilometer as the previous width was encompassing too much land that could viably have been allocated for agriculture.

## Wildlife Monitoring Protocol and Website

*The Wildlife Monitoring Protocol and linked Website moves towards full implementation.*

SAREP assisted the Botswana Department of Wildlife and National Parks to develop a Standardized Wildlife Monitoring Protocol for Ngamiland which enables private sector concessionaires in the Okavango Delta and other stakeholders to collect uniform, accurate data on the status of fauna and flora in the Delta area, and to use this data to improve management decision-making. This quarter saw the commissioning of the website for internal use only, allowing the lodge game guides to test the system and recommend changes as necessary. Once the data collectors have confirmed that the site is functioning correctly, certain sections of the site will be made available to the public to view trends and general information.



The homepage of the new Wildlife Monitoring Website

## Planning to engage technical support to develop park management plans in SE Angola

*The SAREP team developed an action plan to enable short term technical consultants and other partners to be available as soon as the extension period is approved and activated.*

As the extension period only has about nine months of effective implementation, SAREP began preparing potential short-term consultancies and other partners to be contracted and available to work at the earliest opportunity once the extension period was approved by USAID. SAREP approached a number of consultants and organizations to ascertain availability and qualifications to this end. Chief among these discussions was collaboration with [REDACTED] and the Southern African Institute for Environmental Assessment (SAIEA) in Windhoek around their capacity to support work on the Park Management Plan for the Luengue-Luiana/Mavinga National Park complex in SE Angola. Discussions were held with MINAMB in Angola to organize a planning meeting in Windhoek in early October to gain agreement on implementation methodologies and approaches as well as to initiate the activity.

## Initiating the development of the PES based Endowment Fund for the Okavango Basin

*Research into the PES scheme for the Okavango Delta continued, indicating that an endowment fund should be considered, linked to parallel initiatives of the World Bank to support a Multi-sector Investment Opportunity Analysis with OKACOM*

Over the past three years, SAREP has collaborated with OKACOM to explore the creation of a PES mechanism in consultation with UNEP and their partner GRID Arendal. Due to a change in strategic emphasis, UNEP withdrew from the initiative; meanwhile, SAREP's research indicated that an endowment fund might be a preferred option for OKACOM to pursue in the short term. In the meantime, the World Bank engaged with OKACOM and explored parallel financing initiatives, which resulted in the hosting of a Multi-sector Investment Opportunity Analysis workshop with OKACOM in Man during the quarter, with SAREP participating in that event. It appears promising that this initiative will produce the desired outcomes that OKACOM has been seeking to secure financial stability over the long term.

### **Moving the adoption of the Advanced Fire Information System (AFIS) forward in Botswana**

*The Bio-Chobe Program to collaborate with SAREP to introduce AFIS into the north of Botswana*

Wild, uncontrolled fires in remote rural areas, and in particular in protected areas of the country, have a devastating effect on natural resources and generally reduce biotic productivity or potential. Wildfires are a key factor in the reduction in some wildlife populations of the northern sectors of the land, and therefore need to be better monitored and managed. To help resurrect the potential for implementing a decision support and advanced warning fire management tool, SAREP's INRM Specialist met with the Director of the EU-funded Bio-Chobe Program, who is also keen to help address the impact of fires on biodiversity in the Chobe District. SAREP will work with Bio-Chobe over the next year to bring the AFIS approach, which has been successful in South Africa, to Northern Botswana and to install the system with Government departments.

### ***Water Supply and Sanitation Program Element***

Providing safe drinking water to rural populations, while also protecting water quality and quantity to support vulnerable ecosystems, requires a multi-faceted approach to water management that integrates community education, water infrastructure development, and planning at the local, national, and transboundary levels.

#### **Providing greater access to water in rural areas being explored for extension**

*Hippo Roller water transportation drum being explored as a means of facilitating greater access to water by rural communities*

Meetings were held with the manufacturers of the acclaimed rural development innovation called the Hippo Roller during the quarter. A plastic drum is used as a non-impacting alternative to rural women who often have to carry 20 liter water containers on their heads for many kilometers each day to get supplies for their homes, often causing physical injury to the women over time. The Hippo Roller is a drum that lies on its side and is pulled along, or rolled along with ease, using its attached handle. This technology can carry up to four times the capacity of the 20 liter container often used for water transportation in rural areas. The use of these in the Okavango River basin as an alternative technology to other approaches was explored and will be tested in the extension phase of SAREP.

#### **Continuing collaboration between CRIDF and SAREP yields results**

*Collaboration to date has encouraged CRIDF to extend its levels of cooperation to support other SAREP WSS activities*

The SAREP COP continued to maintain contact with the DFID-funded CRIDF project regarding collaboration to improve infrastructure for WSS in the basin through projects such as the Mayana Raw Water Supply in the Kavango Region and the Sobbe Wildlife Corridor water supply project in the Zambezi Region of NE Namibia. Recent discussions included potential collaboration in the introduction of run-of-river water wheel pumps and Hippo Rollers into selected communities along the Kavango River.

### ***Global Climate Change Program Element***

To improve the resiliency of communities to climate change throughout the CORB, SAREP is engaging in basin-wide coalition-building that transcends national borders.

### **Introduction of Arts and Crafts outlets in Nhabe Museum continues apace**

*The development of sales and marketing outlets in the Nhabe Museum in Maun continues with the assistance of the GoB and the private sector.*

The construction of sales and marketing outlets in the Nhabe Museum, linked to the development of a 'social enterprise' wholesaling mechanism in Ngamiland, has been supported by SAREP for the past three years. These plans have begun to be implemented and funded with various supporting initiatives, such as the refurbishment of some of the museum area as a coffee shop or work areas for artists. Much of the ongoing work is now taking place with additional funding from the Botswana Department of Gender Affairs, while other aspects of support for producer groups are provided by local safari tourism companies in Maun. The KAZA TFCA has also expressed interest in funding some infrastructure after relevant feasibility studies are completed.

### ***HIV/AIDS Program Element***

SAREP's HIV/AIDS component boosted awareness of HIV/AIDS prevention and management strategies through community-based activities that holistically enhance livelihoods, improve natural resource management, and educate basin populations on healthy lifestyles. SAREP's HIV/AIDS program provided education and outreach to communities that receive SAREP assistance in water sanitation and CBNRM. This element of the program was concluded in the base period of SAREP's implementation.

## II. ANNUAL SUPPLEMENT TO THE QUARTERLY REPORT

### A. Annual Summary by Program Element

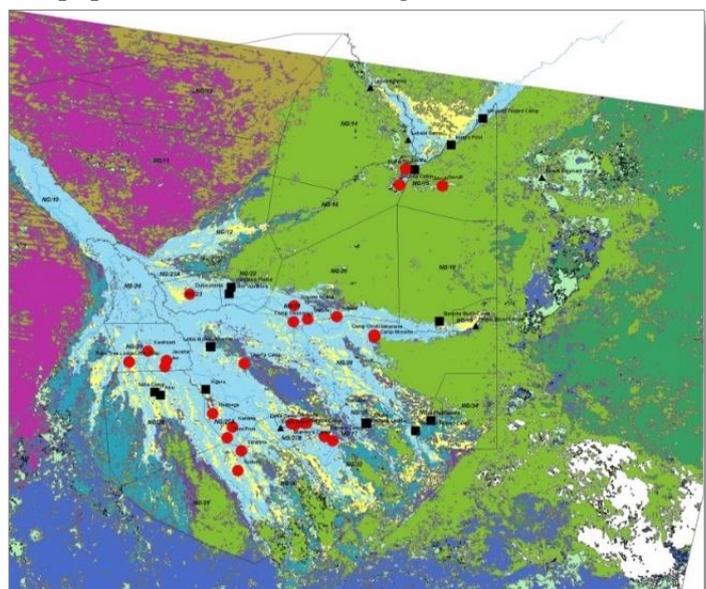
#### *Biodiversity Program Element*

The objective of this annual summary is to show SAREP's progress in assisting OKACOM to protect the CORB and its biodiversity. During the past year the following key results have been achieved:

In Botswana, SAREP worked closely with the GoB's Ministry of Environment, Wildlife and Tourism in the implementation of the Lake Ngami Management Plan, to help the government manage and control the use of the area, especially in controlling rampant, uncontrolled fishing that was taking place in the lake. Newly implemented enforcement measures have brought fish harvesting under control through the plan and resulting devolution of regulatory authority to the local community.

Botswana's important tourism industry, founded on its wilderness and abundant wildlife, was seen to be in jeopardy due to declines in some key wildlife populations in the Okavango Delta over the last

decade as recognized in a workshop that SAREP organized in 2013. The workshop resulted in a project designed to gain a better understanding of causes and drivers of this change. In the past year SAREP continued to work with the GoB to develop a Wildlife Monitoring Protocol for the DWNP. Through this initiative, game rangers in the more than 57 luxury tourism camps in the delta were trained how to collect data on wildlife sightings and enter it into a data-capturing website designed to carry out basic levels of instant analysis. The website has become functional from a testing perspective and will facilitate the analysis of the data collected and contribute to a greater understanding of wildlife management and population trends on an ongoing basis. More detailed analysis will be carried out by DWNP officials to furnish deeper insights of the reasons for changes in wildlife populations in the Delta.



Map of the Okavango Delta showing the spread of the lodges and camps that have been visited and training in the Standardized Wildlife Monitoring Protocol has been completed (Red Dots – some overlap due to close proximity of camps on the ground).

Guides were instructed on how to collect and record data for all of the 14 prescribed monitoring activities, ranging from observing the occurrence of rare and endangered species, alien and invasive species, predator sightings and their kills, as well as how to undertake transects to record species population dynamics.

In early 2014, the Tawana Land Board in the Ngamiland District accepted the LUCIS methodology as their over-arching tool in land use planning and land allocation. The rolling out process to other sub-land boards during the past year was delayed due to changes in staff in the district. Using the LUCIS process, over the past six months the Seronga Land Sub-land Board has allocated land in a more responsible and systematic way – especially in terms of ensuring that agricultural land was not

allocated to people in elephant movement corridors, thus reducing levels of human-elephant conflict in the area. The land board faced challenges in accurately interpreting and translating the information on the maps to the land around them and then to make decisions about where they could and should not be allocating land on the ground. This problem was overcome through the support of EcoExist, which provided the land board overseers with handheld GPS units, training them in their use and then on how to interpret the LUCIS maps, which were integrated into the units. The land board officials were able to clearly differentiate between areas prone to flooding, areas susceptible to elephant conflict and the movement corridors in which elephants traverse, while also now being able to prioritize allocation within those zones identified as having the best soil for agriculture.

During the year, SAREP also worked with OKACOM and the TLB to explore how the roll-out to the other sub-district land boards will be organized with support from the GEF/UNDP SLM program. Over the next year, SAREP will collaborate with SLM to provide technical support for the roll-out of LUCIS across the district, while also presenting the LUCIS results to a national forum, including the Minister of Environment, to help gain traction for a planned national roll-out.

SAREP collaborated with the RESILIM program's training program for the GoB's Climate Change Policy Development Reference Group which provided them with greater levels of skill to manage the consultants who were developing their national policy. Ongoing engagement with the departmental officials and their reference group enabled them to ensure that the policy developed was sound and robust.

Over the year SAREP continued to collaborate with partners IRDNC and WWF in Namibia together with KAZA TFCA to have local community farmers move off the fertile flood-plain areas of wetland as a means of eventually creating the Sobbe Wildlife Migration corridor through the Kwando River floodplains. The COP attended a workshop held by the KAZA TFCA Secretariat to collect data on the different routes and corridors that wildlife used in the Zambezi Region nexus, identifying a number of routes that linked back into the Hwange area of NW Zimbabwe, routes southwards into the central areas of Botswana, and others into SE Angola and SW Zambia. This information will be used to develop ongoing strategies to rationalize land allocation and development planning in the five countries.

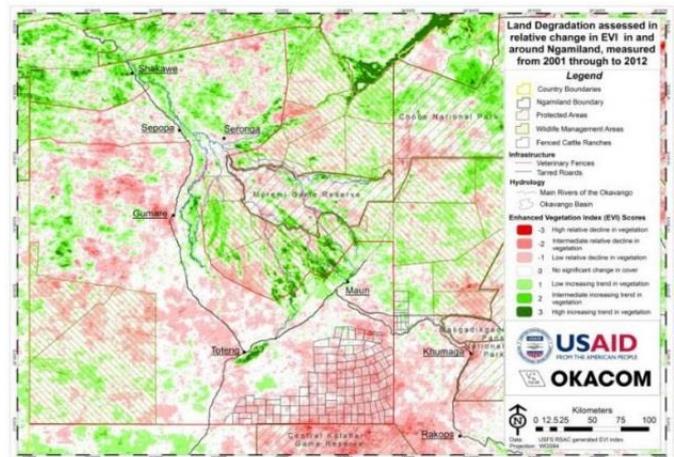
SAREP continued to work closely with MINAMB in Angola to initiate the development of protected area management plans for Mavinga and Luiana-Luengue National Parks which cover an area of approximately 68,600 square kilometers. Discussions continued with members of MINAMB in Angola to develop and approve terms of reference for consultants to initiate the planning process with the development of detailed maps of the area. The maps will allow MINAMB to guide the planning process more accurately.

Working with the GoB and the US Embassy in Botswana, SAREP continued to collaborate in the formation of the WENSA mechanism to combat illicit trade in wildlife products initiated in a workshop held in Gaborone in 2013. SAREP co-facilitated a follow up workshop for law-enforcement officials from over ten countries of the southern African region, in Gaborone, Botswana. This 'government only' workshop was designed to enable national agencies to share sensitive information and construct an institution that would be capable of responding to such information in an effective and secure manner, while allowing input from external agencies and bodies as necessary to protect the integrity of the transboundary intelligence system. Ten countries are currently engaged in the formal WENSA process.

Uncontrolled wildfires are a major concern to the Ministry of Wildlife, Environment and Tourism in Botswana, as vast tracts of rangeland are destroyed annually, impacting on the livestock carrying capacity of the land over the long term. SAREP worked with the BioChobe project to explore how the Advanced Fire Information System (AFIS), could be introduced into Botswana using a remote sensing tool from the Moderate-resolution Imaging Spectroradiometer (MODIS) to monitor the initiation and movement of fires which can then be managed more effectively using appropriate ground operations. During the year, SAREP continued discussions with the GEF-funded BioChobe program, based in Kasane, to ensure that the AFIS decision support tool is implemented across northern Botswana, while also working with the GEF funded SLM Program in Ngamiland to cover the costs of a Pilot Program for AFIS covering the sensitive Tsodilo Hills World Heritage Site.

During the past year SAREP completed its report on the assessment of land degradation within the Okavango Basin. The report was developed in collaboration with the United States Forestry Service’s (USFS) Remote Sensing Application Centre (RSAC) using a remote sensing approach that attempted to exploit differences in color shown in images taken by satellites<sup>1</sup> provided from a 10 year set of records, spanning 2001 through to 2011. The objective of the exercise was to identify trends in vegetation change within the Okavango Basin and related land use degradation hotspots, including where a long-term decline in ecosystem function and productivity might be occurring, as well as where these may be linked to various human-induced drivers of change or to climate change. This data will enable OKACOM to track ongoing development programs and determine which of these might be of concern, allowing the issue to be tabled and addressed before it becomes too serious. This analysis identified a series of hotspots of land degradation, indicating that between 1 and 3 percent of the basin has been degraded over the 10 year period. The main driving force behind most of these hotspots was the emergence of new arable fields. The support that SAREP is undertaking to promote CA within the upper catchment will help mitigate the rapid spread of arable fields, by extending the life of any single field. Currently each field is used for a few years under a ‘slash and burn’ approach.

SAREP has been collaborating with OKACOM for the past three years in exploring the possibility of developing a Payment for Ecosystem Services (PES) protocol and mechanism that would be used to fund ‘trade-offs’, mitigating potentially detrimental development schemes in the basin planned by any of the riparian states. Effective transboundary management of river-basin resources requires a deep understanding of the economic value of specific ecosystem services as a guide to negotiating equitable benefit flows and development options within the basin. Working with UNEP and partners GRID Arendal as a ‘development team’ for the PES, SAREP researched alternative financing and funding mechanisms to be used by river-basin organizations with OKACOM eventually opting to explore the idea of developing an endowment fund facility. This process has now been taken up by the World Bank through a larger Multi-Sector Investment Opportunities Analysis to be carried out over the next few years.



Graphic showing NDVI imagery of areas of degradation in the Okavango Delta area – Dark Red being the most degraded and Dark Green the least degraded.

<sup>1</sup> Using the spectral vegetation indices derived from the Normalized Differential Vegetation Index (NDVI) of composite satellite images from the Moderate-resolution Imaging Spectroradiometer (MODIS).

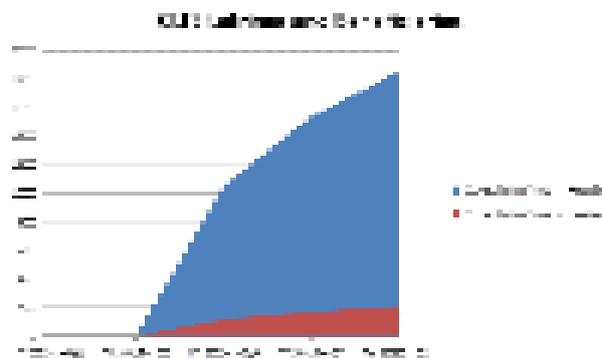
During March 2015 the Botswana Department of Wildlife and National Parks (DWNP) hosted a National Wildlife Symposium in Maun in order to review existing knowledge about the most recent research findings on ecosystem dynamics and management options in the country. The general objective of the Symposium was to provide an open forum for the exchange of views among natural resources professionals, academics and practitioners regarding the implication of research findings on management and conservation of natural resources. SAREP’s Integrated NRM Specialist presented two papers at the event; the first highlighted the work SAREP is doing in collaboration with DWNP on the Standardized Wildlife Monitoring Protocol, and the other looked at ‘*The importance on ecosystem connectivity and landscape conservation that highlights the need for wildlife corridors and transboundary management.*’

### ***Water Supply and Sanitation Program Element***

SAREP has adopted a multi-faceted approach to water and sanitation management that integrates community education, water infrastructure development, and planning at the local, national, and trans-boundary levels as a means of providing safe drinking water to rural populations, while also protecting water quality and quantity to support vulnerable ecosystems alongside improving sanitation. Below, we disaggregate SAREP’s achievements in WSS by specific accomplishments in Angola, Botswana, and Namibia.

#### **Sanitation**

SAREP’s CLTS program was taken up at an increasing rate in all three basin state areas, where it was noted that more than 80 pit-latrines were constructed in the period of January – March 2015 alone, providing improved access to better sanitation to over 1,367 people in that six-month period – as many as were built from the start of the campaign over a year ago – resulting in a total of over 3,190 CLTS beneficiaries in Angola and Botswana at this time.



Graph showing growth of pit-latrines construction in Angola and Botswana

In Botswana, the village of Shorobe, which is located near Maun in the Ngamiland District, undertook a triggering exercise used to train local law enforcement officers from the North West District Council to conduct baseline studies for CLTS on behalf of local government. They practiced their new skills by conducting the baseline studies for the six informal fisher-folk ‘settlements’ at Lake Ngami, which were triggered in January 2015. This was part of the process of transferring the CLTS process in Botswana to government agencies in anticipation of the closure of SAREP. Most of the over 20,000 households surrounding the Okavango Delta do not have access to sanitation facilities, placing many thousands of people at risk of contracting diseases from unhygienic sanitation behavior. Given the successful adoption rates of CLTS in other countries of Africa, all indications are that similar exponential gains will occur once adoption reaches a critical threshold of early adopters convincing the larger population to adopt better behavior and construct pit latrines. For example, the chief in Gumare provided groceries and refreshments to village-based CLTS leaders who voluntarily assist people in building toilets at their households. The refreshments are

provided on the latrine building days, and the money comes directly from the local community kgotla office.

CLTS activities in SE Angola have taken root. SAREP's M&E team conducted a verification exercise in the southern Cuando Cubango Province and found many communities had wholeheartedly embraced the concepts of CLTS. From Mucusso to Savate, people have built latrines and the team found no evidence of open defecation in any of the targeted villages. This suggests that an ODF verification exercises now must be carried out in the extension period. A group of enthusiastic CLTS proponents from the area showed pride in their progress with a theatrical performance (village theatre) at the opening of the Masivi community's Water Supply Scheme across the Okavango River in Namibia. The group highlighted their knowledge and understanding of CLTS approaches and techniques to the Masivi community and to the US Ambassador to Namibia, who was there to open the scheme.



A member of the Savate community with his "Tippy-tap" hand-washing

SAREP also continued its successful WASH education program at schools within Botswana's Ngamiland District reaching more than 4,000 school children, teaching them better hygiene and sanitation behavior. The program is linked to a program to support the Ministry of Education to provide sustainable sanitation infrastructure through its rehabilitation projects at four Botswana schools. Latrine building continued at mobilized CLTS sites with householders constructing tippy-tap hand-washing facilities at their toilets. In addition, a consultative meeting on CLTS was convened with six Ministries to promote the integration of the National CLTS Strategy, which SAREP developed with the Ministry of Health and the Ministry of Local Government, into the processes of other Ministries in Botswana in order to elevate CLTS to a national level. In Namibia, the CLTS training of members of DWSSC for all regions last year has resulted in the methodology being implemented in six villages in each region, during the course of 2015.

During the reporting period SAREP worked with the Botswana Department of Education in the Ngamiland District to develop a manual for the maintenance of pit latrines to ensure that biodegrading processes operate efficiently. The manual was distributed to all schools leading to an improved acceptability of the facilities by the students who have formed 'Maintenance Clubs' in the schools to monitor the ongoing hygiene of their ablution facilities and ensure that they remain in an acceptable condition.

## Water Supply

In SE Angola, the Calai community, which comprises approximately 14,000 people living in rural and peri-urban areas, has no formal water supply or sanitation system and SAREP, in collaboration with the DFID-funded CRIDF program, developed plans to assist the Calai community in the completion of their water supply system initiated by the government of Angola. Despite many administrative delays an MOU between CRIDF and the local administration in Calai is being finalized for the implementation of the water supply scheme in the Calai District of the Cuando-Cubango Province for the provision of water supplies for 11 communities in the Calai District. The MoU also covers the establishment of institutional management mechanisms for water supply. These mechanisms will benefit the entire Calai District of over 30,000 people through the provision of water from 11 boreholes, as well as a plan to provide capacity for operation and maintenance of

infrastructure currently being installed in Calai by GoA contractors providing water to the 16,000 people in central Calai.

SAREP's collaborative partnership with the Coca-Cola Replenish Africa Initiative (RAIN) initiative in Namibia together with the Namibia Red Cross Society (NRCS) in Kavango Region, held an opening ceremony to launch a program in the Shadipwera community of Divundu to supply water to a number of communities in the area. The program involved a groundwater risk assessment of existing community boreholes, the cleaning of nine community boreholes, borehole installation in six communities, and extending pipelines to households from existing pipelines in selected areas. The initiative will provide water to 25 villages, reaching just over 11,000 people in the short-term. Coca-Cola invested in the initiative, which falls under the Water and Development Alliance (WADA) between Coca Cola International and USAID. SAREP worked with Coca Cola through RAIN in conjunction with NRCS. The cleaning of boreholes in 10 villages has already been completed by DWSSC, providing water to nearly 4,000 people. DWSSC has also commenced the second component of the project – the installation of boreholes for seven villages, with the contractor having been on site from early January 2015. The third component of the project, pipeline extensions to eight villages from existing sources, also commenced in the first half of the year.

The Masivi community water-supply scheme was opened by US Ambassador to Namibia at a ceremony in the village during March 2015 providing water to over 3,500 community members. A booster pump station, along with large storage capacity at the end of the pipeline, will be added by NamWater at a later stage. This will allow for the future design and installation of Phase 2 of the Masivi water pipeline, which will take water a further six kilometers to the village of Mile 30. SAREP completed the design of both Phases, but the agreement covered only construction of Phase 1, given the long timeframes to implement both Phases. However, NamWater will continue with Phase 2 on the SAREP design and thus the project will continue to sustainably deliver clean water to more people in Namibia after the SAREP program is completed. Final large-scale works are ongoing at the Kayengona community water supply project by NamWater, including the river abstraction and treatment works. The pipeline component of the project, which was the responsibility of SAREP, was completed for Mayana. The project has been handed over to NamWater to complete the installation of the abstraction works and treatment and the final fittings on the pipelines.



The 6km Masivi water supply pipeline going into the ground – laid by the community pipe-laying team

During the past year, SAREP continued its work to establish the Sobbe game migration corridor through the Mashi Conservancy along the Kwando River in the Zambezi Region of NE Namibia in collaboration with IRDNC. The goal of this initiative is to encourage communities to move their agricultural activities away from the river's flood plains and onto higher ground, allowing the free movement of wildlife, particularly elephant, between Botswana, Angola and Zambia and back. SAREP also partnered with CRIDF to bring in additional resources to drill boreholes in on higher ground although this strategy is now being reconsidered.

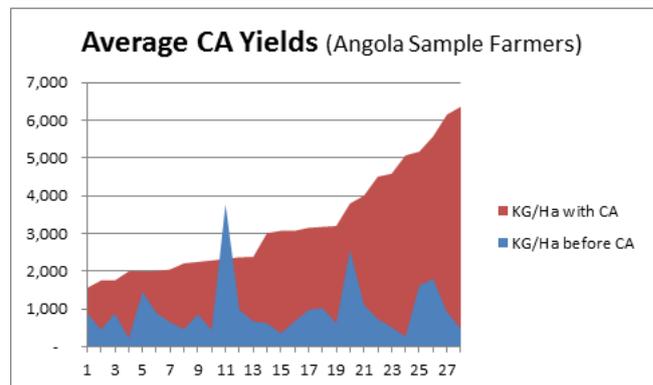
## Global Climate Change Program Element

In this area of focus, it was intended that SAREP would work with targeted communities in developing the necessary tools, procedures, and expertise to increase resilience and adaptive capacity, to understand vulnerabilities and avoid crises such as floods, droughts, and fires.

Early in the SAREP program, it was realized that a key way of enabling communities to reduce their reliance upon wild natural resources was to make their agricultural processes more productive, leading to the focus upon introducing conservation agriculture into the basin.

Conservation Agriculture (CA) creates greater resilience to climate change threats in CORB, therefore more than 279 new farmers were trained on CA growing rain-fed cereal crops in Angola alone. A total of 412 farmers, both newly trained farmers and second season farmers (those who adopted CA in 2013), planted over 386.5 hectares of different crops such as maize, sorghum, pearl millet, pumpkin, water melons, and beans in Angola. A total of 105 farmers have diversified their CA farming to include gardening, planting a variety of vegetables using CA techniques.

Many communities in the Cuando Cubango Province of SE Angola have adopted CA based upon the previous season's successes and benefits accruing from these techniques. In the Calai district, preliminary data indicates that most farmers have increased their yields by as much as 200 percent to 750 percent in comparison with traditional outputs of 800 kg in previous years. From the data recorded from 48 Calai farmers, fifteen produced more than 4,000 kg per hectare and some produced as much as 5,000 kg per hectare. Records of yields of some farmers showed production of 6,000 kg per hectare. The yields of 27 Calai farmers' are shown in the accompanying diagram.

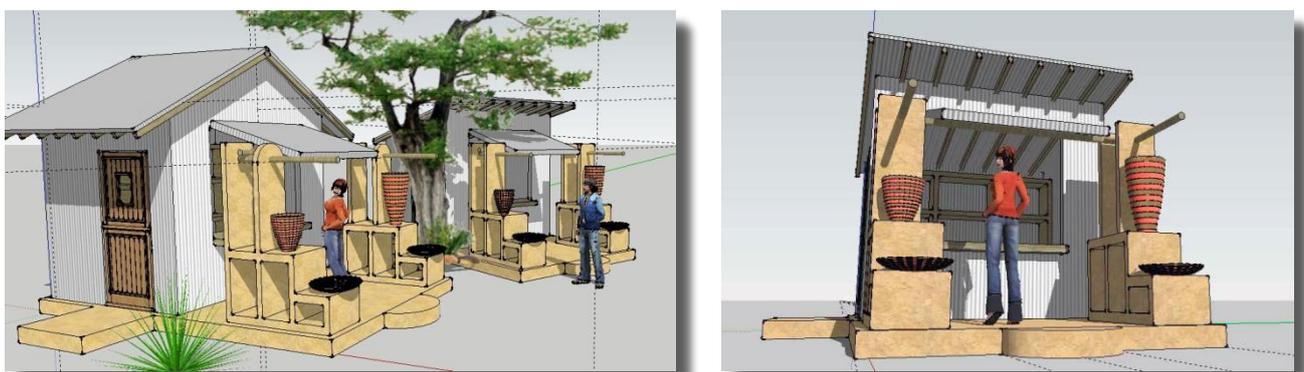


Graph showing growth of pit-latrines construction in Angola and Botswana

Additional approaches to enabling communities to become more adaptable and resilient to climate change have included the sustainable harvesting of Devil's Claw by communities in semi-arid areas, where the plant grows prolifically. Devil's Claw is in demand in Europe for its bio-medicinal properties. SAREP has, over the past three years, assisted remote rural communities in NE Namibia and SE Angola to diversify their livelihoods beyond rain-fed agriculture and CA through the harvesting of Devil's Claw. This Devil's Claw diversification has been a major benefit to many households in Angola and Namibia PLUS Sites. The last year of focused support to Devil's Claw harvesting produced substantial results and significant numbers of people in communities participated after having seen the considerable financial benefits that the 'pioneer' harvesters received at the end of the original 2013 season. Devil's Claw sales are made at three points in the harvesting season – July, September and October. Of the 1,340 Angolan harvesters trained in the 2014 season from communities in Caiundu, Savate, Cuangar, Kalai, and Mucusso, the month of July saw 136 harvesters reaping sales of about US\$12,386. Per person, this represented an US\$91 from the sale of their harvests. In September, a total of 263 harvesters earned a total of US\$31,905, or US\$141 per harvester. This represents a dramatic increase over the previous season's earnings, despite the fact that many harvesters could not get their produce to the market given long distances that they had to transport the large quantity of material. Ox-carts were subsequently bought through SAREP for transporting the final produce for sale at the end of October, at the end of the harvesting and selling season. The gender impact is clear: twice as many women than men have participated in Devil's Claw harvesting for July and September 2014. In Namibia, 89 registered harvesters from the

SAREP PLUS clusters of Tuguva, Mupapama West, Shitemo, Kasivi/Mayondo and Tare in the Kavango Region harvested a cumulative 3,112 kg in October, bringing the totals for the season to more than 6,280 kg. The sale of the harvested DC generated US\$16,960.

Over the past two years, SAREP assisted communities in the Ngamiland District of Botswana to gain better access to markets for their products by improving the quality of their arts and craft work and assisting the women producer groups to be able to produce more consistently according to demand. The Arts and Crafts consulting coordinator worked with stakeholders in the area to promote the creation of a centralized ‘engine’ of growth based upon the construction of an innovative craft market in the grounds of the Nhabe museum in Maun. The Centralized Market proposal was submitted to the Botswana Department of Gender Affairs for consideration to receive funding through their grants program.



Artist's impressions of possible designs of craft producer stalls with coffee shop in the Nhabe Museum grounds in Maun, Ngamiland.

The chosen mechanism to enable arts and craft producers to access new markets has been identified as an intermediate wholesaler organization or ‘social enterprise’ that will procure their goods according to size and quality, consolidate these purchases until they have a critical mass, and then sell them in bulk into markets in the USA or Europe. The development of such a centralized marketing and sales outlet in Maun, through which certain levels of sales can be guaranteed to producers, will provide producers with the confidence to fabricate more products, more consistently, and receive immediate financial benefit. Lack of access to markets has historically hindered women in the Okavango Delta from producing baskets and other crafts as they would sell their products on consignment through other outlets and often have to wait months before receiving the proceeds of their sale. One of the strategies linked to this project has been the development of a coffee shop and exhibition space in Maun’s Nhabe Museum, on the fringes of the Delta. It is reported that the European Commission has approved funding to have an amphitheater constructed along with three artist’s studios in the museum grounds. The creation of the centralized marketing ‘social enterprise’ progressed with a number of options being pursued, including the provision of financial assistance from the KAZA TFCA, once a business feasibility plan has been carried out. On the outskirts of Maun the Shorobe Co-operative Craft Shop has been refurbished with the financial assistance of the private sector in Maun and is due to be re-opened by year end.

### ***HIV/AIDS Program Element***

Under this earmark, the people in the Ngamiland District of Botswana became more informed about HIV/AIDS prevention, treatment, and access to treatment. This activity was completed during the base period of the SAREP program.

## **B. Additional Progress Toward Results and Other Contractual Requirements**

### ***Strategic Activities Fund***

The Strategic Activities Fund (SAF) played a significant role in facilitating SAREP's work in the basin by enabling its key NGO partners to work at the community level on livelihood and climate change adaptation related activities. Notable SAF-based innovations SAREP supported this year included CA and Devil's Claw harvesting; WSS activities such as CLTS; and continual efforts to enable communities to better manage their natural resources through better land-use planning and MOMS.

During the past year, program implementation grants continued with ACADIR in Angola, Kalahari Conservation Society (KCS) in Botswana, as well as both NNF and IRDNC in NE Namibia. In Angola, the grant activities supported the continuation of ongoing CA, which resulted in a significant adoption of new techniques alongside impressive increases in yields and production, as indicated in the section 'Global Climate Change Program Element' above (see Page 22). In addition, work done to promote the harvesting, preparation and sale of Devil's Claw has yielded positive results in increasing the economic and social benefits to targeted communities and increasing their resilience to climate change risks and threats.

In Botswana, KCS continued covering the facilitation of MOMS, arts and craft activities, as well as CA in some communities. A key achievement was supporting the implementation of the Lake Ngami Management Plan and the strengthening of governance processes in their trust.

The grant to IRDNC continued, with further work carried out to develop and improve systems, procedures and guidelines for financial management in income-generating conservancies in the Zambezi Region. The grant was used to work with Zambezi Conservancies which led to a marked improvement in the quality of financial reporting to conservancy members at annual general meetings. Several instances have been noted where members have questioned budgets and expenditure reports, and challenged their elected representatives to be more accountable in managing conservancy revenue. Through their grant, over the past year IRDNC was able to continue improving governance within conservancies in the Zambezi Region of Namibia to ensure that the financial resources of the conservancies can be used more efficiently, so that income has greater impact on people's livelihoods. With this grant, SAREP also promoted cross border communication between communities in the Zambezi Region and communities in Angola; topics of dialogue included developing a joint fire-management plan, and exploring initiatives to combat illicit wildlife trade.

Other support for short term grantees included working with the Pabalelo Trust in northern areas of the Okavango Delta of Botswana, where CA activities were carried out on a trial basis with surrounding communities. The results were not as positive as intended due to a severe drought in the area that caused widespread failure of crops. Despite this, the participating farmers continue to express that the CA approach is superior to their traditional rain-fed agriculture approaches.

The grant to the EcoExist NGO in Seronga, northern Okavango Delta, designed to combat human-elephant conflict, continued to produce significant results in the areas of CA. Specifically, some model farmers produced increases of between five and ten times in their normal yields of millet – in one case a woman farmer having increased her production by twelve times the normal yield. Experimentation with solar-powered electric fencing to help farmers protect their crops from marauding elephants has also continued to work well, preventing crop damage to fields where it was tested. The farming of chili pepper has also been continued by a number of community members,

although the amounts being grown are too small to meet ongoing demand in human-elephant conflict as an irritant to be used to deter elephants from raiding crops.

### ***Public-Private Partnerships (PPPs)***

SAREP's work in the basin with the Government of Namibia's DWSSC, the Red Cross in Namibia, and the RAIN Foundation for the provision of water to communities in the Kavango Region of NE Namibia continued leading to the implementation of a program to provide water to communities in the Divundu area of the Kavango region in NE Namibia. An opening ceremony to initiate this activity was held during the year.

In Botswana, the government funded a number of activities in conjunction with the private sector – including the development of an arts and craft sales and marketing outlet in the Nhabé Museum in Maun, as well as providing joint support to the Shorobe Basket Weavers Cooperative in the same area for the upgrading of its sales outlet and capacity building of its staff. And Beyond, an international tour operator operating in the Okavango Delta, continued its support in training staff.

### ***Participation and benefits associated with gender and marginalized populations***

SAREP continued to respond to the issue identified in the early program initiation 'Cross-cutting Report' by addressing specific concerns relating to marginalized groups and gender (women, girls, and youth) in a range of ways. Key among these was ensuring that women were included in activities and community governance structures in as equitable manner as possible. In addition, the program paid attention to marginalized groups such as San, Bayei, Hambukushu, Herero and others through programs specifically aimed at their needs.

For part of the year SAREP continued to work with IRDNC in its program supporting the San community in the Babwata National Park of western Zambezi Region in NE Namibia, to help those marginalized or minority groups preserve their customary lifestyles, languages, and cultural traditions. Through programs run by the Traditional Environmental Knowledge Outreach Academy (TEKOA), these beneficiaries were encouraged to perpetuate their indigenous knowledge skills, such as tracking and understanding benefits of medicinal or food plants. The program taught them how to eventually use these skills to take out groups of tourists on guided tracking walks.

Although the Okavango Delta was recognized by UNESCO/IUCN as a World Heritage Site in the previous year, which inherently protects minority communities residing within it, SAREP continued to engage with the Botswana Department of National Museums and Monuments to monitor its implementation processes. SAREP also worked with the GoB to facilitate further evaluation visits between IUCN Commission on Environmental, Economic, and Social Policy (CEESP) personnel to meet with various San groups in the delta, to ensure that their needs and wants were being incorporated in the implementation of the heritage management process.

Sanitation issues are often major sources of disease and mortality in rural communities – especially where water supplies are poor, erratically or badly managed. SAREP's introduction of CLTS into a large number of communities in all three countries stimulated a movement promoting the reduction of 'open defecation' and supported the construction of appropriate low cost latrines suitable to arid-land situations. Of the reported 2,767 people trained in CLTS techniques, unverified data and previous involvement levels of women in these activities, more than half of the people involved were women driving the campaign to reach defecation free status in their communities.

SAREP continued to work with schools in the Ngamiland District to support the rehabilitation of ablution blocks and the formation of sanitation maintenance clubs. The young and uneducated members of communities are often unaware of the potential for bad habits being the cause of contracting diseases or creating unhygienic conditions. Young pupils are often at risk of having to visit bush areas around their schools, leading to truancy and missing valuable time in the classroom. Furthermore, going to the bush makes girls particularly vulnerable to rape, and a lack of proper ablution facilities at school is a leading cause of girls not attending school during menstruation. Over 3,000 pupils were supported in obtaining access to improved sanitation in the last year.

### **C. Transforming Lives Summary**

The two success stories highlighted during this period capture SAREP's efforts to improve communal management of vulnerable land, as well as improve rural health and hygiene. The stories are summarized below.

#### ***Transforming Lives Story – Ngamiland school's ablution reforms***

In the Moeti Junior Secondary School in the Ngamiland District of northern Botswana, pit latrines became a real problem, totally filthy and unhygienic – causing children to miss school, which in turn led to lower grades being achieved as the children could not concentrate or work well. Through SAREP's collaboration with the local Department of Education in their 'Adopt-a-School' campaign and using participatory approaches, the issue of pit-latrines management was investigated by a team formed by the department who found out that schools were being badly advised about the use of chemicals being used to 'clean' the latrines - preventing natural bio-degradation to take place and causing the toilets to exude foul, noxious odors. By bringing in a program where contractors rehabilitated the poor facilities followed by a new regime of pit management and maintenance that allowed natural biodegradation to take place, and facilitating the creation of scholar volunteer 'maintenance teams,' dramatic improvements were experienced in the few pilot schools involved in the scheme.

#### ***Transforming Lives Story – Masivi Community tap into water supply***

Accessing water in many rural areas of Africa can be an onerous task to those that have to walk many kilometers to draw water from nearby rivers each day. SAREP has been working with NamWater and DWSSC for three years to develop water supply schemes in the Kavango Region of Namibia. The Masivi scheme just south west of the regional capital, Rundu, began in January 2014, engaging the community to participate in resolving their water supply needs. Members of the community were trained to assist, following behind the excavation equipment digging sections of the trench, laying the pipes, joining them and filling the trenches as they went. The completed scheme was opened by the US Ambassador to Namibia, Thomas Daughton, at a ceremony in the village during March 2015, where he gave a key-note address. The scheme is estimated to supply water to approximately 3,500 people.

## ANNEX A. BENCHMARKS AND PERFORMANCE MANAGEMENT

The table below shows the SAREP indicators by Key Result Area, with descriptions of the activities leading to the results achieved and notes on the activities captured in the year.

Indicator	Year 4	Year 5				LOP Totals			FY15 Q2 - Comments
	Y4%	Q1	Q2	Q3	Q4	Total	Target	Y1-5%	
<b>KRA 1 - Cooperative management of targeted shared river basins improved</b>									
1. Number of science-based systems improved at the national/regional level (Output)	-	0	0	0	0	9	3	300%	<p><b>Life of program target Surpassed:</b> Other systems tracked for future inclusion are the Advanced Fire Information System (AFIS) and a fire-break efficiency assessment in Botswana.</p> <p>SAREP continued to work on the AFIS with the BioChobe Project this year and will finalize the process in the extension period in conjunction with the Botswana Department of Environmental Affairs (DEA) to launch a pilot program funded through the GEF Sustainable Land Management grant.</p> <p>SAREP will also continue to work with the USFS on another fire-related initiative with the Department of Forestry and Range Resources (DFRR) conducting an assessment of the efficiency of fire breaks the department currently utilizes at a cost of 13 million pula per year. The assessment will look at which breaks are effective, and what the most effective width and location for fire breaks is throughout Botswana through a GIS-based analysis and jointly supported through a proposed grant to the Forest Conservation Botswana (FCB) fund.</p>
2. Number of people within Okavango-Basin related institutions trained in technical and/or institutional strengthening areas (Output)	119%	0	0	0	0	459	250	184%	<p><b>Life of program target Surpassed:</b> There is some potential for additional LUCIS training with the Chobe Land Board as well as government officials for the wildlife monitoring website, with some promising enthusiasm from the Chobe Land Board having been received already during preliminary discussions. Meetings were held with the Chobe Land Board where great enthusiasm was shown to use the tool in the planning and land allocation processes.</p>
3. Number of improved water resource allocation plans (Impact)	131%	0	0	0	0	51	152	34%	<p>Additional plans are pending population data. Data was requested from Namibian Statistic Agency, but they do not have data at the village level (only at the constituency level). No data was forthcoming but this will be followed-up in the next year.</p>

Indicator	Year 4	Year 5				LOP Totals			FY15 Q2 - Comments
	Y4%	Q1	Q2	Q3	Q4	Total	Target	Y1-5%	
4. Number of Okavango-Basin related institutions providing improved services to their constituencies (Impact)	0%	0	0	0	0	6	6	100%	<b>Life of program target Surpassed:</b> Between the AFIS and the fire break assessment, we anticipate counting the DFRR once they have fully adopted and are utilizing the tools we are working on together as noted above.
<b>KRA 2 - Biodiversity and ecosystem services monitored and protected</b>									
5. Number of threat assessments to biologically important areas developed and monitored (Output)	33%	0	0	0	0	54	33	164%	<b>Life of program target Surpassed:</b> Flood mapping assessments and other activities which SAREP has undertaken are still being reviewed and prepared for inclusion in this indicator for future periods.
6. Number of people trained in NRM and/or biodiversity conservation at the institutional and community level (Output)	78%	137	0	0	0	4586	2500	183%	<b>Life of program target Surpassed:</b> While there was training in the year related to Devil's Claw and Conservation Agriculture, there is insufficient documentation to determine at this point if they can be added to this indicator. A thorough review of the situation will be undertaken in the extension period to make the data collection process more robust and effective.
7. Number of community-based NRM plans developed and implemented (Output)	29%	0	0	0	0	42	32	131%	<b>Life of Project Target Surpassed.</b> No new plans are planned, although communities are being supported to monitor and implement those developed earlier.
8. Area (hectares) under improved natural resources management - In Millions (Impact)	8%	0	0	0	0	5.919	4.000	148%	<b>Life of Project Target Surpassed.</b> The fisheries management plan, as well as additional hectares from PLUS plans that were not initially counted pending accurate hectare measurements, were evaluated for inclusion under this indicator in subsequent periods.
9. Area (hectares) of biologically important area under improved	3%	0	0	0	0	5.861	5.946	99%	The fisheries management plan, as well as additional hectares from PLUS plans that were not initially counted pending accurate hectare measurements, are were evaluated for inclusion under this indicator in subsequent periods.

Indicator	Year 4	Year 5				LOP Totals			FY15 Q2 - Comments
	Y4%	Q1	Q2	Q3	Q4	Total	Target	Y1-5%	
<b>management - In Millions (Impact)*</b>									
10. Number of people engaged in new or enhanced conservation based income generating activities (Output)	127%	71	17	0	0	2319	5000	46%	1,600 people should be included in the coming periods as the Nhabe museum, coffee shop, and feeder centers initiative comes on-line. Several other initiatives such as livelihoods relating to water provision/access are being reviewed for potential inclusion in future period reporting.
11. Amount of resources leveraged for sustainable management and conservation of biologically important areas - In \$Millions (Output)	760%	\$ -	\$ -	0	0	\$15.72	\$ 5.00	314%	<b>Life of Project Target Surpassed.</b> Additional leveraging for the GEF co-financing to the OKACOM grant is being tracked for inclusion under this indicator in subsequent periods.
<b>KRA 3 - Access to safe water supply and sanitation increased</b>									
12. Number of people trained in water use, conservation, and sanitation at the institutional and community level (Output)	34%	449	190	0	0	2669	2500	107%	<b>Life of program target Surpassed:</b> New numbers in the year received from Angola need to be verified before being included in the table.
<b>13. Number of people in target area with access to improved drinking water (Impact)</b>	116%	3935	3500	0	1126	20885	20000	104%	A further 1,126 people gained access to improved drinking water in the fourth quarter in the villages of Mwenge (250), Shadipwera (468) and Kahanga (408) of East Kavango Region, Namibia.
14. Number of people in target area with access to improved sanitation services (Impact)	69%	1354	12625	0	0	20793	25000	83%	The number of new pit-latrines constructed in the last quarter is unknown and the 275 from the previous quarter also remain unverified as key staff were retrenched at that point. This missing information will be recovered in the extension period.

Indicator	Year 4	Year 5				LOP Totals			FY15 Q2 - Comments
	Y4%	Q1	Q2	Q3	Q4	Total	Target	Y1-5%	
15. Amount of resources leveraged for investment in drinking water and sanitation services - In \$Millions (Output)	313%	\$ -	\$0.65	0	0	5.94	\$5.000	119%	<b>Life of program target Surpassed</b> – No further amounts reported to have been leveraged in the year.
<b>KRA 4 - Targeted river basins resources managed in the Context of Global Climate Change (GCC)</b>									
16. Number of people with increased adaptive capacity to cope with climate variability (Impact)	18.2%	0	0	0	0	30871	30000	103%	<b>Life of Project Target Surpassed.</b> While no new people were counted in the year, SAREP is evaluating communities in the floodplains of Namibia (Karutchi and Karakuta) who are better adapted to climate change due to water systems provided (in the past they were cut off from their water source during floods).
17. Number of different tools adopted by governmental, non-governmental institutions, or communities to manage climate-caused crises such as floods, droughts, and fires (Output)	0%	1	0	0	0	5	12	42%	Tools being tracked for future inclusion are the Advanced Fire Information System (AFIS), Rain Water Harvesting, the wildlife monitoring system in the Delta, the finance schemes for OKACOM and a fire-break efficiency assessment in Botswana.
<b>KRA 5 -Regional, national, and local development planning capacities around river basins (for land and water use, biodiversity conservation) strengthened</b>									
18. Number of project beneficiaries more informed about HIV/AIDS prevention, treatment, and access to treatment (Impact)	316%	3757	0	0	0	10786	4341	248%	<b>Life of Project Target Surpassed.</b> With the achievement of the LOP targets, the depletion of the HIV/AIDS funding and the departure of the HIV/AIDS coordinator, the activities relating to this indicator have ended. There may be, however, residual activities or monitoring which would add to the indicator and be considered for inclusion in future periods.
<b>Namibia Buy-In</b>									

Indicator	Year 4	Year 5				LOP Totals			FY15 Q2 - Comments
	Y4%	Q1	Q2	Q3	Q4	Total	Target	Y1-5%	
19. Number of people in Namibia with increased capacity to cope with floods (Impact)*						29800	6000	497%	<i>Life of Project Target Surpassed.</i> As this was a fully-achieved base-period activity, results are no longer tracked separately for this indicator.
20. Area (hectares) in Namibia under improved flood management plans - In Millions (Impact)						0.2707	0.02	1354%	<i>Life of Project Target Surpassed.</i> As this was a fully-achieved base-period activity, results are no longer tracked separately for this indicator.
<b>Project Training Total</b>									
<b>Number of people trained in direct support of program objectives (Output)*</b>	32%	629	190	0	0	7802	9341	84%	Data provided on trainings for CLTS in Angola need to be verified before being included in the table.

## **ANNEX B. ENVIRONMENTAL COMPLIANCE**

Activities during this reporting period primarily included trainings and technical consultation — activities that are categorically excluded from environmental mitigation and monitoring (e.g. trainings and technical assistance), although activities related to water supply – and related pipes and trenches – in 4 villages in Namibia commenced and were tracked closely. In addition to the environmental clearances, SAREP has an overall Water Quality Assurance Plan (WQAP) which provides additional guidance to water supply activities and has been finalized based on comments from USAID. NamWater drinking water quality guidelines are presented at the end of this annex.

	<b>Namibia Water Corporation Ltd.</b>
<b>GUIDELINES FOR THE EVALUATION OF DRINKING-WATER FOR HUMAN CONSUMPTION WITH REGARD TO CHEMICAL, PHYSICAL AND BACTERIOLOGICAL QUALITY</b>	

### 1. INTRODUCTION

- 1.1 Water supplied for human consumption must comply with the officially approved guidelines for drinking-water quality.
- 1.2 For practical reasons the approved guidelines have been divided into three basic groups of determinants, namely:
  - Determinants with aesthetic or physical implications, see TABLE 1 attached.
  - Inorganic determinants, see TABLE 2 attached.
  - Bacteriological determinants, see TABLE 3 attached.

### 2. CLASSIFICATION OF WATER

- 2.1 The concentration of and limits for the aesthetic, physical and inorganic determinants define the group into which water will be classified. See TABLE 1 and TABLE 2 for these limits.
  - GROUP A: Water with an excellent quality
  - GROUP B: Water with good quality
  - GROUP C: Water with low health risk
  - GROUP D: Water with a higher health risk, or water unsuitable for human consumption
- 2.2 Water should ideally be of excellent quality (Group A) or good quality (Group B), however in practice many of the determinants may fall outside the limits for these groups.
- 2.3 If water is classified as having a low health risk (Group C), attention should be given to this problem, although the situation is not critical yet.
- 2.4 If water is classified as having a higher health risk (Group D), urgent and immediate attention should be given to this matter. Since the limits are defined on the basis of average lifelong consumption, short term exposure to determinants exceeding their limits is not necessarily critical, but in the case of extremely toxic substances such as cyanide, remedial procedures should immediately be taken.
- 2.5 The group in which the water is classified is determined by the determinant which complies the least with the guidelines for the quality of drinking-water.
- 2.6 The bacteriological quality of drinking-water is also divided into four groups, namely:
  - GROUP A: Water which is bacteriologically very safe
  - GROUP B: Water which is bacteriologically still suitable for human consumption
  - GROUP C: Water with a bacteriological risk for human consumption which requires immediate action for rectification
  - GROUP D: Water which is bacteriologically unsuitable for human consumption

### 3. FREQUENCY FOR BACTERIOLOGICAL ANALYSIS OF DRINKING-WATER SUPPLIES

The recommended frequency for bacteriological analysis of drinking-water supplies is given below in TABLE 4.

<b>TABLE 4</b>	<b>FREQUENCY FOR BACTERIOLOGICAL ANALYSIS</b>
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More than 100 000	twice a week
50 000 - 100 000	once a week
10 000 - 50 000	once a month
Minimum analysis	once every three months

#### 4. PROMULGATION

The Cabinet of the Transitional Government for National Unity has approved the guidelines for evaluating drinking-water for human consumption with respect to the chemical, physical and bacteriological qualities, by Cabinet's Approval 461/85 and reporting on the evaluation of drinking-water according to the new guidelines took effect as from 1 April 1988.

**GENERAL MANAGER : ENGINEERING & SCIENTIFIC SERVICES**

**June 1998**

**TABLE 1 DETERMINANTS WITH AESTHETIC/PHYSICAL IMPLICATIONS**

DETERMINANTS	UNITS	LIMITS FOR GROUPS			
		A	B	C	D*
Colour	mg/l Pt**	20	-	-	-
Conductivity	mS/m 25°C	150	300	400	400
Total hardness	mg/l CaCO <sub>3</sub>	300	650	1300	1300
Turbidity	N.T.U.***	1	5	10	10
Chloride	mg/l Cl	250	600	1200	1200
Chlorine (free)	mg/l Cl	0.1-5.0	0.1-5.0	0.1-5.0	5.0
Fluoride	mg/l F	1.5	2.0	3.0	3.0
Sulphate	mg/l SO <sub>3</sub>	200	600	1200	1200
Copper	µg/l Cu	500	1000	2000	2000
Nitrate	mg/l N	10	20	40	40
Hydrogen Sulphide	µg/l H <sub>2</sub> S	100	300	600	600
Iron	µg/l Fe	100	1000	2000	2000
Manganese	µg/l Mn	50	1000	2000	2000
Zinc	mg/l Zn	1	5	10	10
pH****	pH-unit	6.0-9.0	5.5-9.5	4.0-11.0	4.0-11.0

\* All values greater than the figure indicated.

\*\* Pt = Platinum Units.

\*\*\* Nephelometric Turbidity Units.

\*\*\*\* The pH limits of each group exclude the limits of the previous group.

TABLE 2		LIMITS FOR INORGANIC CONSTITUENTS IN DRINKING WATER			
Determinants	Unit	Limit for Groups			
		A	B	C	D*
Aluminium	µg/l Al	150	500	1000	1000
Ammonia	mg/l N	1	2	4	4
Antimony	µg/l Sb	50	100	200	200
Arsenic	µg/l As	100	300	600	600
Barium	µg/l Ba	500	1000	2000	2000
Beryllium	µg/l Be	2	5	10	10
Bismuth	µg/l Bi	250	500	1000	1000
Boron	µg/l B	500	2000	4000	4000
Bromine	µg/l Br	1000	3000	6000	6000
Cadmium	µg/l Cd	10	20	40	40
Calcium	mg/l Ca	150	200	400	400
	mg/l CaCO <sub>3</sub>	375	500	1000	1000
Cerium	µg/l Ce	1000	2000	4000	4000
Chromium	µg/l Cr	100	200	400	400
Cobalt	µg/l Co	250	500	1000	1000
Cyanide Free	µg/l CN	200	300	600	600
Gold	µg/l Au	2	5	10	10
Iodine	µg/l I	500	1000	2000	2000
Lead	µg/l Pb	50	100	200	200
Lithium	µg /l Li	2500	5000	10000	10000
Magnesium	mg/l Mg	70	100	200	200
	mg/l CaCO <sub>3</sub>	290	420	840	840
Mercury	µg/l Hg	5	10	20	20
Molybdenum	µg/l Mo	50	100	200	200
Nickel	µg/l Ni	250	500	1000	1000
Potassium	mg/l K	200	400	800	800
Selenium	µg/l Se	20	50	100	100
Silver	µg/l Ag	20	50	100	100
Sodium	mg/l Na	100	400	800	800
Tellium	µg/l Te	2	5	10	10
Thallium	ug/l Tl	5	10	20	20
Tin	µg/l Sn	100	200	400	400
Titanium	µg/l Ti	100	500	1000	1000
Tungsten	µg/l W	100	500	1000	1000
Uranium	µg/l U	1000	4000	8000	8000
Vanadium	µg/l V	250	500	1000	1000

\* All values greater than the figure indicated.

<b>TABLE 3</b>	<b>BACTERIOLOGICAL DETERMINANTS</b>
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<b>DETERMINANTS (COUNTS)</b>	<b>LIMITS FOR GROUPS</b>			
	<b>A**</b>	<b>B**</b>	<b>C</b>	<b>D*</b>
Standard plate counts per 1 ml	100	1000	10000	10000
Total coliform counts per 100 ml	0	10	100	100
Faecal coliform counts per 100 ml	0	5	50	50
<i>E. coli</i> counts per 100 ml	0	0	10	10

\* All values greater than the figure indicated.

\*\* In 95% of the samples.

**NB** If the guidelines in Group A are exceeded, a follow-up sample should be analysed as soon as possible.

guidelines drinking water/svh

## ANNEX C. DELIVERABLES, REPORTS, AND PUBLICATIONS SUBMITTED

Deliverable	Last Version Prepared/Submitted	Status
<b>USAID Progress and Planning reports</b>		
<b>Monthly Reports</b>		
October 2014	10 November 2015	Final
November 2014	12 December 2015	Final
December 2014	09 January 2015	Final
January 2015	10 February 2015	Final
February 2015	18 March 2015	Final
March 2015	08 April 2015	Final
April 2015	24 May 2015	Final
May 2015	18 June 2015	Final
June 2015	29 July 2015	Final
July 2015	12 August 2015	Final
August 2015	09 September 2015	Final
September 2015	11 October 2015	Final
<b>Quarterly Reports</b>		
FY 2015 Q1	30 January 2015	Final
FY 2015 Q2	15 April 2015	Final
FY 2015 Q3	15 July 2015	Final
FY 2015 Q4	19 October 2015	Draft
<b>Semi-Annual Reports</b>		
FY 2015 October - March	15 May 2015	Final
<i>FY 2015 Annual Report</i>	<i>15 November 2014</i>	<i>Draft</i>
<b>Technical Reports and Publications</b>		
Final Report Cross-Border Fire Management in Angola & Namibia - A partnership project between ACADIR (Angola) and IRDNC (Namibia) [ <i>Some elements of the process funded by SAREP most by GIZ</i> ]	Oct 2014	Final
Grant Completion Report: <i>Improving Financial Governance in Zambezi Conservancies Phase II</i> . IRDNC	Oct 2014	Final
Milestone 5 Progress Reports: <i>Live and Let Live: Promoting Biodiversity and Climate Change mitigation through Better Farming Practice and Land Stewardship in the Okavango Panhandle</i> . Pabalelo Trust	Dec 2014	Final
Grant Completion Report: <i>Live and Let Live: Promoting Biodiversity and Climate Change mitigation through Better Farming Practice and Land Stewardship in the Okavango Panhandle</i> . Pabalelo Trust	Jan 2015	Final
The Ngamiland District Fire Risk Management Plan - supported by the USFS team and myself. -	Jan 2015	Final
Concept note for an Okavango Basin PES scheme	Feb 2015	Final
Concept note for the OKACOM endowment fund - developed between Chris Varco and Chris Brooks	March 2015	Final
Climate Change Policy for Botswana -	March 2015	Final
The Wildlife Monitoring Website	May 2015	Final