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ANNUAL REPORT

Resilience in the Limpopo Basin Program (RESILIM)

October 2012 – September 2013



[A filter prevents the water hyacinth from floating downstream at Zanzibar, Botswana - SOURCE: DR. NKOBI MOLEELE, RESILIM]

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ACRONYMS

ARA	Administração Regional de Águas
BALA	Botswana Association of Local Authorities
CBRNM	Community Based Resources Management
CC	Climate Change
CCA	Climate Change Adaptation
CSO	Civil Society Organization
DRR	Disaster Risk Reduction
DWA	Department of Water Affairs
ESARO	Eastern and Southern Africa Regional Office
EWS	Early Warning Systems
FEWS NET	Famine Early Warning Systems Network
GBIF	Global Biodiversity Information Facility
GEF	Global Environment Facility
GIS	Geographic Information Systems
GIZ	Gesellschaft Fur Internationale Zusammenarbeit
GLTFCA	Greater Limpopo Transfrontier Conservation Area
GWP - SA	Global Water Partnership - Southern Africa
INAM	Instituto Nacional de Metereologia (National Institute of Metereology)
INGC	Instituto Nacional de Gestão de Calamidades (National Institute for Disaster Management)
IUCN	International Union for Conservation of Nature
IWRM	Integrated Water Resources Management
KRA	Key Result Areas
LBPTC	Limpopo Basin Permanent Technical Committee
LIMCOM	Limpopo Watercourse Commission
LIMIS	Limpopo Management Information System
LTP	Limpopo Trans-boundary Program
M&E	Monitoring and Evaluation
NAPAs	National Adaptation Programs of Action
NRM	Natural Resources Management
OSC	Overseas Strategic Consulting
PMP	Performance Management Plan
PPP	Public-Private Partnership
RATES	Regional Agricultural Trade Expansion Support Project
RBO	River Basin Organizations

RESILIM	Resilience in the Limpopo River Basin Program
SADC	Southern Africa Development Community
SAREP	Southern Africa Regional Environment Program
SASCCAL	Southern Africa Science Service Center for Climate and Land Management
SAWC	Southern Africa Wildlife College
SOAG	Strategic Objective Grant Agreement
SPEDU	Selebi-Pikwe Regional Economic Diversification
STTA	Short Term Technical Assistance
TFCA	Transfrontier Conservation Area
UNDP	United Nations Development Program
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
WANI	Water and Nature Initiative
WDM	Water Demand Management

1. Introduction

The USAID/Southern Africa-funded Resilience in the Limpopo Basin (RESILIM) Program is a five-year project aimed at improving trans-boundary management of the Basin, with a focus on enhancing resilience of people and ecosystems in response to climate change. The RESILIM project's primary counterpart is the Limpopo Watercourse Commission (LIMCOM). RESILIM supports the implementation of the strategic objectives of the LIMCOM Integrated Water Resource Management Plan (IWRM) 2011 - 2015, and is organized by the following three objectives:

- i) Reduce climate vulnerability by promoting science-based adaptation strategies for integrated transboundary water resource management;
- ii) Conserve biodiversity and sustainably manage high priority ecosystems;
- iii) Build capacity of stakeholders to sustainably manage water and key ecosystems.

This annual report presents progress made by the RESILIM Program from October 2012 to September 2013, with a specific focus on achievements, challenges, and ongoing risks. The report summarizes activities related to the work plan development process, in-country consultations, partnership development, support to LIMCOM, and the development of communication materials. It also summarizes the progress of processes and deliverables related to the development of climate change risk and vulnerability assessments, and Disaster Risk Reduction of Floods and Droughts.

2. Work plan

Early in October 2012, RESILIM and its consortium partners developed and agreed on the frameworks for both the project work plan and the monitoring and evaluation (M&E) plan. These documents, which RESILIM has shared with USAID for input, will serve as essential resources for planning, implementing, and monitoring the performance of RESILIM activities. RESILIM, with its consortium partners, OneWorld, Global Water Partnership – Southern Africa (GWP-SA), and the International Union for Conservation of Nature (IUCN), conducted in-country consultations in November and December, 2012 in Mozambique, Botswana and Zimbabwe to discuss the proposed RESILIM work program, its objectives, key result areas and possible modalities of program delivery. Stakeholders from these countries had the opportunity to provide input and insight to the action plan taking shape in the RESILIM work plan.

Following the in-country consultations, RESILIM and its consortium partners further refined the drafts and submitted them to USAID for review in early December 2012. Upon receiving comments from USAID/Southern Africa, RESILIM and its partners organized another meeting to incorporate the recommendations, and submitted the finalized plan to USAID for approval in late December 2012. A preliminary draft of the performance indicator reference sheets was also developed as part of the process of setting up RESILIM's data collection and reporting templates.

USAID/Southern Africa has reached out to LIMCOM through meetings with the commissioners, through interaction with the LIMCOM Technical Task Teams and the Executive Secretariat to ensure better involvement in RESILIM project implementation. In December 2012, RESILIM held a meeting with the LIMCOM Executive Secretary, USAID/Southern Africa's Contracting Officer, Gesellschaft Fur

Internationale Zusammenarbeit (GIZ), and GWP-SA's representatives to present and discuss the draft work plan with a view to exploring complementarities between RESILIM and GIZ-supported work in the Limpopo Basin. Accordingly, the RESILIM work plan was developed around the goal of providing the greatest possible support to LIMCOM to implement the Limpopo Basin IWRM Plan.

More recently, RESILIM held a work plan development workshop in August 2013, which brought together stakeholders from all four basin countries to discuss RESILIM goals, objectives, key result areas, activities, and additional possible interventions to best achieve program indicators and targets. Participants at the workshop helped to craft a Gantt chart enumerating RESILIM activities for Year Two, as well as their relationship with the performance management plan (PMP). The workshop represented a successful collaboration between RESILIM's key basin partners and stakeholders in developing a responsive and thorough work plan to achieve RESILIM's programmatic goals of conserving the Limpopo Basin and enhancing the resiliency of its communities and ecosystems to the effects of climate change. RESILIM submitted the completed workplan to USAID at the end of August 2013.

3. Communication materials developed

RESILIM produced communications materials as an interactive package, with a combination of electronic resources and hard copy materials. These included draft briefing notes for IWRM issues related to climate change adaptation and biodiversity conservation identified in Botswana, South Africa and Mozambique. The final package of communication materials (including briefing notes, recommendations on issues and sites to be visited during the basin-tour) will be submitted to the LIMCOM Secretariat before the end of the year. RESILIM will produce maps and graphics indicating proposed sites (and identified issues) to be visited by the LIMCOM Commissioners. More on the basin tour to follow in section 4 of this report.

In April 2013, the RESILIM Program produced a briefing note entitled, "Effluent Treatment: Giving back to the Limpopo River." The purpose of the briefing note is to highlight the adverse effects of agriculture and mining activities on the Limpopo Basin, where fertilizer residue and mining effluents have been contaminating the major sources of fresh water in the basin. The briefing note demonstrates how runoff from agricultural operations is resulting in increased nutrient loads of nitrogen and phosphorus, leading to accelerated and exaggerated growth of plant life and algae in the waters of the Limpopo Basin. Compounding the problem are numerous sewage treatment plants that have not been adequately maintained, leading to sewage leakages and contamination of the Limpopo River's catchment areas. RESILIM will use this briefing note to raise awareness among various stakeholders for improved management and conservation of the Limpopo River.

The RESILIM Program produced another briefing note during the month of April, entitled "Anticipating Shortages: Dams and Water Distribution in the Limpopo Region." This briefing note analyzes the impact of more than 100 large dams in the Limpopo system. The impacts include water flow changes in the fifteen tributary rivers through damming and other obstructions on the river's tributaries. Climate change is predicted to considerably reduce the amount of water available from the river systems of the Limpopo Basin over the next twenty years, thus requiring the riparian countries to develop water resources management tools to aid decision making and water allocation in the Basin.

A fact sheet was produced detailing RESILIM program objectives, stakeholders and key implementing partners, main basin characteristics, and expected results. The purpose of this fact sheet is to facilitate the sharing of the goal of the RESILIM, specifically targeting busy politicians, executives and other stakeholders who do not have time to invest in reading long RESILIM technical reports.

RESILIM produced a brochure on the small grants program, which provides information on the RESILIM program and describes how organizations, companies, businesses, research firms, and others can apply for a grant. These brochures will be made available and distributed at the CSAG Climate Change Awareness Workshop; the Southern Africa Wildlife Enforcement Networking and other events next year.

4. Progress relative to results and outcomes

4.1 Risk and Vulnerability Assessments

a) Systems analysis for vulnerability in the Limpopo River Basin.

RESILIM, through its subcontractor OneWorld, conducted a desk review of existing spatial climate risk and vulnerability assessments on the Limpopo Basin, with the purpose of consolidating the sources of data and knowledge, analyzing approaches used, and determining the relative strengths and weaknesses of the approaches. These reports were followed by a Participatory Climate Risk and Vulnerability Assessment.

The report on system analysis reviews the Limpopo River Basin's (LRB) political and social economies with a view to establishing governance gaps that could be filled to strengthen climate change adaptive capacity in the LRB system. Particular attention has been paid to institutional arrangements and how these do or do not work at a transboundary, regional and national as well as sub-catchment level. A set of key questions underpinned this systems analysis, including the following: i) what is the extent of political will underpinning climate change, water resource development and biodiversity management decisions in the LRB and its riparian states?; ii) to what extent do social economy decisions and realities impact and/or influence political economy decisions in the LRB, and vice versa?; iii) how do natural resource and ecosystem functioning and information inform and/or influence key, related development decisions in the riparian countries as well as at transboundary level?; iv) how do national governments in the basin manage conflict and disputes that arise, or may arise, from allocation and development decisions affecting key basin resources?

The report also provides an analysis and highlights not only opportunities for collaboration, but also a number of gaps in knowledge on the basin's resiliency. RESILIM will subsequently use this information to plan for future programming and priorities as well as to incorporate important insights and conclusions into on-going work. RESILIM will be validating the information gathered with key stakeholders through a series of focus group, discussions, and regional workshops planned for the next year. These discussions will have the added value of bringing together stakeholders across RESILIM's three areas of focus: climate change adaptation, biodiversity conservation, and water resource management.

In bringing these stakeholders together, RESILIM will create an enabling environment for stakeholders to share best practices and highlight potential areas for transboundary collaboration, enriching their knowledge of how to better coordinate transboundary IWRM and integrating resilience building into their approach to managing the basin's resources.

Supporting and facilitating linkages between institutions and/or projects active in the LRB will provide a relatively low cost means of synergizing efforts to strengthen resilience in the basin. Current imbalances in effort, focuses, and priorities on the conservation of the basin underscore the need for great collaboration in protecting the transboundary resource. For example, analysis indicates the existence and dominance of water-focused projects and institutions as opposed to a climate-focus, how few links exist between any two of RESILIM's focus areas, how South African institutions outnumber those from other riparian countries (reflecting comparative capacity and resources), and how few alliances seem to exist between sectors, organizations, or projects.

b) Synthesis report- spatial climate risk and vulnerability assessments conducted in the Limpopo River Basin.

RESILIM's report on spatial climate risk and vulnerability (R&V) assessments presents the results of a desk review of existing spatial climate risk and vulnerability assessments, which are relevant to the LRB. The objective of the report is to avoid duplication of previous analyses, identify gaps in current assessments, and highlight interesting approaches and methods that provide lessons for resilience building in the Basin. The conclusion drawn from this analysis is that components of a spatial R&V study for the LRB exist, but they have not been combined into a cohesive, systems-based set of maps capturing climate vulnerability at the necessary resolution (such as sub-basin or sub-district), accuracy, and relevance to aid adaptation capacity of local livelihood systems.

c) Participatory Climate Risk and Vulnerability Assessment and identification of 'hotspots'

RESILIM recognized the need for the mapping, identification and assessment of climate R&V hotspots in the LRB. This type of analysis allows for the integration of both data and expert input, which in turn creates an evidence base for selecting locations in the Limpopo Basin that are particularly vulnerable to climate change now and in the future.

R&V maps created by OneWorld for the basin have been produced by assessing current and future key factors such as exposure, sensitivity, and impact to identify ten hotspots that are particularly vulnerable to climate change now and in the future. Experts and stakeholders analyzed these ten climate and vulnerability hotspots in order for RESILIM to obtain an expert-based response to the selected hotspots and to identify any gaps in the hotspots.

The OneWorld team evaluated and extracted feedback from experts and stakeholders, while referring continuously to the R&V assessments. This resulted in the reconsideration of the ten hotspots originally selected. Consensus between the OneWorld team and some of the experts on certain hotspots fully validated their selection, while other sites did not receive a significant level of consensus. Experts identified two additional hotspots: the Soutspansberg, central to the important Vhembe Biosphere; and the increasingly densely populated area north of Pretoria. This resulted in the eight final hotspots (see Figure 1).

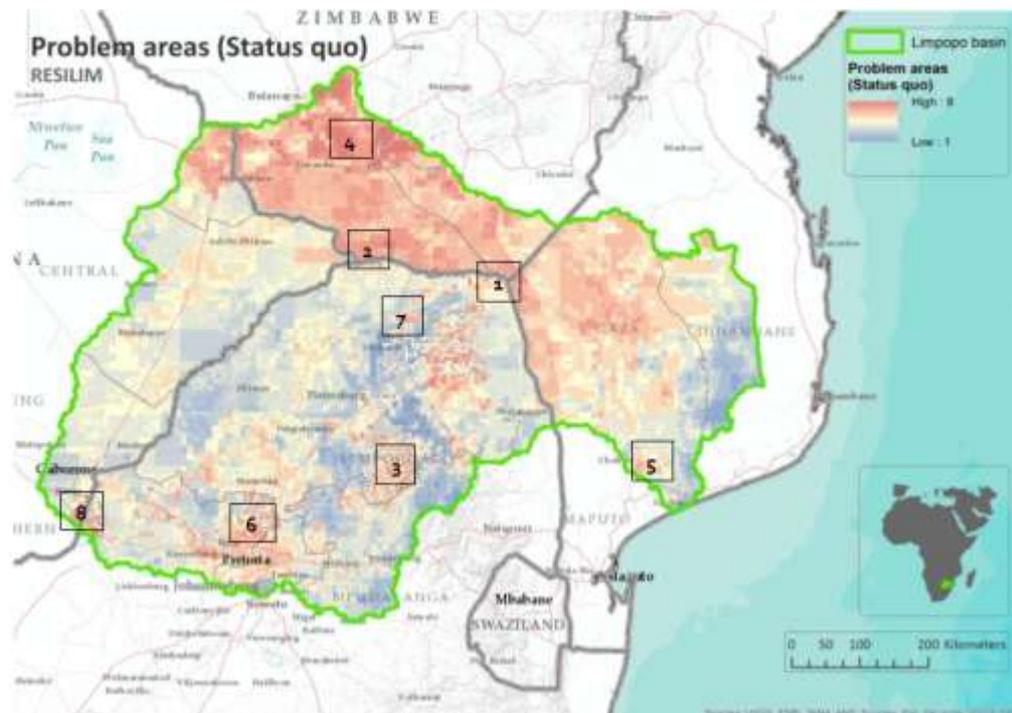


Figure 1: Identified eight hotspots that are most vulnerable to climate change in the LRB

In the upcoming year, RESILIM will conduct participatory analyses through Focus Discussion Groups (FGDs) in the eight hotspots identified in the Risk and Vulnerability mapping of the LRB, in order to validate the science-based research developed thus far. The purpose is to draw local knowledge to validate science, analysis and opinion, and at the same time facilitate an enhanced understanding of adaptive capacity in each hotspot area. It is also critical to understand how LRB management decisions are made and where in the Basin the balance of power, at various scales, lies. This requires an analysis of institutional and policy frameworks, and identification of the key actors that operate within the decision-making processes.

RESILIM will consolidate the findings into the form of eight case studies, which will aim to provide insight on the extent of climate change impact in the basin. This will lead to a set of climate and development future scenarios for the LRB to be used as a tool to look at possible ways climate change may play out, given the inherent uncertainty in the prediction of existing climate models predictions. Considering future scenarios will ultimately assist RESILIM in the identification and development of resilience building adaptive strategies and responses basin-wide. RESILIM will ensure the value of this research is applied in a functional way to inform decision makers.

These case studies will also serve as an introduction to the participatory validation workshops to be held in each hotspot. The purpose of the workshops is to widen and deepen the understanding of climate impacts and their drivers, potential impact thresholds, and the priority needs to address in order to build resilience. In addition, this participatory approach allows for a better understanding of the LRB as a system, with socio-political and bio-physical attributes that interact in a complex manner.

4.2 Disaster Risk Reduction of Floods and Droughts

During 2004-2007, the United Nations Human Settlements Program (UN HABITAT), in collaboration with the Governments of Botswana, Mozambique, South Africa, and Zimbabwe implemented a project entitled, the “Sustainable Land Use Planning for Integrated Land and Water Management for Disaster Preparedness and Vulnerability Reduction in the Limpopo River Basin”. The final deliverable of the project was the “Limpopo Basin Strategic Plan for Reducing Vulnerability to Floods and Droughts (DRR)”, resulting from several assessments and stakeholder consultations.

The strategy, as initially formulated by the UN HABITAT in 2007, identified a focal problem in the Limpopo River Basin: increased vulnerability of human settlements and ecosystems to floods and drought. This problem is likely to be exacerbated by climate change. Rising temperatures are expected to increase flooding in coastal areas, threaten biodiversity and the productivity of natural resources, increase the range of vector-borne and waterborne diseases, and exacerbate desertification. Droughts and floods are expected to increase in both frequency and intensity as a result of climate change. There is therefore a need to review the strategy (on reducing floods and drought vulnerability) through the climate change lens.

Drivers of increased vulnerability of human settlements and ecosystems to floods and drought

The following were singled out in the strategy, among others, as key drivers of the increased vulnerability of human settlements and ecosystems to floods and drought:

- Low levels of preparedness for floods and drought events;
- Limited communication between disaster management agencies and local communities;
- Centralized decision making authority;
- No flood safe areas planned and no consideration of building materials and infra-structure prone to flood damage;
- Existing land use plans not incorporating long term environmental conditions such as flood/droughts;
- No clear guidelines on work flows and responsibilities at national level;
- Unrelated models for flood early warning among riparian countries for disaster management and mitigation;
- No clear guidelines on cooperation for disaster management and mitigation among riparian countries.

LIMCOM has requested RESILIM to review the DRR as part of its support for the implementation of the 2011-2015 LIMCOM Integrated Water Resources Management (IWRM) Plan. Since April 2013, RESILIM has engaged its partner GWP-SA to review and update the Strategic Plan for DRR and prepare a Limpopo Basin action plan to support LIMCOM to facilitate implementation of the recommendations by the riparian states.

GWP proposed the following steps in delivering the work:

1. Inception Phase: GWP proposed that the inception phase be extended to build a reference team of Focal Point within LIMCOM in order to build ownership and ensure clarity of the work at hand for interested stakeholders. Time is also needed to align with ongoing work in the region and also within the RESILIM program. GWP-SA is therefore proposing submitting a Draft Inception Report for discussion with RESILIM leadership, and then developing a Final Inception Report with an Implementation Plan in liaison with the Focal Points identified by riparian states through LIMCOM.
2. Phase 1: Survey and diagnostic analysis: Reviewing and updating the 2007 UN-HABITAT study through a climate change lens requires having an understanding of the current climate and future climate change scenarios in the basin. Building on the diagnostic analysis carried out in 2007 study – in-country consultations will be carried out to

update the study. The analysis will form the basis of the situational analysis for developing the actions to reduce vulnerability to floods and droughts.

3. Phase 2: Mapping Activities: Development of flood and drought hazard maps
4. Phase 3: Development of Action Plan: Development of an Action Plan for Reducing Vulnerability to droughts and floods in the Limpopo River Basin.

To achieve these deliverables, GWP has produced a proposal detailing the development of the Action Plan. RESILIM is engaging LIMCOM's Technical Task Team in the process of reviewing the proposed methodologies, a critical step in gaining the organization's buy-in for the program's initiatives. The result of this process will be an updated Strategic Plan for DRR for the Basin, as well as an action plan to support LIMCOM to facilitate implementation of the recommendations by the riparian states.

4.3 Supporting LIMCOM

RESILIM is working closely with LIMCOM to enhance its capacity to implement ongoing activities in the Limpopo Basin. RESILIM organized several meetings with the LIMCOM Executive Secretariat to establish the progress being made in the implementation of LIMCOM-related tasks in the Limpopo Basin, and what contribution may be sourced from RESILIM such assistance with a monograph study and a basin tour with LIMCOM representatives.

4.3.1 Monograph study

LIMCOM is carrying out, through the GIZ-support, the Limpopo monograph study which is expected to be finalized towards the end of 2013. The monograph is comprised of ten components: i) Basin delineation (into basin, country and sub-catchment levels); ii) Surface water resources; iii) Ecological/environmental flow requirements; iv) Ground water; v) Socio-economic issues (e.g. water resources economics, population, HIV/AIDS); vi) Current water use and demand; vii) Water balance analysis; viii) Management systems/Governance Structures; ix) Training/capacity building; x) Information management systems (LIMIS- Limpopo Information System).

RESILIM is closely working with LIMCOM, GIZ and AURECON (the subcontractor for the Monograph) to establish how to best support LIMCOM to address current knowledge gaps within the Monograph are filled.

4.3.2 Pre-basin tour progress

RESILIM remains committed to raising awareness among LIMCOM representatives and basin stakeholders to better understand the dynamics, development challenges, and socio-economic aspects



Map 2: Proposed route for the Commissioners Basin Tour

of the basin. To achieve this objective, RESILIM, LIMCOM and Gesellschaft Fur Internationale Zusammenarbeit (GIZ) carried out a Limpopo basin pre-tour to: a) identify IWRM-related sites and issues to be presented to the LIMCOM Commissioners during their proposed tour of the Basin, and b) collect relevant information to be included in communications materials and tools to be used in the main tour and beyond. The pre-tour took place in the Botswana, Mozambique and South Africa sides of the Limpopo river basin during the months of February and March 2013 and was a great opportunity to actively market LIMCOM throughout the basin.

In all three riparian countries, RESILIM worked in direct collaboration with LIMCOM technical team members from each of riparian state’s national departments of water affairs, water utilities corporations, sub-catchment management authorities, and national departments of environmental affairs. Prior to setting out on the tour in each country, the team convened (with technical staff representing their countries) to determine common objectives for the pre-tour, as well as clear actions to achieve those objectives. RESILIM established questions that were used during the planning sessions, including:

- How will the team motivate the commissioners to enthusiastically participate in the main tour?
- What would the commissioners be interested to see?
- What are the most relevant issues related to IWRM?
- What are the main activities or infrastructure that are affected by, or that can affect climate change, biodiversity conservation and water management?
- What are the “burning” issues related to IWRM, climate change vulnerability and adaptation, and ecosystem conservation?

The team also established contacts with private sector stakeholders, private and public companies, and communities to gain a deeper knowledge of the realities on the ground.

Although RESILIM has not yet led a pre-basin tour in Zimbabwe, the pre-tour has raised awareness (through literature review and field visits) for a variety of priorities relevant to transboundary management of the Limpopo River Basin. It has also provided ideas for the formulation of a proposed itinerary and communications materials for the commissioners’ tour. The main issues emerging from the pre-tour are the following (see Table below):

Main issues emerging from the pre-tour	
Botswana	Potential of private-public partnerships for water quality improvement, maintaining environmental flows while storing water; controlling invasive aquatic weeds, water infrastructures;
South Africa	Balancing water extraction with continued downstream flows; controlling polluting effluents, water augmentation to support large industries. Power supply and local development;
Zimbabwe	Community participation in water planning, managing extractions for irrigation effectively; addressing rural

	drinking water supply;
Mozambique	Controlling floods; protecting sensitive coastal areas;
Other relevant issues: transboundary parks and biodiversity conservation (land use, resettlement and poaching), effective management of large irrigated agriculture in the lower Limpopo floodplain, and groundwater abstraction impacts.	

4.3.3 Engaging LIMCOM and Sharing RESILIM Progress

In May 2013, RESILIM participated in the LIMCOM general quarterly meeting in Johannesburg on progress in the implementation of its first year work plan. RESILIM used this opportunity to discuss with LIMCOM the achievements made since August 2012, challenges experienced, and upcoming planned activities. Achievements, challenges, and upcoming activities discussed during the quarterly meeting are as follows:

Achievements: (i) development of memorandum of understanding between LIMCOM and USAID, (ii) in-country key stakeholder consultations, (iii) development of annual RESILIM Work Plan aligned to LIMCOM IWRM Plan, (v) commissioning of a pre-basin tour, (vi) development of partnership with CDS-ZC (on estuary mangrove conservation) and SAWC (development of training materials and tools with focus on resilience building).

Challenges: (i) difficulties in gaining momentum in RESILIM’s biodiversity element (with IUCN choosing to step down from the consortium), (ii) large geographical area to cover which resulted in the need for strategically-targeted intervention areas and re-structuring for optimal cost-efficiency and effectiveness, and (iii) delay in signing of memorandum of understanding between LIMCOM and USAID.

Upcoming activities: (i) basin risk and vulnerability assessments, (ii) review and update of the Limpopo Basin Strategic Plan for Reducing Vulnerability to Floods and Droughts, (iii) pre-basin tour to finish the Zimbabwe portion and deliver final report with recommendations, (iv) workshop on water quality and water hyacinth management at bilateral level (South Africa and Botswana) to develop a collaborative action plan, (v) conduct baseline survey on environmental flows requirements to ascertain what work has been done and recommend a way forward, and (vi) development of a project-wide communications strategy and action plan.

The workshop resulted numerous successes, including the endorsement of the RESILIM program and work plan, as well as USAID’s and LIMCOM’s continued commitment to formalizing their collaboration through the memorandum of understanding, which will help facilitate effective implementation of RESILIM.

4.4. Developing partnerships

RESILIM acknowledges partnership development as an important aspect of the program’s work. It is an area where RESILIM will practice adaptive management and planning to respond to emerging opportunities. In consultation with USAID and Limpopo basin stakeholders, RESILIM developed a technical proposal containing a detailed approach to developing Public-Private Partnerships (PPPs). The Partnerships Strategy, which is included in RESILIM’s work plan (Annex 1), will be informed by key components and deliverables of the Work Plan. It will serve as a living document with strategies

to be predicated on the outcomes of the various analyses (vulnerability, threat, institutional etc.) proposed under Components 1 and 2. RESILIM does, however, make a clear distinction between the development of partnerships and relationships essential to replicating and expanding RESILIM's existing activities.

4.4.1 Water quality and water hyacinth management

The Southern African Development Community (SADC) has a protocol on shared watercourse systems promoting collaborative action to minimize the introduction of alien aquatic species that destabilizes transboundary aquatic ecosystems. According to the protocol, "Member states shall take all measures necessary to prevent the introduction of alien aquatic species into a shared watercourse system which may have detrimental effect on the ecosystem." To respond to this challenge, RESILIM hosted a planning meeting between Botswana and South Africa water affairs officials to discuss RESILIM support to the current bilateral work done by South Africa and Botswana on water quality and water hyacinth management. Having received endorsement from LIMCOM to support bilateral IWRM activities in the basin, RESILIM engaged the Water Affairs Departments of both countries, to discuss the status of the bilateral agreement and opportunities for RESILIM support, as well as propose the development of a process map of RESILIM support to be agreed upon by all parties.

Both government parties (in collaboration with RESILIM) have identified trans-boundary aquifer management, water hyacinth management, and water quality monitoring as potential areas of bilateral collaboration. These discussions generated consensus that the two countries would need to engage in quality monitoring field visits, as well as to share relevant research and management reports. The two parties also agreed on the need to generate more information on the quantity and quality of the water resource itself through robust research and field-visits to validate data. With RESILIM support, activities and lessons learned from this bilateral cooperation will be shared among all basin countries.

The Departments of Water Affairs in Botswana and South Africa conducted the joint field surveys on the section of the Limpopo River that forms the boundary of South Africa and Botswana to determine the existence and extent of water quality contamination. The departments jointly analyzed the water samples and data collected and, with support from RESILIM, compiled a joint water quality baseline report.



Above: The Department of Water Affairs, Botswana installed diamond mesh barrier at Zanzibar, Botswana to prevent the plants from floating downstream.

Below: The filter traps the water hyacinth plants. The plants are then manually removed.

The departments presented the above-mentioned report at a stakeholder workshop sponsored by RESILIM. Following the discussions and exchange of information on the state of water quality in the Limpopo River Basin, and the imminent disastrous impact of water hyacinth germination and proliferation, the workshop participants developed resolutions for the way forward.

RESILIM is now supporting South Africa and Botswana individually and collectively to implement the resolutions agreed upon at the Zanzibar stakeholder workshop with a focus on soft capacity building (adapting the legal and regulatory framework, coordinating efforts, developing new working methods, training relevant stakeholders, etc.). Before considering possible hard capacity building (infrastructure, information technology and finances), RESILIM will conduct an environmental impact assessment and, if needed, develop an Environmental Mitigation and Monitoring Plan (EMMP).

The North West Region of the South African Department of Water Affairs also hosted the RESILIM COP and DCOP/Partnerships Advisor at the Hartebeespoort Dam, where officials presented the Hartebeespoort Rehabilitation Project, which is addressing issues of water quality and water hyacinth management at the sub-catchment level. The field trip was very informative, detailing the holistic, integrated management approach adopted by the Dam to mitigate poor water quality (eutrophication) and control the spread of alien invasive aquatic weeds (e.g. water hyacinth). The integrated management approach emphasizes that all approaches to rehabilitating of the system (dam) be as “natural” as possible. The Hartebeespoort Dam, for instance, introduced floating wetlands (e.g. phragmites and reeds plants) that would eventually establish and become critical habitats for fauna and flora (e.g. breeding water birds, fish and crocodiles). There are thus vast opportunities for RESILIM to learn from Hartebeespoort and “scale up” best practices in water quality and water hyacinth management to the Basin level.

4.4.2 Conservation of Limpopo Estuary and Mangroves

The Center of Sustainable Development for Coastal Zones (CDS-ZC) in Xai-Xai, Mozambique is a technical branch of the Mozambican Ministry of Environmental Affairs. CDS-ZC’s mandate is to ensure and promote the research, field data collection, awareness, and implementation of demonstration activities (relating to coastal natural resources management and use) in coastal areas. CDS-ZC is currently implementing a mangrove restoration project in the Limpopo Basin estuary near Xai-Xai, using a community based natural resources management (CBNRM) approach.

This basin estuary ecosystem is likely to be further affected by climate change due to potential increases in the frequency and severity of extreme natural events (e.g. flooding), as well as changes in sea-level, precipitation, temperature, atmospheric CO₂ concentration, ocean circulation patterns. Additional factors that could affect the condition of the basin estuary include the declining health of functionally linked neighboring ecosystems, as well as human responses to climate change. Mangrove productivity is at risk due to the expected increase in the construction of seawalls and other coastal



Mangrove Ecosystem

Growing in the intertidal areas and estuary mouths between land and sea, (i) acts as a flood buffer between land and sea, (ii) helps to stabilize climate by moderating temperature, humidity, wind and even waves, (iii) provides critical habitat for a diverse marine and terrestrial flora and fauna. Healthy mangrove forests are key to healthy marine ecology.

erosion control structures adjacent to mangrove landward areas, as well as storm water drainage canals erected to reduce flooding in coastal upland areas. These events will impact local communities whose livelihoods are supported by the mangroves. One such community is that of Posto administrativo de Zongoene (Zongoene Administrative Post), which has a population of around 27,000 people who have been using natural resources to support their livelihoods. Main activities include agriculture, fishing, and tourism. The mangrove ecosystem has a high economic value and benefit. Mangrove forest products (timber, charcoal, firewood and others) and non-timber products are unique, sustaining fishery resources, as well as providing coastal protection, environmental education, and recreational sites.

CDS-ZC, in collaboration with RESILIM through a pending grant activity, will implement capacity building activities aimed at mangrove restoration, producing communication and awareness materials to enhance mangrove conservation, and piloting a mangrove restoration initiative.

RESILIM held numerous engagements with the senior management and technical staff at CDS-ZC, culminating in a Grant proposal, detailing the partnership plan on the following:

- a. Improving mangrove mapping;
- b. Environmental and economic evaluation of the mangrove ecosystem;
- c. Capacity building and awareness materials;
- d. Pilot mangrove replantation.

In April 2013, CDS-ZC developed a scope of work and submitted a grant application, which the RESILIM program ultimately approved and is currently in the final stages of negotiating.

Main problems and gaps in the mangrove conservation initiative

The main problems identified and gaps to be filled in the mangrove conservation initiative are:

1. Lack of detailed maps of potential mangrove areas that include historical and current mangrove presence. This will help with coastal planning for mangrove replantation and adapting to facilitate mangrove migration with anticipated relative sea level rise due to climate change;
2. No study that has been conducted on the economic value of mangrove. Such a study would be used as a basis for community participation in the conservation of mangroves, for local economic as well as ecological benefit;
3. Studies have demonstrated that mangrove loss is mostly due to human factors. Therefore, there is a need to build awareness among stakeholders and the community, in order to enable educated adaptation through workshops and action research;
4. The Limpopo estuary mangrove has a weak natural regeneration capacity due to the changes in the natural hydrological drainage system, so there is a need for hydrological rehabilitation and replantation of mangrove to restore the ecosystem.

It is important to improve the knowledge about the potential value of the mangrove ecosystem for appropriate conservation measures, considering the human and climate change threats. RESILIM can contribute to this effort by providing science-based information about the potential area of estuary mangrove, environmental and economic value of the ecosystem, as well as produce the communication materials to promote awareness.

4.4.3 United Nations Global Environmental Facility Trust Fund

The United Nations Global Environment Facility Trust Fund (GEF) is a financial mechanism that provides new and additional grant and concessional funding to achieve global environmental goals agreed upon in international conventions in areas of (a) biological diversity; (b) climate change; (c) international waters; (d) land degradation, primarily desertification and deforestation; (e) ozone layer depletion; and (f) persistent organic pollutants. RESILIM is fostering a partnership with the UNDP GEF Small Grants Program (Botswana, South Africa, Mozambique and Zimbabwe) to leverage resources for climate change adaptation, biodiversity management and integrated water and ecosystem management in the Limpopo Basin. RESILIM and UNDP-GEF representatives from the riparian countries met and discussed the concept partnership in March 2013. At the end of this year,

the UNDP-GEF submitted a grant application to RESILIM, which the program is currently reviewing and will determine if the proposed grant mechanism is the best way to collaborate moving forward.

4.4.4 Preparation of the Botswana National Climate Change Policy

Botswana is in the process of preparing its National Climate Change Policy (NCCP) and National Climate Change Strategy and Action Plan (NCCSAP). The Botswana Government, through its Meteorology Department, invited the RESILIM program to support this process technically and otherwise. As a result, a RESILIM representative (Chief Scientist, Dr Nkobi) sits in the national Technical Reference Committee responsible for overseeing and determining the technical direction of the process.

All of Botswana's water storage dams are in the Limpopo River Basin (LRB), while more than 70 percent of Botswana's population dependent on subsistence rain-fed agriculture and natural resources is found in the LRB. This is therefore an opportunity for RESILIM to work closely with the Government of Botswana to ensure current science and resilience building is integrated into the NCCP and NCCSAP. The RESILIM team envisions that the R&V assessment work initiated through the program in the LRB will form a critical knowledge base on climate change for the NCCP.

On the 28th of August, 2013, Integrate Environmental Consultant Namibia (IECN) and Environment Watch Botswana, consultants for Botswana's Meteorology Department, presented inception reports describing the proposed approach, initial start-up activities, and timelines for implementation to stakeholders at a national workshop in Gaborone. The report suggests that the NCCP should be a long term adaptable working guide to mainstream climate change into the overall development planning of the country. The NCCSAP is a practical blueprint, while the strategy is the shorter term plan for implementing the principles and guiding elements of the policy.

RESILIM is planning to provide support to this process by availing training on resilience building to the national Technical Reference Committee. RESILIM will also share lessons learned, data and information generated from the R&V assessment for the LRB. This will enhance the capacity of the committee to provide the necessary guidance for the formulation of the NCCP and NCCSAP, and actual implementation of the proposed policy and strategy.

4.4.5 Environmental Flow requirements baseline assessment

RESILIM has developed a scope of work for a study to be carried out that will begin to collate the work that has been done on environmental flow requirements in the Limpopo River Basin. This study will inform LIMCOM, through its member states, on key matters/issues pertaining to environmental flow requirements that are essential to transboundary IWRM in the Limpopo River Basin. The specific objective of the proposed assessment is to increase the understanding of linkages between hydro-ecological and socio-economic relationships under climate change scenarios.

RESILIM is building on the environmental flows initiatives under the Limpopo Monograph Study, supported by GIZ on behalf of LIMCOM. LIMCOM has put in place its strategic plan, the 2011-2015 Limpopo Basin Integrated Water Resources Management (IWRM) Plan,. The LIMCOM IWRM Plan acknowledges, under its water allocation strategic objective, that "the future water demand will

keep increasing from all sectors to support economic growth and that it will be important to ensure that available surface and groundwater is used and allocated in an effective, efficient, and equitable manner” (see Table 1).

Water Allocation	Objective 3.1 Benefit Sharing	Objective 3.2 Monitoring	Objective 3.3 Water Use Efficiency
	LIMCOM to promote the equitable and reasonable utilisation of water resources in the Limpopo River Basin	LIMCOM to facilitate the dissemination of data and information on water resources and water usage in the Limpopo River Basin	LIMCOM to promote methods of increasing water availability and the efficient use of water resources in the Limpopo River Basin.

Table 1: Excerpt of the LIMCOM IWRM Plan, with specific focus on water allocation, of which ecosystems are a primary stakeholder

The goal of the LIMCOM IWRM Plan is to develop the capacities (individual, organizational, and institutional) of the riparian states for the sustainable management and development of the Limpopo River Basin. The environment of aquatic and riparian ecosystems has to be considered in any water allocation system. It is a best practice, when allocating water from a river to different categories of water users, to also consider water required for maintaining aquatic and riparian ecosystems. Therefore, LIMCOM requires, as part of the development of criteria for sustainable and equitable water allocation, information about the amount of water or flow regime for maintaining aquatic and riparian ecosystems along the Limpopo River. An environmental flow assessment study is thus critical for LIMCOM to achieve this major objective.

There is inadequate knowledge about the relationship between climate change, river flow variations, and ecological processes currently in the basin. Sustainably managing the basin and its resources requires a sound understanding of how flow variations affect ecological processes and biodiversity. The basin has varied habitats, such as perennial channels, weirs/dams, permanent swamps, and seasonal swamps, all of which have different hydro-ecological and socio-economic relationships that influence biodiversity and livelihoods.

4.4.6 Collaboration with SAREP

In seeking to position RESILIM in line with the current science and thinking in climate variability and change in the Limpopo River Basin, the team established a bridge with the University of Cape Town’s Climate System Analysis Group (CSAG). RESILIM and SAREP project staff, accompanied by USAID/Southern Africa and the Executive Secretary of OKACOM, visited CSAG in Cape Town, and listened to presentations on the work that the Group is doing to develop African researchers and users in climate change adaptation and policy, climate modeling, applied climate science, delivering tailored climate information, and stakeholder engagement.

Consequently, RESILIM and SAREP partnered with CSAG to host a capacity building and awareness raising workshop in October 2013 on the concepts, observations and implications of climate change within the southern Africa region, with a focus on the Okavango and Limpopo River Basins. The aim

of the workshop was to translate existing knowledge on regional climatic variability into practical action in climate change adaptation.

4.4.7 Southern African Science Service Centre for Climate and Adaptive Land Management

RESILIM also established contact with the University of Botswana's Department of Environmental Sciences (DES) and the coordinator of a research program called Southern African Science Service Centre for Climate and Adaptive Land Management (SASCCAL). SASCCAL is a joint initiative of Angola, Botswana, Namibia, South Africa, Zambia, and Germany, responding to the challenges of global change, and focuses on three elements: i) research; ii) capacity development; and iii) service provision. SASCCAL also investigates what scientific gaps exist within its five program components: Water; Climate; Agriculture; Forestry; Biodiversity and Wildlife.

4.4.8 South African Wildlife College

Through a grant RESILIM will send to USAID for approval, the Southern African Wildlife College (SAWC) will conduct a cross-sectorial and transboundary training needs assessment on climate change adaptation, biodiversity management and integrated water resource management. From the assessment SAWC will identify the need for training courses on resilience building, biodiversity management and integrated water resource management, to be delivered to scholar practitioners from the SADC region. For example, the course on governance will be re-designed to address the role governance plays in building resilience, what approaches to governance will lead to improved resilience, and what form of governance is required to support the water-climate-biodiversity nexus such that resilience is improved. The same approach would be applied to the other course, and RESILIM would ensure participation of key stakeholders (across water, biodiversity, and climate sectors) in the development of the modules and course content that speaks to resilience building.

SAWC's Community Based Natural Resource Management (CBNRM) training approach utilizes various transboundary locations as the classroom, allowing trainees to 'learn by doing.' This approach allows for CBNRM modular theory to be radically transformed into field level results. The sites where training takes place are therefore transformed into best practice case studies for co-learning. This approach aims to ultimately translate current CBNRM best practices into common practice across the region.

The capacity building will require the development of new training materials and tools, as well as the enhancement of existing ones. The training modules would comprise theory as well as practical skills. They would be developed in close collaboration with conservation and climate change agencies and, where relevant, community participation.

This grant will also require capacity building to deliver such training ("training of trainers"), thereby serving not only to train graduates of the SAWC, but also to build the relevance, technical scope, and delivery capacity of the college itself as a key training institution in Southern Africa. This institution has a particular focus on training people who are already directly managing natural (biodiversity) resources. The graduates of SAWC are, therefore, well positioned from their respective areas of

employment or operation, to enhance resilience in the basin by integrating it as part of different, practical natural resource management jobs, activities, and initiatives.

The college also works closely with various qualification authorities and other training institutions to ensure that the students have maximum flexibility in selecting a career path. As an accredited training institute, the college has aligned its curricula with the standards of the South African Qualification Authority (SAQA) and the National Qualifications Framework to ensure both national and international recognition. The SAWC/RESILIM partnership would not only significantly enhance the quality and sustainability of the delivery of RESILIM, but would also leave a long-lasting resource pool for ongoing capacity building in resilience for IWRM, well beyond the life of the RESILIM project.

Following an internal technical review for SAWC's grant application, RESILIM's COP approved the grant for proposed training activities. With the funding from this grant the college will modify existing curricula and pilot two new training courses: Participatory Governance and Micro-Enterprises for Women on Natural Products.

4.4.9 Climate Change Proofing Strategy

Mozambique National Institute for Disaster Management (INGC) and United Nations (UN) are implementing phase two of the Joint Project on Climate Change Proofing Strategy for the Limpopo River Basin in Mozambique. In doing this work, Eco Solutions, a private regional sub-contractor, did assessments of potential impacts of climate change on the sub socio-ecological system of Mozambique, and provided adaptation options to minimize community vulnerability. This work formed a critical sustainable baseline for the RESILIM risk and vulnerability assessment, which is ongoing and responds to the RESILIM mandate to develop science-based research on climate change in the basin.

4.4.10 Southern Africa Community Based Natural Resource Management Forum

RESILIM has worked with Southern Africa Community Based Natural Resource Management Forum (SACF) as part of an effort to build the capacity of basin-wide organizations to explore opportunities and synergies in Transfrontier Conservation Areas (TFCA), particularly the Great Limpopo Transfrontier Conservation Area (GLTFCA).

Apparently, the literature shows that PPPs initiated in the past were flawed due to some of the following: that (i) government, private sector and the committees of Community Based Organizations BOs/CPAs capture maximum benefits while fewer benefits reaching members on the ground; (ii) the activities performed by CBO/CPA committees and external partners (and results) are often not communicated effectively to members on the ground; (iii) finances are often not accounted for and processes are generally not transparent. An appropriate PPP monitoring system would help curb these problems and promote healthy governance and would likely result in improved community based natural resource management practices. RESILIM will take this into account when supporting PPP and CBNRM initiatives.

4.4.11 International Conference on Freshwater Governance

As the Limpopo is a shared river basin where the upstream and downstream impacts of consumption and pollution exist, RESILIM participated in the International Conference on Freshwater Governance, held in November, 2012, in Drakensberg, South Africa. The conference sought to enhance cooperation on shared water resources, especially in water-scarce regions where the upstream and downstream impacts of consumption and pollution are magnified. Shared river basin and aquifer systems continue to present opportunities for cooperation and joint water resource development within, as well as between, countries. To address this need, the conference brought together policy makers, water managers, scientists and civil society, in a forum where new ideas and approaches towards sustainable freshwater governance could be shared. For RESILIM, the conference was useful from a networking perspective, as participants included representatives from the SADC Water Sector, as well as the Executive Secretaries and associated (government, NGO and private sector) stakeholders from all River Basin Organizations (RBOs) in Southern Africa, as well as representatives from USAID-Southern Africa's Environment Team.

4.4.12 Botswana Association of Local Authorities

The Botswana Association of Local Authorities (BALA) is comprised of councilors and chief executives of local councils as a vehicle to contribute towards the development of a strong, democratic local government in Botswana. BALA recognizes and acknowledges the importance of water and water conservation as core to the achievement and sustenance of all forms of developments. RESILIM agreed with BALA councils to integrate transboundary IWRM issues into its agenda. The possible results of this partnership between RESILIM and BALA include:

- Signing of 'partnership memoranda' between local authorities on joint integrated water resources management projects including establishment of monitoring and control measures that deal with pollution of water resources;
- Establishment of Joint Plans between private sector, civil society and municipalities on integrated water resources;
- Establishment of a long term partnership between BALA, Chemonics International, SADC PPP Network and the United Cities and Local Governments of Africa (UCLGA) on a comprehensive capacity building program for municipalities on service delivery through PPP including sustainable implementation of water management related projects;
- Research and documentation of best practice models for application, adaptation and replication for improved quality of life of citizens through sustainable utilization of water and water resources;

Botswana Water Utilities Corporation (BWUC) is a parastatal organization, wholly owned by the Botswana Government with the mandate to manage projects for the supply and distribution of water and liquid waste management. RESILIM and BWUC agreed to collaborate in the pilot process of "trade effluent agreements" with the private sector, such as the Botswana Meat Commission (BMC) and the Northern Textiles Factory. GIZ also agreed to support this partnership with the Botswana Water Utilities Corporation (WUC) and other local industries in the Francistown area, which constitutes the headwaters of the Limpopo River. GIZ is willing to put resources towards the pursuit of this opportunity to collaborate.

4.5. Other progress

4.5.1 RESILIM cooperative agreement partners AWARD (RESILIM-O)

RESILIM established contacts with cooperative agreement partner AWARD (CA) to share RESILIM progress/challenges thus far and to begin to explore modalities of collaboration between the RESILIM contract and the RESILIM Cooperative Agreement (CA). Following initial discussions, the two teams concluded that there are numerous projects that relate to RESILIM that are being carried out in the Hoedspruit (Oliphants sub-catchment) area, and there is need to coordinate project activities so as to avoid duplication and inefficiencies of resource allocation. With this in mind, the two RESILIMs agreed on the need to have a coordinating committee that would be meeting on a quarterly basis, to consider strategic integration issues.

RESILIM O and RESILIM B met again to further explore opportunities for collaboration between the two programs in the Oliphants River Basin. The conversation led to the discussion of each program's different methodologies, issues around possible confusion about the two RESILIM programs, clarification and mutual understanding on the role and identity of each program, which communication materials to possibly produce together, and where it would be possible to pool resources.

A follow-up meeting with a more specific focus on collaboration in terms of communications revealed more concerns about communicating the different programs to the same stakeholders. The meeting produced a better understanding of each program's expectations in terms of communication and the two programs agreed on regular interaction, conversation and the sharing of ideas.

4.5.2 Strategic Meetings

RESILIM, together with USAID Southern Africa, met with the team leader of a new program funded by UKAID entitled Climate Resilient Infrastructure Facility (CRIDF). This meeting was useful as an initial familiarization meeting, as a pre-requisite for the identification of opportunities for collaboration and partnership.

A meeting with the Global Environment Facility's Small Grants Program (SGP) National Coordinator in Botswana resulted in RESILIM meeting with the University of Botswana to discuss partnership on a project that would support the sustainable utilization of the Mopani worm as a community adaptation strategy that builds resilience to climate change. RESILIM anticipates a grant application from SGP and the University of Botswana, in response to RESILIM's Annual Program Statement, proposing an activity that RESILIM would consider supporting through its grants fund.

RESILIM also met with GIZ in Gaborone to update them on progress in order to continue to maintain a collaborative relationship, given that GIZ is also supporting the work of LIMCOM. This was a very useful and productive meeting, with an agreement reached to collaborate closer with Aurecon (GIZ's contractor to develop the Limpopo monograph) on the risk and vulnerability assessments that are being carried out under RESILIM.

A courtesy call was made to the leadership of the SADC Water Sector, who deeply appreciated the update on the progress with the RESILIM Program, and invited RESILIM to engage more closely with the strategy and activities of the SADC Water Sector. This will help ensure efficiency of development initiatives in transboundary IWRM.

5. Monitoring and evaluation

5.1 Development of Performance Monitoring Plan

In response to section C.5(a) Monitoring and Evaluation of the RESILIM contract the RESILIM technical staff in collaboration with consortium of partners made up of Chemonics International Inc., the primary contractor, and a team of qualified subcontractors, namely: GWP-SA, IUCN/ESARO and One World developed a Performance Monitoring Plan (PMP) that supports USAID's PMP. Consistent with the schedule set forth in Section F.7(a), RESILIM's PMP was submitted to USAID for approval for Year 2 of implementation.

This performance monitoring planning process is critical for effective implementation. Conducted in tandem with work plan development, the performance monitoring plan will provide a robust set of tools to guide program implementation, including M&E indicator reference sheets that direct data analysis and provide baseline and targets from which to measure program progress. As an instrument developed with the intention of guiding RESILIM program management and supporting RESILIM partners to produce information that shows the achievement of program's strategic objectives. It establishes the fundamentals for a performance monitoring system by ensuring that required data are collected, processed and analyzed on a regular basis. It provides instruction on how information on project performance should be tracked, including its main sources.

By following the PMP and comparing data that will be collected on a periodic basis to the project baseline data, project managers and team members will have the necessary information to visualize project progress and to make sound decisions based on evidence and ensure programmatic and financial success. The PMP also enables RESILIM direct and indirect stakeholders to have a common understanding of the monitoring and evaluation tools that will be used during the program implementation.

5.2 Project Results Framework

The RESILIM technical team has reviewed the illustrative activities and work plan in the technical proposal. The technical team has ensured that project activities are aligned with M&E results framework and analyzed the linkage among the program key result areas, activities, progresses (milestones/benchmarks) and results (output, outcomes and impact indicators).

5.3 RESILIM Program Indicators

Table 1: RESILIM Program Indicators				
Resilience in the Limpopo Basin Program -RESILIM Results Matrix Year 1		Estimated Reach		Notes
Indicators		Baseline	Estimated Reach	
Component 1: Climate Change vulnerability of the Limpopo River Basin reduced (Impact)		Baseline	Estimated Reach	
C1.2 Number of institutions with improved capacity to adapt to impact of climate change issues as a result of the RESILIM program assistance (Output)		0	9	RESILIM has identified and facilitated discussions and awareness raising campaigns with institutions and networks in the Limpopo River Basin. Some of these institutions include the Water Affairs departments of the four riparian countries, LIMCOM, Department of Environmental Affairs South Africa, NGOs in the LRB and the Southern Africa Wildlife College.
KRA 1.1: Science, technology, and capacity for decision-making and development of climate change adaptation strategies improved(Outcome)				
C1.3 Basin wide early warning system established and functional (Output)		0	1	RESILIM initiated a basin-wide Risk and Vulnerability assessment which mapped out the problem areas (hotspots) with regards to climate change impacts. This now forms a critical base for disaster risk reduction and early warning system for the LRB.
C1.4 Number of scalable climate change adaptation projects piloted in the basin as a result of the RESILIM support (Output)		0	3	The water quality monitoring and water hyacinth management work is on-going, at a bilateral level (South Africa and Botswana). Other two scalable projects involve estuary mangrove ecosystems conservation and incorporation of resilience building with the Southern Africa Wildlife College curricula.
KRA 1.3: Integration of climate change adaptation strategies into long-term management plans and policies increased (Outcome)				
C1.7 Number of agreements, tools, and strategies addressing climate change proposed, adopted and/or implemented in the Limpopo River Basin (Output)		0	1	The risk and vulnerability assessment methodologies was presented as a tool for addressing climate change and proposed to various stakeholders within the basin.
C1.8 Number of cross-sectorial stakeholder meeting/workshops conducted to vet climate change adaptation strategies (Output)		0	3	As part of the process of conducting the R&V assessment in the LRB, regional and national stakeholder consultations, one-on-one discussions, expert reviews, were done with a view to get buy-in on methodological processes and products.
Component 2: Conservation and management of ecosystems improved(Impact)				
C2.1 Number of hectares under improved natural resource management resulting from the assistance provided by the RESILIM program		0	TBC	RESILIM is supporting the water quality monitoring and water hyacinth management on the border area of Botswana and South Africa. The mangrove ecosystem restoration intervention is piloted in the Limpopo estuary, in Mozambique. The area coverage of these interventions will be determined and confirmed through the on-going interpretation of panchromatic aerial photographs.

KRA 2.2 Ecological integrity and resiliency to climate change in key/priority conservation areas improved(Outcome)			
C2.6 Number identified (mapped) biodiversity hotspots with conservation management plans (Output)	0	4	Through the R&V assessments, four biodiversity hotspots were identified, and some of them are around transfrontier conservation areas. However, it is important to note that conservation management plans for the identified hotspots do not exist as yet and need to be developed in following years.
KRA 3.2. Knowledge and awareness of climate change impacts and adaptation measures increased(Outcome)	Baseline	Actual Reach	
C3.5 Number of stakeholders in the basin aware of climate change impacts and adaptation (Output)	0	50	As part of the process of conducting the R&V assessment in the LRB, regional and national stakeholder consultations, one-on-one discussions, and expert reviews were done with a view to get buy-in on methodological processes and products.

6. Annex 1: Technical proposal reference to partnership

Under the leadership of the Chemonics Partnerships Advisor, the RESILIM Consortium will, in consultation with USAID, develop a strategy for partnerships to deliver the RESILIM Work Plan. The Partnerships Strategy will therefore be informed by key components and deliverables of the Work Plan, and as such, partnerships may be entered into at the lead/sub activity level, as well as at the level of outputs, where, for example, the PPP approach will be closely linked to the various analyses (vulnerability, threat, institutional etc.) that will be undertaken under Components 1 & 2 to develop a prioritized and strategic set of partnerships.

The Partnerships Strategy will seek to develop and maintain robust and effective partnerships and alliances with regional, national and local institutions, across all sectors (public, private, community and civil society). Furthermore, RESILIM will develop partnerships with private sector entities in order to leverage USAID resources, and to expand impact. The extensive networks and members of RESILIM's Consortium Partners will further enhance the depth and spread of partnerships to be developed, and a mechanism through which to engage with, and coordinate activities of, these partners will be developed.

Finally, RESILIM will place particular emphasis on collaboration (joint workshops, seminars, training sessions, basin tours, etc., where each project could contribute to and cost share) with regional USG organs (US Embassies, relevant USAID programs and personnel), with other USAID-supported projects (such as SAREP, FEWS NET) and with USAID-supported organizations (such as the Council for Scientific and Industrial Research; the Wildlife and Environment Society of South Africa; and the Institute of Natural Resources) – all with a view to enhancing the delivery of RESILIM in a manner that responds to local/regional needs, with a high level of impact, and in a sustainable manner.

The elements of the PPP strategy are presented below:

1. Plan for robust and effective partnerships and alliances with regional, national and local institutions
 - a. Develop and maintain partnerships and alliances across all sectors (public, private, community and civil society)
 - b. Illustrative Approach:

Institution/Sector	Partnership/Alliance Approach	Expected Results
LIMCOM (Secretariat, Technical Task Teams, Commissioners)	Capacity Building -Involve in work planning; -Provide technical support;	Ownership of RESILIM Increased Capacity
Trans-frontier Conservation Areas	Link to trans-boundary IWRM -Provide technical support	TFCA participation in IWRM
SADC (Water Sector, Climate Services, FANR)	Link to USG-SADC agreement -Share planning and progress	SADC policies informed

National (Provincial) Government Ministries (Environment, Water, Science and Technology)	T-IWRM and Capacity Building -Involve in work planning -Provide technical support -Share progress, results	Improved capacity to engage in T-IWRM policy and practice
National Parks and Conservation Agencies	Link to trans-boundary IWRM -Involve in work planning -Provide technical support -Share progress, results	IWRM in protected areas enabled
Catchment Management Agencies	Provide technical support -Share progress, results	IWRM practice improved
Academic and Research institutions	Share progress, results -engage through grants	IWRM Science and technology enhanced
Civil Society and Community Based Organizations	Share progress, results -engage through grants	Increased participation in IWRM
International Cooperation Partners	Support programs' coordination -Share progress, results	Resource efficiency maximized
Private Sector	Mobilize resources Share progress, results	Resources leveraged

2. Plan for partnerships with private sector entities that leverage USAID resources to expand impact
 - a. Development of a framework for PPP identification, structuring
 - b. Facilitate platforms for dialogue and engagement
 - c. Structure and support implementation of specific PPP projects
3. Roles and expertise of key partners
 - a. Technical expertise cross-cuts all RESILIM components
 - b. Experience of programs and projects throughout the basin
 - c. Existing networks and members
4. Approach to coordination of alliances and partnerships (multi-pronged)
 - a. Agreements to define key relationships
 - b. Steering mechanism to coordinate with donors
 - c. Leverage existing networks to access local knowledge/expertise
 - d. Coordinating committee with key partners
5. Approach to identifying additional partners
 - a. Use GWP, IUCN, OW networks and members
 - b. Regular meetings with private sector chambers and associations
 - c. Regular meetings with US Embassy foreign commercial service officers
 - d. Engage USAID Southern Africa Regional Alliance Builder

6. Mechanisms for coordination with USAID Cooperative Agreement
 - a. Regular information-sharing meetings with CA consortium
 - b. Regular reference to Integrated Results Framework
 - c. Alignment of work plans and activities
 - d. Collective adaptive management