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The Association for Water and Rural Development

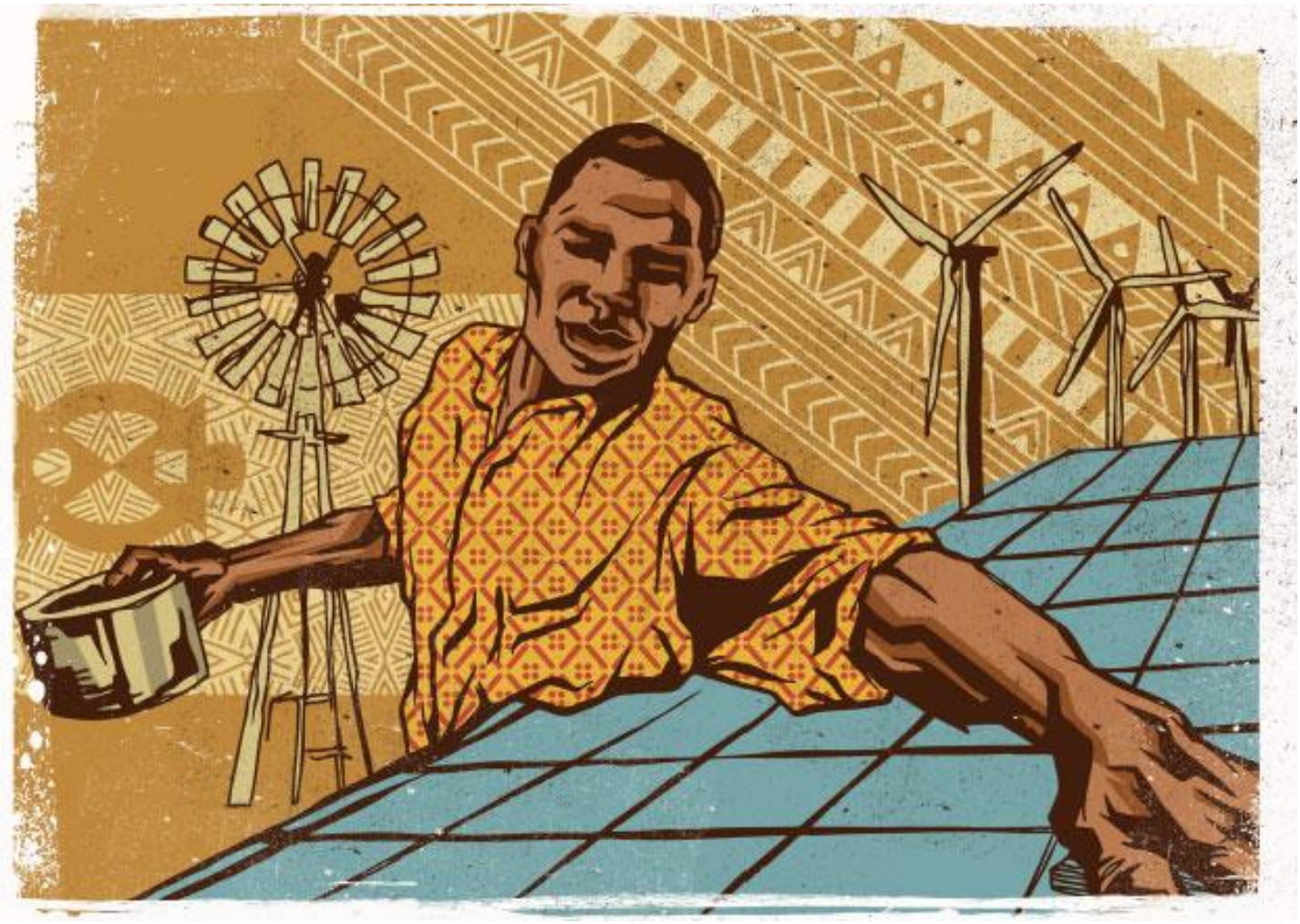
October 2014 – September 2015

Annual Report

Resilience in the Limpopo Basin - Olifants

RESILIM-O

Association for Water and Rural Development



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ACRONYMS AND ABBREVIATIONS

ARC	Agricultural Research Council
AHEAD	Animal Health for Environment and Development
AWARD	Association for Water and Rural Development
BD	Biodiversity
BSP	Biodiversity Social Projects
CC	Climate Change
CLDs	Causal Loop Diagrams
CMA	Catchment Management Agency
CME	Compliance, Monitoring and Enforcement
CMFs	Catchment Management Forum
CMS	Catchment Management Strategies
CHAT	Cultural Historical Activity Theory
CRO-OC	Crocodile Operations Committee
CBNRM	Community Based Natural Resource Management
DAFF	Department of Agriculture, Forestry and Fisheries
DCAs	Damage Causing Animals
DEA	Department of Environmental Affairs
DNA	Deoxyribonucleic Acid
DMR	Department of Minerals and Resources
DRR	Disaster Risk Reduction
DPSIR	Drivers, Pressure, State, Impact, Responses
DRIFT	Downstream Response to Imposed Flow Transformation
DWAS	Department of Water Affairs and Sanitation
ES	Ecosystem Services
EDRR	Early Detection and Rapid Response (programme dealing with invasive alien species)
EMP	Environmental Management Plan
EMPRs	Environmental Monitoring Programme Reports
EPIP	Environmental Protection and Infrastructure Programme
EWRs	Environmental Water Requirements
FDCS	Flow Duration Curves GEF
GEF	Global Environment Facility
GLTFCA	Great Limpopo Transfrontier Conservation Area
ICM	Integrated Catchment Management
IHA	Indicators of Hydrologic Alterations
IBCF	Integrated Biodiversity Conservation Framework
ICMA	Inkomati Catchment Management Agency
IUCMA	Inkomati Usutu Catchment Management Agency
IDP	Integrated Development Plan
INRM	Integrated Natural Resource Management
IWRM	Integrated Water Resource Management
IWQMS	Integrated Water Quality Management System
K2C	Kruger to Canyons
LED	Local Economic Development
LEDET	Limpopo Economic Development, Environment and Tourism
LIMCOM	Limpopo Commission
M&E	Monitoring &Evaluation
MaB	Man and Biosphere
MERL	Monitoring, Evaluation, Reporting & Learning
MTPA	Mpumalanga Tourism and Parks Agency
MICOA	Ministério para a Coordenação da Acção Ambiental
NGO	Non-governmental Organisation
NEMA	National Environmental Management Act
NEMBA	National Environmental Management: Biodiversity Act
NEMPA	National Environmental Management: Protected Areas Act
NRM	Natural Resource Management

NRMPs	Natural Resource Management Programmes
ORB	Olifants River Basin
ORC	Olifants River Catchment
ORF	Olifants River Forum
OLLI	Olifants. Luvuvhu, Letaba, Inkomati
OCMA	Olifants Catchment Management Agency
OLCMA	Olifants-Letaba Catchment Management Agency
ORB- SES	Olifants River Basin Social-Ecological System
PA	Protected Area
PIR	Performance Indicator Reference
PMP	Performance Management Plan
RESILIM-O	Resilience in the Limpopo Basin - Olifants Sub-catchment
RESILIM-B	Resilience in the Limpopo Basin
RHP	River Health Programme
RLN	Resilience Learning Network
RQO	Resource Quality Objectives
REMP	River Eco status Monitoring Programme
SA	South Africa
SDF	Spatial Development Framework
SANBI	South African National Biodiversity Institute
SANParks	South African National Parks
SAEON	South African Environmental Observatory Network
SAPECS	South African Program on Ecosystem Change and Society
SAWC	South African Wildlife College
SES	Social-Ecological System
SEWRs	Social Environmental and Water Requirements
SH	Stakeholder(s)
SO	Sub-Objective
SP	Species
UP	University of Pretoria
USAID	United States agency for International Development
VSTEEP	Values, Social, Technical, Ecological, Economic, Political
WatRES	Water Related Ecosystem Services
WfA	Water for Africa
WfW	Working for Water
WITS	Witwatersrand University
WP	Workpackage
WQ	Water Quality
IWRM	Integrated Water Resource Management
WUA	Water User Association
WCDM	Water Conservation and Demand Management
WWTW	Waste Water Treatment Works

EXECUTIVE SUMMARY

This Report covers RESILIM-O's Implementation Period from October 1st 2014 to September 30th 2015. It has been written to fulfil the requirements of the Cooperative Agreement between AWARD and USAID Southern Africa. The report provides an overview of project activities undertaken, quantitative and qualitative results, a measure of impact using baseline data and indicators established for the program and discussions on overall performance of the program.

The RESILIM-Olifants programme is implemented through a cooperative agreement between the Association for Water & Rural Development (AWARD), a non-profit organisation based in the Olifants River Catchment and USAID Southern Africa. This annual report covers the period October 2014 to September 2015.

The goal of this five-year programme is to reduce vulnerability and enhance the resilience of its people and ecosystems through improved transboundary governance and management of the Olifants Catchment by adopting **systemic and social learning approaches.**

This systemic, social learning approach is an innovation of the programme and underscores the need for building a holistic (systemic) understanding of the catchment together with stakeholders, so that they can act as custodians of the basin they live in and to do this in a way that builds the collective competency for such custodianship. This requires us to think less about "projects" and more about how people learn – and adapt - in a rapidly changing world, particularly under climate change.

RESILIM-Olifants commissioned a series of studies from a number of specialist institutions and consultancies that have the skills and competences to analyse and synthesise decades of research linked to the Limpopo Basin and the Olifants Catchment. In keeping with the design of the RESILIM-O program, this report, captures and summarises the ground work undertaken to better improve our understanding of the Olifants Catchment. It is the basis upon which Phase II of the program will be built.

The programme worked in partnership with a variety of stakeholders in the Olifants River Catchment (ORC) spanning grass roots and civil society organisations, government, sectoral representatives and transboundary organisations. In this reporting period we have engaged with 73 informal and formal organisation including government and academic institutions. The engagement was done through the use of 2 WatRES, 7 VSTEEPS and 2 Risk Assessments. Most of our engagements have been within South Africa but this is set to expand into Mozambique as our work there gears up through our new Mozambican partnership with Verde-Azul.

As we look towards the second and final phase of this project, we initiated the conceptualisation of flagship or legacy projects which will focus on the RESILIM-O work after project closure. This legacy project is moving towards a feasibility phase is that of the Lower Olifants EcoPark (initial name- will be changed). The EcoPark concept is to give practical meaning to the RESILIM-O goal and associated focus areas. This is to be addressed through systemic, participatory approach that comprises of nested bungle of activities which collectively addresses biodiversity conservation, water security, and climate adaption towards more resilient catchment and livelihoods.

RESILIENCE-BUILDING HIGHLIGHTS

Collaborative assessment of risks

We have understood that building resilience, or the competency to plan for uncertainty and to adapt to change, requires ongoing transformative processes; in other words, working with people in a way that responds to their concerns whilst ensuring that critical elements of 'formal' science and specialist knowledge are incorporated. In Phase 1 (2013 -2015) we focused on building a collective and holistic understanding of risk and vulnerability as the basis for plans and actions that are responsive to context. Thus as Phase 1 draws to a close, we reflect on the highlights of this collaborative assessment as the foundation for the resilience-building process of Phase II. These have included:

- The first holistic overviews and database of the status quo of natural resources of the ORC which includes foci on protected and conservation areas and their management in the ORC; integrated spatial prioritization of areas important for biodiversity conservation and natural resource management; bio-physical aspects of climate change resilience, water quality and quantity profiles for the Olifants River and its tributaries. These include specific threat assessments for terrestrial and aquatic biodiversity (key focus areas for biodiversity conservation and natural resource management within the Olifants catchment)
- The first holistic overviews and databases that exist in South Africa of some of the key drivers of change within the Olifants Basin including mining, waste-water treatment works and land reform, and climate change (the first synthesis of climate change predictions and scenarios for the ORC as a whole including the potential impacts on water resources).
- The first holistic overview of the direct dependencies of vulnerable people of the ORC on local ecosystem services to meet their livelihood needs and the potential impacts on health.
- The first attempts to support more integrated approaches to natural resources management in the catchment through various frameworks, tools and approaches. Some examples include a model for integrated water resources management, and a framework for integrated landscape-scale restoration projects.
- A systemic analysis of non-compliance with key benchmarks (e.g. flow, water quality) that are intended to secure the integrity of natural resources.
- The first overview of risks that people experience in relation to water and biodiversity within the ORC (SA), and in particular a review of the potential impacts on human well-being.
- The first, and to our knowledge, the only attempt at involving stakeholders and residents in the development of resilience-building plans that take into account their perceived and lived experience of risk which are considered together with inputs from specialist studies.
- Detailed assessments of key practices (such as water management and biodiversity management) that mediate the relationship between threats, risks and the natural resources.
- The design of an M&E system – known as MERL- that tracks qualitative and quantitative data of ongoing learning and that is being used to reflect and adapt programmatic direction and initiatives.

Key threats to biodiversity, water and livelihoods

It is clear from the collaboratively-developed view of the ORC that some threats are catchment-wide whilst others are locally specific. Climate change undoubtedly poses a key threat across the basin with predicted temperature increases impacting on water security in very real and challenging ways. Extreme events are also predicted to increase highlighting the urgent need for climate change adaptation.

Whilst the picture varies from region to region (sub-catchments), the contextual history is starkly evident in the former Bantustans where poverty, unemployment, lack of services, poor education and the clearing of land are commonplace. As an integrator across the landscape, the health of the rivers (and the biodiversity elements associated with these), as indicated by major changes in flow and extremely poor water quality in many areas, is concerning. Catchment-scale drivers that are evident

include mining, land reform and waste-water treatment plants. Ecosystem restoration work in some areas is also changing the landscape although un-coordinated work poses a key risk. Other frequently cited threats include population growth, poor waste management (especially nappies in riverine areas), agricultural expansion and water use, alien invasive species, and lack of access to and the use of natural resources by large sections of the population, as well as stalled co-management processes for the management of protected areas under land claim.

Understanding risk through key partnerships

RESILIM-O now has a well-grounded, systemic overview of large parts of the catchment. This overview has been developed through evidence-based data and analysis combined with inputs from residents and stakeholders. As a result, AWARD is now in a much better position to provide considered support for meaningful resilience plans. Foundational for these, to be initiated as the core focus, are the various partnerships which have been established. Some examples of collaborative work through which the potential for improving large areas for biodiversity (numbers of ha) and climate change adaptation (improved capacity) in Phase II are outlined below.

Partnerships with government:

- Within the Department of Water & Sanitation (DWS) we have significantly influenced the development of a management system that integrates water quality with quantity, to support a rapid responsive management system which will stand them in good stead for all forms of change. This includes a real-time monitoring system. Moreover we are supporting DWS in setting up appropriate forums for stakeholder collaboration.
- We have developed an initiative with multiple Natural Resource Management Programmes within the Department of Environmental Affairs, Department of Agriculture, Forestry and Fisheries, and provincial conservation agencies to support the development of coordinated and integrated ecosystem restoration efforts in support of biodiversity conservation and ecosystem based (CC) adaptation.
- We have supported provincial government – both Limpopo and Mpumalanga – in terms of: preparing climate change adaptation plans; fostering support for co-management initiatives for protected areas under land claims between claimant communities and provincial conservation departments; supporting collaborative initiatives involving NGOs and private partners along with provincial departments aimed at improving protected area management, developing biodiversity stewardship together with securing the legal status of conservation areas
- We have recently initiated a Municipal Support Initiative with district and local municipalities to address water security, climate change adaptation, land-use planning and waste-water treatment management. We have supported Maruleng Local Municipality to develop their most recent Spatial Development Framework, specifically in terms of the inclusion of environmental and biodiversity aspects.

With residents and stakeholders

- Through use of WatRES, VSTEEP and Risk Assessments we have engaged in an ongoing collaborative inquiry process which involved understanding the catchment, key risks and possible responses.
- A citizen-science initiative for monitoring river health which involved ten protected areas.
- Support to civil society mobilization regarding mining affected communities.
- A media campaign associated with the *Olifants Catchment* including media, events days and social media and now a web-page known as Our Olifants (http://www.ourolifants.org/).
- A functional programme for engaging young professionals in Learnerships in collaboration with SANBI *Groen Sebenza*.

Partnerships with scientific peers

- AWARD interacted regularly with scientific and research organisations such as the WRC, Wits, UCT (CSAG), Rhodes, University of Helsinki, Open University, SAPECS and the Land Reform and Biodiversity Initiative as well as giving various papers such as at the African Water Symposium and Climate Change Conference (pre-COP meeting in Paris). Such participation and interaction

is seen as critical as these not only sharpen our own "scientific edge" but also helps to spreads ideas. This is particularly effective when we are part of reference groups, steering committees and organising committees.

With AWARD's stakeholder-based approach, RESILIM-O has had some "early successes". For example, subsequent to our collaborative risk assessment engagement in the village of Penge (in the platinum-mining belt) where residents identified risks and potential actions, efforts were made by the residents to secure a small waste-removal system. Although the municipal side of the agreement has not been upheld, local action such as this holds potential to move forward. The community has also contacted the Department of Water and Sanitation (DWS) to request involvement in the new Catchment Management Agency (CMA). In Phalaborwa, the municipality is in the process of signing a Memorandum of Understanding (MOU) that includes plans to work on improved waste-water management, compliance with standards, climate change adaptation strategies and land-use planning. Likewise, other municipalities have agreed to work on similar issues. With respect to co-management agreements, the land claim beneficiaries or Communal Property Associations (CPAs) have formally requested support from AWARD to ensure balancing protected area management with beneficiation. A number of protected area reserves have contacted AWARD to ensure that they are included in the biomonitoring initiative for the Olifants River which is designed to build local custodianship. This covers some 400 km of river frontage that will be under better management. Likewise, through constant engagement the mining complex in Phalaborwa is starting to consider better mitigation options to avoid disasters of the types reported in 2014. Again in terms of water resources protection, the DWS has now included the Ga-Selati as a case study within the national integrated water quality management system that is being developed. On a somewhat unexpected note, the Airforce Military Base in Hoedspruit has actively engaged AWARD and requested that we plan with them for disaster planning and action, especially regarding floods and droughts.

1. INTRODUCTION

AWARD, through RESILIM-O as funded by USAID Southern Africa recognises that the natural world's resources are limited and undergoing rapid depletion and transformation. We know current practices of use and management are inadequate to deal with the changes and challenges we are facing. Our approach has always been one that involves thinking across disciplines, boundaries and systems drawing on social learning and systems thinking. We have a record of designing practical interventions to address the vulnerability of people and ecosystems, and merge considerations from both environmental and social perspectives.

The key principles that govern the RESILIM-O) project are as follows:

> ***Working with People:*** Our work involves understanding the complex network of stakeholders in the Olifants catchment and the practices they engage in. This means understanding the spectrum of institutions, industries, land-uses, cultural identities and ideas of agency.
>
> ***Understanding Context:*** We work with people from different constituencies to be able to collaboratively build a shared picture of the catchment. This helps people to self-organise and respond to the changing context of the catchment, especially given challenges such as climate change.
>
> ***Building a Resilience Learning Network:*** We are developing the capacity of individuals and organisations to respond to the challenges of climate change by building a resilience learning network. A strong network is more likely to be able to respond appropriately to threats and risks and work cooperatively.
>
> ***Specialist Studies:*** In addition to working with people and understanding their context, we have commissioned a series of studies from specialist institutes that can analyse and synthesise decades of research linked to the Limpopo Basin and Olifants Catchment.

In terms of design, RESILIM-O comprises two phases focused on resilience building. The end of 2015 sees the end of Phase 1 of the programme.

Phase 1: Contextual understanding, synthesis, research, development and identification of areas of application. (2014-2015)

This phase has had a strong focus on a systemic and collaborative enquiry into the resilience of the Olifants Basin as a socio-ecological system (SES) so as to understand the multiple vulnerabilities to climate[1] change and other drivers of change. We have built strategic networks as the basis for a collaborative, participatory understanding of vulnerability for the basin as a whole. Moreover, although much work has been done in the Olifants River Basin (Olifants Catchment), a synthesis is underway in order to build a systemic understanding of vulnerability. This process has and will continue to highlight critical 'research' gaps and hence focused research will be undertaken to complement the systemic understanding. Phase 1 has laid the foundation for resilience planning and action with multiple and diverse stakeholders.

Phase II: Innovation, testing, embedding and institutionalizing of resilience-based practices for systemic management and governance (2015-2017)

Phase II is designed to take the outputs of Phase 1 into action through testing, reflexive learning and hence institutionalization. The proposed model is to work with a spectrum of stakeholders and partners that form the Resilience Learning Network (RLN) (explained in the results report section). Institutionalization refers to a process where adaptive and reflexive practices that support governance responses to the major anticipated changes associated with (climate) change are part and parcel of the 'routine way of working'. This is envisaged across multiple and diverse groups and organisations. Additionally Phase II will develop capacity and skills through engaging NGOs and civil-society organizations in the **sub-grants programme** with training and oversight support provided by AWARD. Phase II of RESILIM-O will ultimately close

[1] Whilst RESILIM-O has a strong focus on climate change as a major drivers, it also recognizes other critical environmental drivers of change in the ORB which are fundamentally shaping the system and which, like climate change, require adaptive, reflexive and systemic forms of practice and governance

with a collaborative evaluation on experiences for building resilience in the southern African region.

2. BACKGROUND

The Olifants River ceased flowing for a number of days in 2005 prompting widespread concern and calls for an integrated focus on all of the easterly-flowing rivers of the Lowveld of South Africa. The Olifants catchment is a particular concern given that its heavy rainfalls make it the largest contributor to the transboundary Limpopo Basin. Despite the enabling legislative framework for water reform in South Africa since 1998, the integrity of most rivers in this catchment continues to degrade both in terms of quality and quantity. Given that all these rivers form part of international systems the implications are of wider significance than for South Africa alone. This ongoing degradation is caused by a complex interaction of factors that vary for different parts of the catchment and along the length of the river. Key drivers include rapid growth in mining, irrigated agriculture and various industries, coupled with weak governance, regulation and enforcement which, when combined with the threat of climate change, rural poverty and food insecurity particularly in Mozambique, threatens to cause widespread livelihood vulnerability, environmental degradation and intensifying conflict over resources.

Our Olifants River Basin

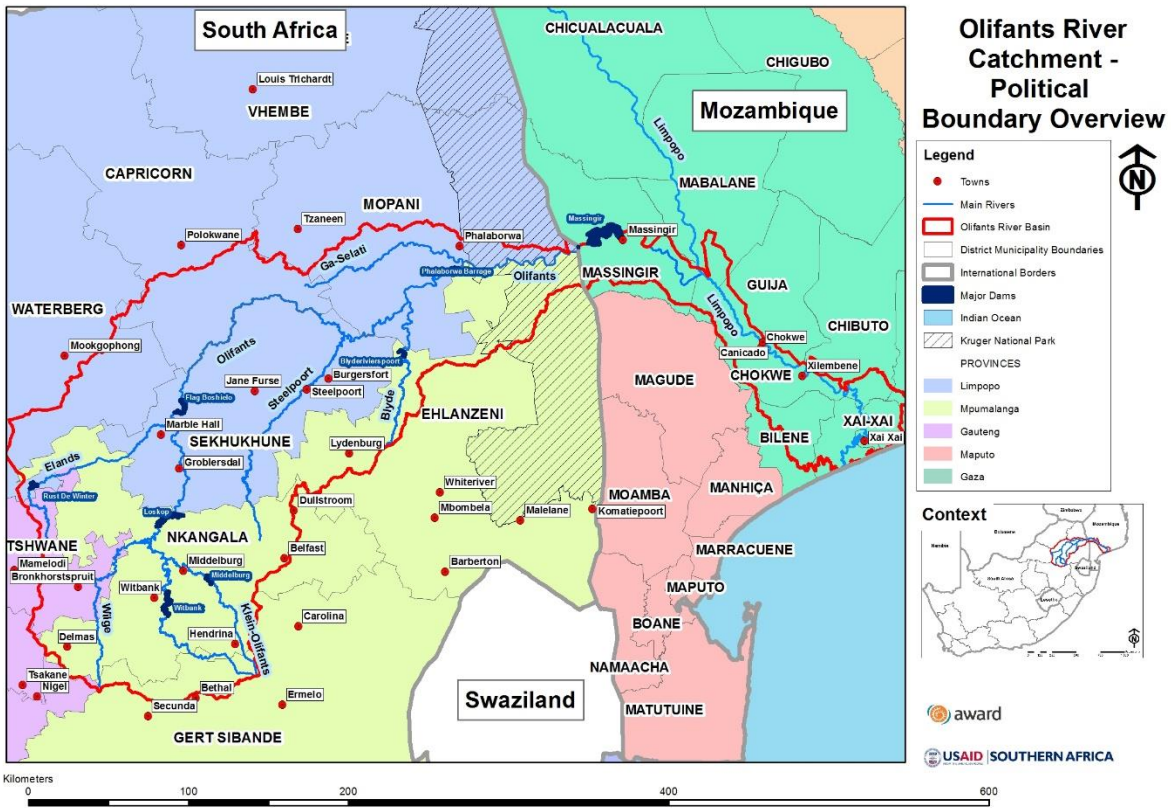


Figure 1: Map of the Olifants River Basin showing major sub-catchments.

Resilience

Using a resilience thinking approach we have investigated how the interacting systems of people and nature can best be managed in the face of disturbances, surprises and uncertainty. We defined resilience as the capacity of a system, be it an individual, a forest, a city or an economy, to deal with change and continue to develop. In the context of the project we see it as people's ability to prepare for and respond successfully to challenges, in this case challenges related to water, biodiversity and climate change in the Olifants River catchment.

In Phase 1 we have also appreciated that resilience building cannot be the responsibility of one organisation or sector. Thus we will be working collaboratively to achieve at least a basic level of preparedness that will enable people and businesses of the Olifants catchment to deal with the uncertainties of the future. To this end we are working towards generating interest and commitment from a range of partners for the purposes of resilience building in the Olifants catchment. Potential

partners include a number of sectors, government departments and institutions in South Africa as well as Mozambique. In Phase 1 the RESILIM-O project has initiated engagement of various partners and stakeholders in the Olifants section of the Limpopo Basin in order to explore ways of building resilience in respect of water, biodiversity and livelihoods security.

3. BUILDING EVIDENCE OF PROJECT PROGRESS AND IMPACT

Theory of change for the project is that diverse threats in a complex system need diverse responses from diverse stakeholders whose agency may change. Below is the project Theory of Change.

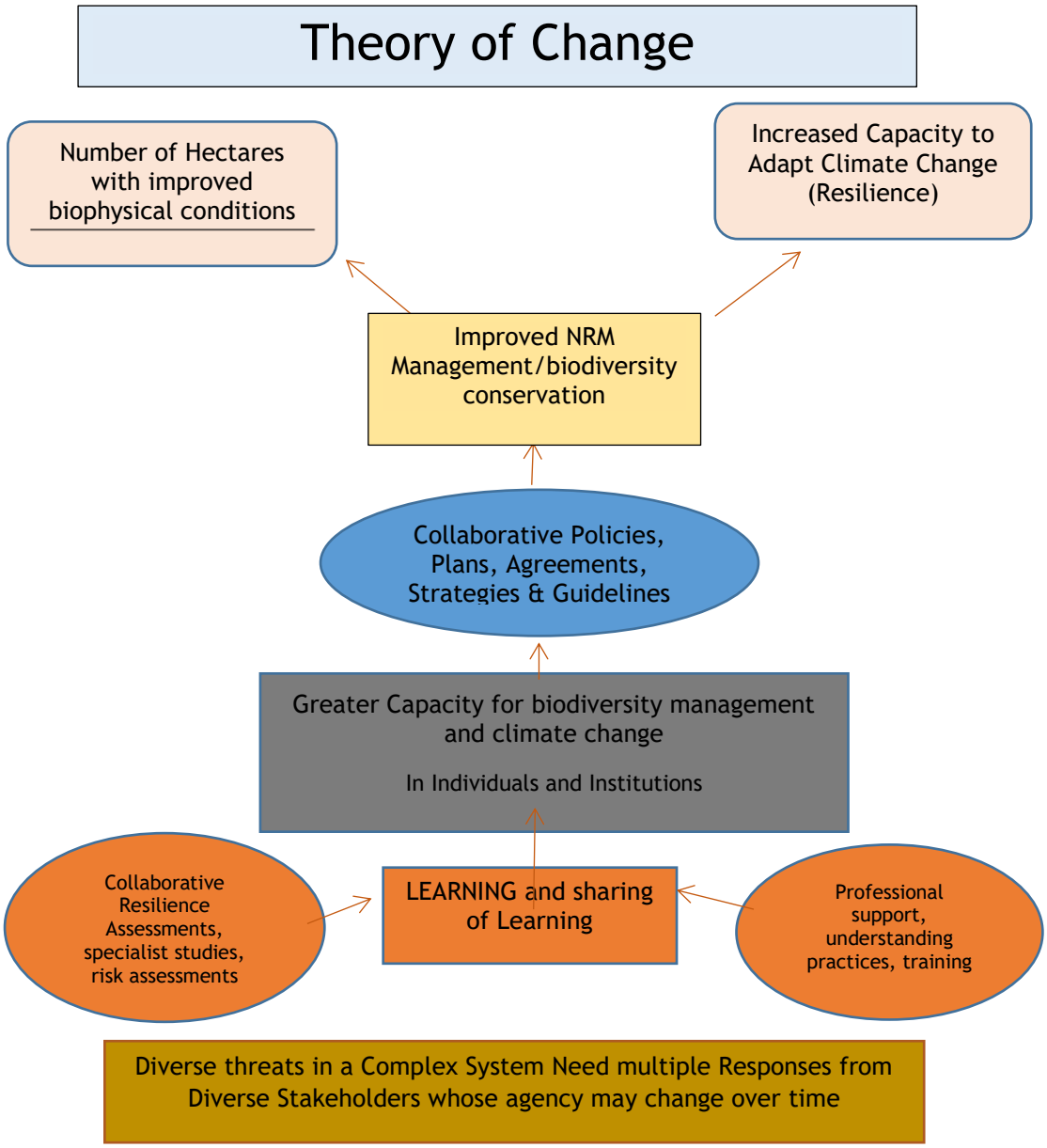


Figure 2: Representation of evidence-building and how it supports the theory of change

3.1 Development of an integrated, coherent systemic approach to climate change resilience and basin management

In respect of Phase 1, AWARD's efforts have focused on integrating both specialist and stakeholder data and information to develop a systemic picture of risk and vulnerability in the Olifants River Catchment (ORC). This has involved co-ordinating thematic specialist work, stakeholder engagement processes and progress of the Social-Ecological System (SES) working group. Through this SES working group, a systemic picture of risk to natural resources has been, and is continuing to be developed. Based on initial data analysis in June 2015, the team decided to focus efforts on completing the detailed collaborative risk analysis in three priority areas, namely Sekhukhuneland, Ga-Selati, and Blyde into lower Olifants. A Mozambican site will constitute the fourth area. The outputs are currently being analysed and collaboratively developed into resilience plans for action. This is a joint process that includes stakeholders drawn from the geographic areas in which the resilience plans are intended for. This has also required planning for and thinking into project-based activities for Phase II starting next year. The work has also focused on orientating the Mozambican team; Verde Azul, to the systemic, social learning process.

To develop, test and institutionalise an integrated systemic resilience approach as the basis for transforming NRM governance and practices towards a more resilient ORB

Tenable, systemic and multi-scaled (climate) risk adaptation strategies and practices have been developed and institutionalised through reflective and collaborative processes, so as to contribute to a more resilient Olifants catchment

RESILIM-O and its strategic partners now has a well-grounded, systemic overview of large parts of the catchment. This overview has been developed through evidence-based data and analyses combined with inputs from residents and stakeholders.

Key to this approach has been the development of a systemic understanding of the catchment and practices around natural resources as well as the ongoing commitment to stakeholder-centred processes. The development of a collaborative systemic picture of threats, risks and vulnerability has been foundational for our work on resilience planning. As a result, RESILIM-O and partners are now in a much better position to provide considered support for meaningful resilience plans than had we simply started on these after a rapid, desk-top assessment in 2012-13.

The commitment to a stakeholder-centred approach has revolved mainly around the Resilience Assessment Process which allows people to engage with complex information in an ongoing manner and not as a once-off process which is so often the norm. Through this approach, we are able to reflect both the perceived and lived realities of risk and vulnerability, as well as the threats and risks that have been identified by our, and other, research. The emphasis on both ***understanding*** and ***engaging*** is foundational for stakeholder collaboration in the co-construction of potential mitigation plans. Importantly, these resilience plans will be conceptualised as key ways of thinking and acting that will be embedded in current plans. Influencing and supporting the planning process and actions from these in this way, is for AWARD, the essence of ***institutionalisation***. Thus for example, working with the municipalities to consider and embed biodiversity in their land-use plans, IWRM in their water-services development plans, and climate change into their disaster and risk reduction plans and their integrated

development plans (IDP) as a whole illustrates this process of institutionalisation. How this unfolds in practice also needs careful support.

"I didn't know that the Olifants crosses the Mozambican border, therefore *I should monitor the Olifants where I am* because I can see that it provides us with many things such as fish and clean water for drinking."

Seenane Gredia, Finale

A systemic, stakeholder-centred Resilience Assessment Process (RAP)

The RAP stakeholder process has already catalyzed some actions by stakeholders and these will continue to be built on. Overall, the findings from the RAP indicate that RESILIM-O needs to work with climate-change as part of the 'bundle of threats' that are talked about and experienced by people. Efforts will focus on support for resilience-building plans and action at multiple scales and actors since these need to be responsive to the aforementioned contexts and realities. In other words, rather than developing new, stand-alone resilience plans, where possible and tenable, actions will be embedded within existing plans.

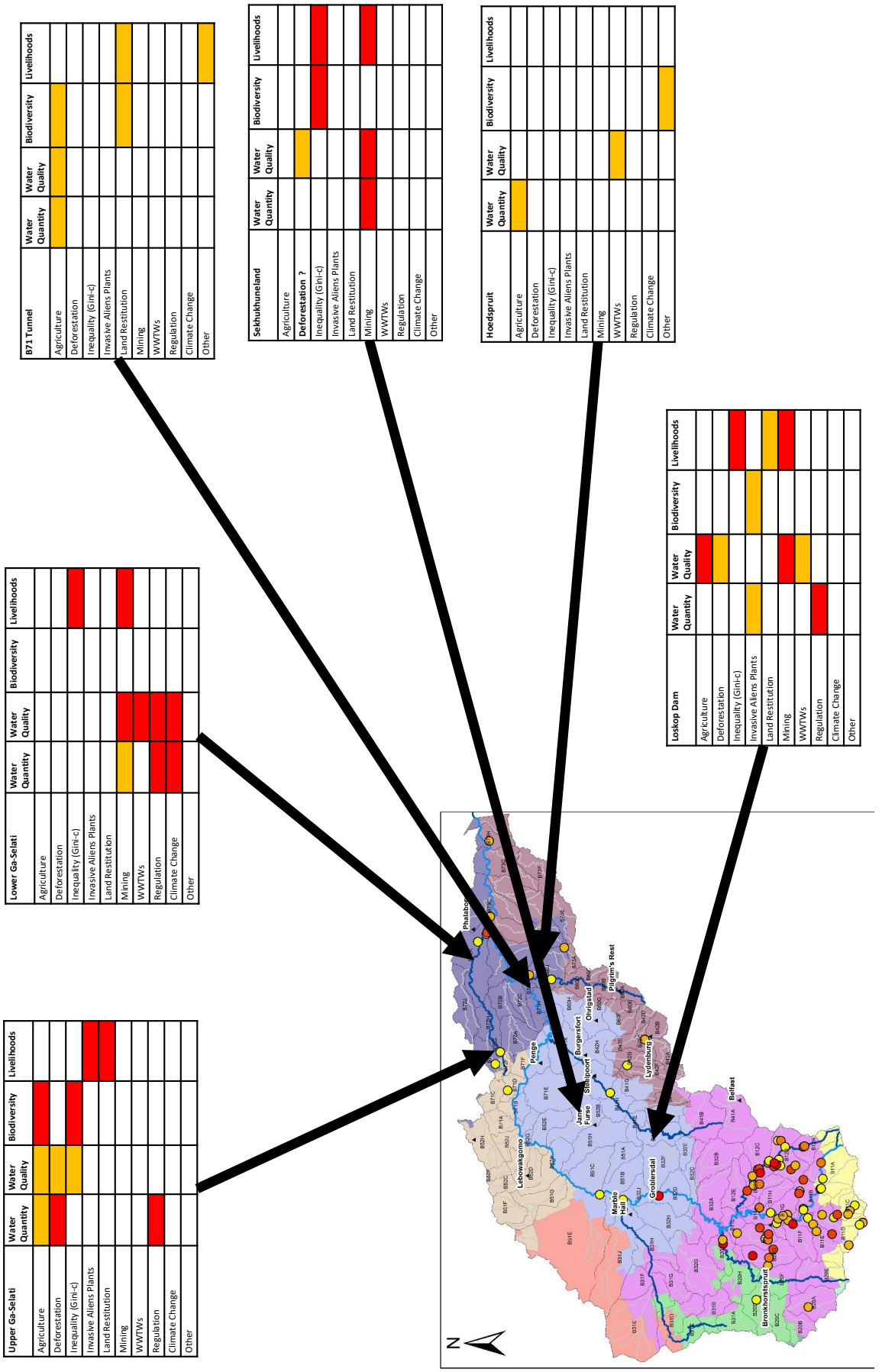


Figure 3 Results from collaborative risk assessments conducted with stakeholders at various sites in the catchment

Feasibility study for climate change adaptation

RESILIM-O's work has focused on the selection of appropriate climate scenarios for use in the Resilience Assessment Process (RAP including scenario development) and for the communication strategy (based on recommendations and tools that have been tested elsewhere and bearing in mind the specific needs of stakeholders). This has involved the selection of appropriate (a) representative concentration pathways (RCPs)[2] and (b) Global Climate Models (GDMs)[3]. This work is supported through the services of the Climate System Analysis Group (CSAG) based at the University of Cape.

AWARD plans to complete RAP for the Ga-Selati and the communication strategy by March 2016. The outputs from the scenario development work and communication strategy will be put to use in resilience planning with stakeholders and the capacity building component of the Municipal Support Initiative (MSI). There are contextual RAPs that are applied in different targeted areas of the catchment which will culminate into one RAP report of the entire catchment.

Synthesis of climate change adaptation strategies and plans, globally and within South Africa and Mozambique

Existing adaptation strategies and particularly those in South Africa and Mozambique were examined[4] to facilitate the development of adaptation plans. Globally, nations have proposed adaptation strategies by sectors: water, agriculture, coastal and marine ecosystems, terrestrial ecosystems, disaster management, energy, health, tourism and infrastructure. Only a small portion of the strategies are cross-sectoral. Climate change projects with the ORC were also reviewed to facilitate the development of adaptation plans by identifying potential opportunities and lessons learned.

The project will engage with key areas of national efforts in South Africa. These are:

- The National Climate Change Response Policy (NCCRP) provides a policy framework for adaptation.
- National departments such as Department of Agriculture, Forestry and Fisheries (DAFF), Department of Environmental Affairs (DEA) and Department of Water and Sanitation (DWS), contribute to adaptation through their own existing programs such as Landcare, Expanded Public Work Programme (EPWP) and Water Conservation and Demand Management (WCDM).
- Provinces are in the process of developing their own adaptation plans (Error! Reference source ot found.), but such planning process has largely not reached the local government.
- Participatory risk assessments have been started in a number of areas under the RAP process (see earlier). These stakeholder engagements which aim to collaboratively develop resilience plans will continue to the first quarter in 2015/16 in three priority areas and in Mozambique. In light of the fact that we are developing the resilience plans collaboratively with our stakeholders, we cannot dictate exactly what each plan will constitute. However, the threats and risks that were collaboratively identified with the stakeholders highlight potential areas for resilience planning. For example, we will work with disaster managers, other governmental officers and community representatives to collaboratively develop a capacity building program to assist them incorporate climate change and systems thinking into their disaster management. Often, adaptation is an additional dimension in management planning and not a stand-alone intervention. Therefore, we will seek to integrate climate change resilience into all of the action planning for Phase II. We will use the communication strategy and tools to effectively communicate climate risks with the stakeholders as well as facilitate integration of these risks into their planning.

Exploring scenarios: Development of a systemic, visual platform

RESILIM-O initiated a system dynamics modelling (SDM) having considered this to be an effective way to work with stakeholders to build better understandings of systemic relationships and feedbacks and as a way of assisting stakeholders to identify and explore levers of change within systems. Furthermore, the SDM process will be used in scenario development to explore how these system components may change in the face of climate change. The SDM process aims to develop a user-friendly interface that

[2] There are four RCPs, defined by cumulative amount of human emissions of greenhouse gases (GHGs) from all sources
[3] Obtain the downscaled climate projections including average maximum and minimum temperature and daily rainfall. Ten GCMs considered are: MIROC-ESM, CNRM-CM5, CanESM2, FGOALS-s2, BNU-ESM, MIROC5, GFDL-ESM2G, MIROC-ESM-CHEM, GFDL-ESM2M, and MRI-CGCM3.
[4] National Adaptation Programmes of Action[4] (NAPAs) and the National Communications[4] (NCs)

can represent scenarios to stakeholders. This work, which represents a major innovation for engaging stakeholders in climate change planning, will be tested in the Ga-Selati catchment and with national government stakeholders early 2016.

Mining as a key driver of environmental change and potential vulnerability in the ORC

The spatial scoping of mining in the ORC aimed to provide a better-informed picture of the spatial footprint of existing and emerging mines in the ORC. The work produced a snapshot of all mines in the ORC. Results showed that there are about 800 mines in the ORC. Figure 4 below includes operational, prospecting, abandoned and decommissioned mines.

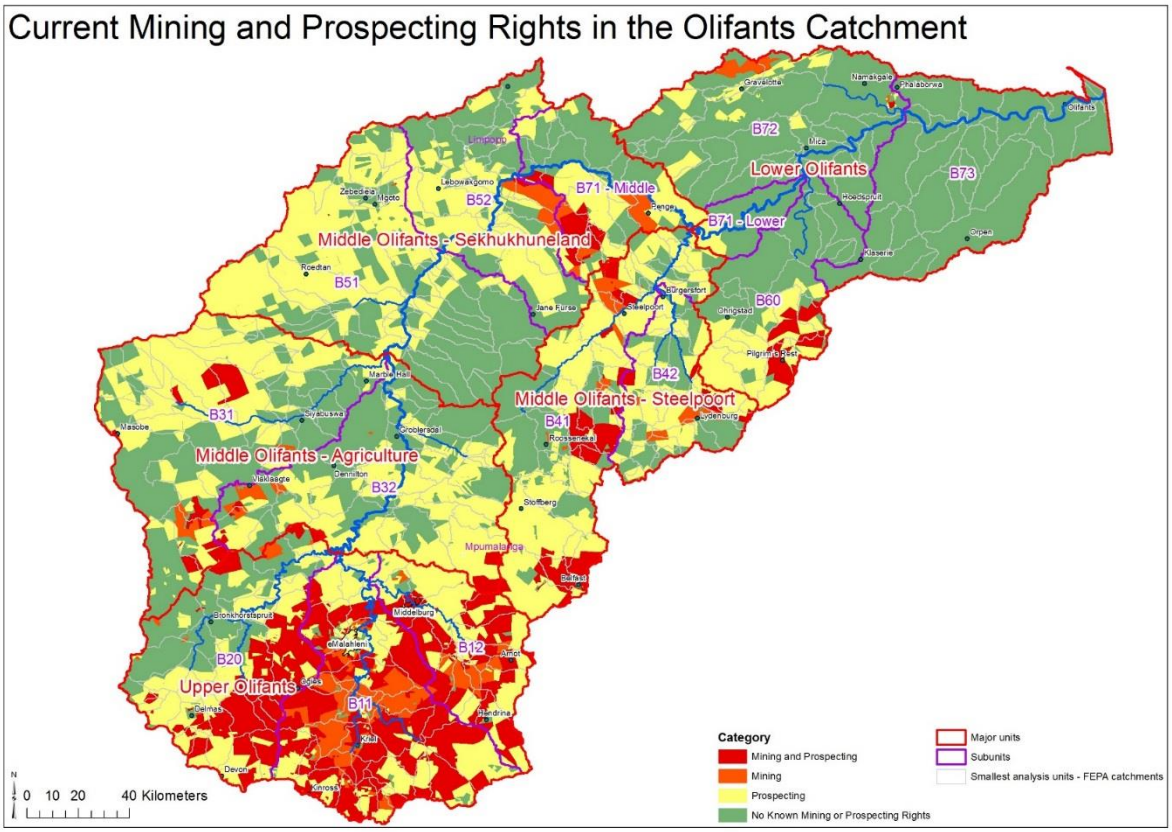


Figure 4: Summary of mining and prospecting rights in the South African section of the Olifants Catchment

The spatial footprint of mining in the ORC is quite scattered. The following is a summary of the main results.

- The major concentration of formal mines lies in the upper Olifants (mostly coal), the eastern Sekhukhune area (platinum belt) and in the Ga-Selati (northern lower Olifants area).
- Largescale informal sand mining is also taking place throughout the catchment, especially around rural areas where there is a large demand for building material.
- There are a large number of non-operational mines (i.e. abandoned mines) in the ORC. These are of great concern since majority of the mines have been shut down without proper plans for post-closure rehabilitation, and are therefore assumed to be possible sources of pollution to water resources in the ORC.
- Another emerging concern is that mining applications and operations have been rising on agricultural lands in the upper ORC (Mpumalanga), where some of the country's most fertile soils exist posing a potential threat to the country's food security.

RESILIM-O will be focusing on mining compliance guided by existing compliance-related legislation which is enforced through the Compliance Monitoring Enforcement (CME) process. RESILIM-O has been, and continues, to track both formal (e.g. court cases) and informal (e.g. protests) contestations

throughout the catchment to better understand the perceived threats and risks which collectively contribute to the RAP and action-plans emanating from this.

Tracking mining compliance has been difficult due to the lack of access to the mines and their data and any systematic information from government. The introduction of the One Environmental System in 2014 (under which the Department of Mineral Resources (DMR) to track compliance to environmental legislation) has created further confusion with regards to responsibilities and mandates within the mining compliance sphere. As a result of these challenges our compliance on the Phalaborwa mining complex has been delayed and therefore now projected to be completed in the next reporting period.

A database focusing on PMC's Water Use Licenses (WUL) has been developed, determining approximately 390 activities that have been licensed and that need to be monitored highlighting the daunting nature of trying to monitor compliance.

Scoping contestation to mining (sectoral and civil society responses)

With some 238 estimated active mines (AWARD internal report) mining is a major socio-economic activity in the ORC and is thus expected to benefit low income and rural communities residing close to mining operations. However this is generally not the case as vulnerable mining communities still live in poverty and often bear the impacts from mining, thereby undermining resilience. The long term dis-benefits of mining appear to outweigh the benefits. RESILIM-O has been and continues to track both formal (e.g. court cases) and informal (e.g. protests) contestations throughout the catchment to better understand the perceived threats and risks which collectively contribute to the RAP and action-plans emanating from this.

Some of the key findings are:

- Mines fail to consult with communities prior to commencement of their operations and throughout mining operations.
- Mines repeatedly fail to implement their Social Labor Plans and do not contribute to community development.
- There is a lack of transparent licensing process for mines by the Department of Mineral Resources (DMR) with adequate impact assessment studies. These licenses do not take the zoned land uses into consideration especially in the sensitive environments (protected area, strategic water source areas, wetlands, etc.).
- Mining licenses are frequently being authorized on fertile land for commercial agricultural production. This ultimately affects food security nationally and internationally.
- Mines pollute water resources through discharge of untreated industrial water and waste into the nearby streams.

- Air pollution has also been stated as a major concern by civil society organization and communities neighbouring industrial and mining areas. This is mainly attributed to non-compliance to air standards set out the National Environmental Management Air Quality Act (NEMAQA).

This work is likely to continue through collaborative efforts with key partners aimed at supporting community initiatives through information sharing and/or capacity development (more informed civil society) on mining related issues. The outcome is to ensure better compliance from the mining sector in terms of environmental and social and obligations.

Impacts and management of waste-water treatment works and collaborative plans for resilience building

The discharge of effluent from waste-water treatment works (WWTW) into the Olifants river poses a real threat to the system especially under certain climate change scenarios where the dilution potential of the river is compromised. The first systemic picture of waste-water treatment works (WWTW) in the ORC has emerged from AWARD's RESILIM work[5]. We now know that there are about 122 WWTW in the ORC: 61 state-run, 21 privately-owned and 40 for which there are no data. Only the latter are assessed through a national benchmarking system known as Green Drop. With most WWTW non- compliant and only two with Green Drop scores above 80 %, the potential impacts on water quality and in-stream biodiversity are high (i.e. on ecosystem services). RESILIM-O continues to work with the management of WWTW through the Municipal Support Initiative (MSI). In Phase II the project will attempt to provide a greater profile for the importance of waste-water management and support municipalities in the turn-around of dysfunctional WWTW.

The first systemic context of waste-water treatment plants (WWTP) in the ORC has emerged from AWARD's RESILIM work[6]. As a result AWARD has a better picture of the extent of how poor the waste water treatment plants are performing. This poor performance negatively affects the provision of water quantity and quality and in turn affects biodiversity. The OCMA is considering the systemic context provided for use in its own planning and decision making activities. In Phase II AWARD will focus on the poor performing waste water treatment plants as they are of high risk in the catchment.

Way forward

Efforts have now turned to Identifying and working with municipalities where WWTWs are performing poorly in terms of discharge effluent, and to learn from those that are doing well in order to improve effluent quality and hence water quality and resilience in the catchment. In a number of instances work has been slowed down by the municipal requirements for an MOU which has taken much longer than expected. The MOU will facilitate the formalisation of RESILIM-O's institutional capacity strengthening initiative in Phase II. The MOU will also aid the institutionalisation of technical assistance provided. Nonetheless project planning has continued so that interventions are being collaboratively-designed with WWTWs managers, municipal managers and relevant staff. Focus will be on detailed technical assessments and on capacity building to improve practices and management. The latter will build on a model known as the Green Drop Campaign that is being tested in the Inkomati and Vaal Catchments, first in the Ga-Selati. All work will all feed into (a) the Integrated Water Quality Management System and (b) broader efforts to support municipalities through the Municipal Support Initiative (MSI).

The table below (

[5] Current outputs include a literature review report that explains key concepts and practices associated with wastewater treatment and outlines wastewater management and governance in South Africa, a spatial database and a status quo performance description based on 2012/2013 Green Drop scores for wastewater treatment works in the South African portion of the Olifants Catchment.

[6] Current outputs include a literature review report that explains key concepts and practices associated with wastewater treatment and outlines wastewater management and governance in South Africa, a spatial database and a status quo performance description based on 2012/2013 Green Drop scores for wastewater treatment works in the South African portion of the Olifants Catchment.

Table 1) reflects a list of key outputs for the reporting period. These outputs provide the basis for understanding the contexts in which climate change adaptation will be applied.

Table 1: Summary table of key Outputs

Key output		
	Title	**Status**
Study		
1.	WWTW Study (*Overview of Practice and Status Quo Assessment*)	Complete
2.		
3. Frameworks		
4.	Framework for analysis of literature in human health and well-being	Complete
5. Strategies		
6.	WWTW & Water Quality Management Strategy	Complete
7. Databases		
8.	WWTW Database	Complete

3.2 SUPPORT FOR INTEGRATED WATER RESOURCES MANAGEMENT

What are we aiming for?

To enhance long-term water security and reduce (climate) vulnerability by supporting informed adaptation strategies and practices for systemic trans-boundary IWRM in the ORB.

What are we hoping to see?

Tenable, systemic and multi-scaled NRM governance arrangements and practices (IWRM and BD) have been developed and institutionalised through reflective and collaborative processes, so as to contribute to enhanced water and livelihood security for the ORB.

Support for institutional institutions

Central to building resilience and ensuring that climate change preparedness and responsivity is operationalised is the importance of finding the appropriate "institutional home" for such efforts. However progress with new institutional arrangements as intended by the National Water Act has been frustratingly slow and behind schedule but now appears to be on track. The establishment of Catchment Management Forums which is being supported by AWARD[7] has started and is being well-received. Hence AWARD has helped with the development of frameworks/ guides for the establishment of effective CMFs – https://www.dropbox.com/home/RESILIM-O%20MERL%20Team%20Folder. The intention is to support the continuous establishment and strengthening of forums for the full length of the river including Mozambique. This will entail the establishment of 5 such forums 3 of which have been established and are being supported by RESILIM-O. These forums are seen as critical for the growth and support for local climate change responsivity.

Guides for the establishment of effective CMFs - https://www.dropbox.com/home/RESILIM-O%20MERL%20Team%2

In respect of catchment management agencies (CMAs) the transformation of the proto-OLCMA to a full-blown CMA with delegated powers is only anticipated to happen in 2016. This delay has constrained some of the progress for institutionalisation of policies and practices hoped for within

[7] Support for the establishment of Catchment Management Forums; and RESILIM's Support in the Establishment and Growth of Critical Institutional Arrangements

RESILIM-O this year[8]. This has included the development of a bilateral, transboundary flow agreement for the Olifants River between Mozambique and South Africa which is needed to secure downstream rights and systemic management of the basin as a whole. Additionally the Integrated Water Resources Management System or IWRMS, similar to that used by the neighbouring Inkomati-Usuthu CMA, whilst well-developed by RESILIM-O cannot be adopted and used until the CMA is functional. Included within this integrated system are tools for real-time compliance monitoring[9] in support of improved water security especially under scenarios of climate change[10] which are now better understood through the RESILIM-O work.

Support for systemic water resources governance is ongoing with engagement in various forums including OLLI[11] (which is attended by many proto-CMA staff) and CMF training and support workshops. The DWS staff regularly attend the RESILIM-O Resilience Assessment workshops (e.g. through VSTEEP and WatRES processes) and in doing so, meet stakeholders on the ground and learn collaboratively. One meeting, attended by the new Mozambican team, also allowed people to learn about realities downstream in that neighbouring country, which until that day, had never been discussed. These ongoing workshops have pointed to the huge gap and urgent need for people to be informed about integrated water resources management, the CMA and the reality of the current situation – an issue that will be taken up as a new project in 2016.

Integrating water quality and quantity for resilience

Taking an integrated approach to sustaining water quality has to incorporate water quantity management (sustaining river flows) under climate change scenarios. This is critical in a system under pressure. Standards or "benchmarks" of acceptable limits for water quantity and quality have finally been published by DWS in the form of draft Resource Quality Objectives or RQOs. Following this, AWARD spent considerable effort in reviewing these for the Olifants River and submitted these comments timeously to DWS. Notwithstanding some of the concerns, we now have standards against which the resource (surface water, wetlands, and borehole water) can be monitored. A significant component of our work is in supporting stronger compliance monitoring and enforcement- a critical step in closing the management loop.

The explicit effort to share experience and learning has been actively pursued this year. We have hosted a joint workshop with RESILIM-B and followed progress in the USAID SAREP project following our visit there last year. On the request of the neighbouring Inkomati-Usuthu CMA, AWARD shared experiences regarding the use of strategic adaptive approaches, systemic governance and social learning. RESILIM-O co-hosted a workshop for DWS to establish the national integrated water quality framework which has now been awarded to a consultant and for which the RESILIM-O work in the Selati is a proto-type. AWARD, through RESILIM-O has also presented a keynote paper at the Africa Water Symposium held in October this year. A model for integrating water quality and quantity management is a major output of this work that stands to make a significant contribution to managing a system that comes under increasing pressure from climate change trends. The model is likely to find a logical application in licensing procedures with a direct positive impact in areas that are set to become hotter and drier.

[8] RESILIM's Support in the Establishment and Growth of Critical Institutional Arrangements
[9] Adaptation Practices & Strategies for Building Catchment Resilience
[10] Work in 2014, now being validated by CSAG, suggests that increased temperatures will impact on surface waters and dams in particular reducing water availability by significant amounts. This implies a reduction in base flows, particularly towards the end of the dry season, which in turn impacts on water quality (reduction of dilution and assimilative capacity) and the ability to meet the EWRs. These are highly likely to have knock-on effects on instream and riparian biodiversity and human well-being in ways currently being explored through scenario development (Theme 1). Predictions regarding rainfall, whilst less certain, still ultimately suggest increased intensities of droughts and floods.
[11] Olifants, Letaba, Luvuvhu, and Inkomati Forum

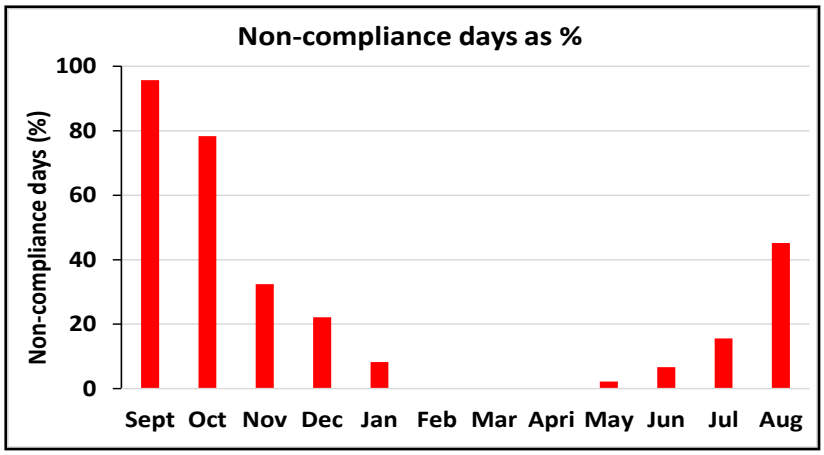


Figure 5: The frequency of days along the Olifants River at Finale site (B7H009) when flows are non-compliant to EWRs from August 2008 to April 2015. Note that from the EWR flow tracking AWARD covers 440 Hectares from the Barrage to the SA/Mozambique Border.

Figure 6 shows compliance trends for each month over the past 7 years that the EWRs in the Olifants have not been met in retrospect. Generally, the EWRs are non-compliant during the dry season (May-October), while during the wet season (November-March) they are compliant. As such, the plan for Phase II to address non-compliance will involve improving the system and equipment for real-time flow monitoring to quickly pick up instances of low flows before they reach the EWRs level. A system of alarms that are triggered as the river flow decreases to the set daily EWRs will improve the protection of the river aquatic life and associated ecosystem services, and enable the swift implementation of corrective management options such as coordinated floe releases from upstream dams to meet the EWRs by dam operators and water managers. To inform action or change we have started engaging the DWS, the custodian of the flow gauge system in the Olifants to improve and set-up a real-time system to track EWRs compliances on a daily basis. Ensuring the provision of adequate EWRs at all times protects the ecosystem services and biodiversity along the river and will enhance the catchment resilience.

Bio-monitoring – involvement of stakeholders in monitoring river health

Efforts to increase knowledge of the state of the rivers and hence the development of ***custodianship*** over the Olifants River through the involvement of stakeholders is now underway with the launch of the biomonitoring initiative in five riparian **protected areas** along the lower Olifants River and tributaries. This together with the many aforementioned stakeholder engagement processes is critical because without the involvement of residents and regulatory bodies, the state of the Olifants is unlikely to improve.

Project fact: The RESILIM-O biomonitoring initiative will protect 126km of perennial rivers in the Lower Olifants Basin which equates to 252 Hectares of protected land

AWARD's role is building and strengthening the capacity of private nature reserves through the creation of stewardship/ ownership of the rivers. This has also included the provision of data management support through the South Africa System of Scoring (SASS) training in conjunction with DWS. Training will also form part of Phase II activities as this is ongoing. Feedback is also provided to relevant stakeholders such as Reserve Managers for annual reporting purposes and long term and ongoing monitoring by SANParks within the reserves. AWARD is also supporting the accreditation process for game rangers and river monitors within the reserves. This will allows then to conduct sampling and provide recognised and acceptable data.

The table below (Table 2) reflects a list of key outputs for the reporting period. These outputs provide the basis for understanding the contexts in which various management interventions for resilience building and climate change adaptation will be applied.

Table 2: Summary table of key Outputs

	Title	Status
	Studies	
1	Status and Trends of selected Water Quality Parameters in the Olifants River/Rio Elefantes Catchment.	Completed
2	Systemic overview of selected water quality parameters in the Olifants River/Rio Elefantes catchment.	Completed
3	Water quality: Input and output to WatRES and Final Summary	Completed
4	A Summary of available EWR, Reserve and Classification information for the Olifants Basin, and a description of its relevance for the DRIFT application in RESILIM.	Completed
5	Description of the interfaces between DRIFT and other aspects of the project (outputs of VSTEEP, SES, WatRES and resilience analysis) in terms of data / information transfer.	Completed
6	Description of the impacts of Classification and other project scenarios on ES/benefits at selected location(s). A *Comparison of Outcomes with those from Classification. Discussion of sources of differences.*	Completed
7	Report on river health monitoring activities being undertaken nationally and the lessons for the Olifants River Basin initiative	Completed
8	Development of a preliminary, real-time flow monitoring system for key sites along the Olifants River	Completed
	Frameworks/Models/Guidelines	
1	Framework for involving private landowners/ users in river health monitoring and incorporation of this into wider management activities	Completed
2	User-friendly Synthesis for Communication with stakeholders and for a website	Completed
3	Populated DRIFT Model	Completed
4	A Template: the Charter for Catchment Management Forums (*to be applied nationally)*	Completed
5	A Charter for the Lower Olifants catchment management forum	Completed
6	Catchment management forums: an overview for the Olifants Catchment	Completed
7	Visions and functions of Catchment Management Forums	Completed

3.3 SUPPORT FOR INTEGRATED BIODIVERSITY CONSERVATION

RESILIM-O believes that biodiversity and natural resource management can be improved through the development of integrative, collaborative and systemic approaches to land-use planning and management. Work in this area has explored the status of land use planning practices within the Olifants Basin, in order to identify priority areas for biodiversity conservation and natural resource management interventions in Phase II of RESILIM-O.

To conserve biodiversity and sustainably manage high-priority ecosystems in the Olifants River Basin

Tenable, systemic and multi-scaled NRM governance arrangements and practices (IWRM and BD) have been developed and institutionalised through reflective and collaborative processes, so as to contribute to enhanced water and livelihood security for the ORB.

Enhancing collaborative, systemic land-use planning for improved natural resource management

The Integrated Spatial Prioritization for the Olifants catchment undertaken by RESILIM-O presents us with a significant point of departure for Phase II. This study sought to inform the identification of key focus areas for biodiversity conservation and natural resource management within the Olifants catchment. This work also developed a novel approach to conservation planning processes through adopting an integrated systemic catchment-wide approach. This integration includes the consideration of areas important for biodiversity conservation, ecosystem services (especially water and soil related services), biophysical landscapes supporting resilience to climate change, and priority areas for supporting livelihoods directly dependent on local natural resources.

Inclusion of biodiversity and conservation within the various planning instruments

Municipalities play a central role in determining how and what land is kept aside for conservation and protection. This is critical under increasing pressure on the land for commercial and domestic use. Two studies were conducted to develop a better understanding of the status of land use planning practices at municipal level within the Olifants catchment. The first study investigated the level of inclusion of biodiversity and natural resource management within the key planning instruments (spatial development plans (SDP) and integrated development plans (IDP)) of all local and district municipalities within the catchment (on the South African side). The second study focussed on the Maruleng Local Municipality to develop a better understanding of the local context and the challenges faced by the municipality. The results of this assessment revealed the limited extent to which municipalities effectively integrate biodiversity and natural resource matters into their planning instruments. Both these studies illustrated the need to strengthen the capacities of municipalities in Phase II of RESILIM-O and have formed the basis for informing the Municipal Support Initiative that will commence in 2016.

Exploring mechanisms for protecting and maintaining biodiversity and ecosystems in the Olifants catchment

RESILIM-O supports the development of improved protected area management effectiveness and biodiversity stewardship mechanisms within the catchment. Central to this is an in depth analysis of planning, management, evaluation, beneficiation from, and (internal & external) threats to protected areas within the lower Olifants catchment. The report from these studies highlighted invasive alien plants as one of the key threats perceived, amongst other threats such as poaching and catchment degradation. This report was handed over to the Lowveld Protected Area Management (LPAM) Steering Committee, which it is developing with our support into a more accessible and user-friendly product to be shared with agencies and protected area managers.

Actors in protected area management

Although required under environmental legislation within South Africa, information on the declaration status of protected areas is largely outdated and unconsolidated for the Olifants catchment. Un-declared areas have less legal security against detrimental changes of land use which may impact on the conservation of biodiversity within these areas. RESILIM-O has developed a database (link) capturing this information for the lower Olifants catchment and shared this with all stakeholders involved. This includes LEDET, MTPA, SANParks, K2C-BR, and representatives of all the private game reserves under the Lowveld Protected Area Management Forum (LPAM) steering committee. This has specifically supported the current efforts by the Limpopo Department of Economic Development Environment and Tourism (LEDET) and Mpumalanga Tourism and Parks Agency (MTPA) in updating their databases as well as the national database on protected areas. National and provincial environmental agencies and departments have been in the process of updating their protected area databases. AWARD's work in this regard has been in support of this process.

The LPAM Forum and its members also received RESILIM-O's technical assistance through the report *Biodiversity Stewardship: Summary of the Options*. This output informed about 20 private nature reserve owners and managers of the various models under which reserves may be legally declared as protected, and which model may be most appropriate depending on the specific context and land uses within an area.

20 private nature reserve owners to have their land legally declared as protected through RESILIM 0 support

Protected area management effectiveness

A review of international experiences in protected area management effectiveness (PAME) drew key lessons from the range of tools used globally to assess PAME. The review identified various benefits and constraints for the different tools (including the Management Effectiveness Tracking Tool (METT-SA)). Both LEDET & MTPA requested technical assistance from RESILIM-O to perform an analysis of their previous METT-SA evaluations completed previously for each of their protected areas. These outputs were shared with the respective agencies and other partners under the LPAM forum. The tool is used to track performance for managing protected areas in South Africa in line with the legislative requirements under National Environmental Management: Protected Areas Act. The analysis helps with informing the agencies in terms of their performance and trends of protected area management.

A report on the representation of biodiversity features and areas important for ecosystem services within the Protected Areas Network in the catchment will be completed in the 1st Quarter of the next implementation period. The report is aimed at highlighting key gaps or missing elements within this network and will prioritise areas that should be considered to address these gaps, which in turn will be used to inform the agencies involved in biodiversity conservation within the catchment.

The development of several of the above outputs by RESILIM-O was a collaborative effort by various partners under the umbrella of the LPAM Forum, including the Kruger to Canyons Biosphere, SANParks, LEDET, MTPA and various private nature reserves. Along with continued support from RESILIM-O, these outputs will form the baseline for securing the protected area status and improving the management of protected and conservation areas within the Lower Olifants which will be implemented by the South African GEF 5 Protected Area Programme.

Restoration of landscapes and ecosystem functioning in the Olifants catchment

Many ecosystems across the Olifants catchment are affected by degradation, which negatively impacts on the functioning of these ecosystems, as well as the elements of biodiversity contained within them. The flow of ecosystem services and goods from these areas are also reduced, with limiting implications

for the livelihoods dependent on these services and goods. Degraded ecosystems further increase the vulnerability of both ecosystems and people to current and future global changes and reduce their ability to respond to such threats. Consequently, the restoration of degraded ecosystems within the Olifants catchment is seen as an important response to the various threats noted above, and RESILIM-O recognizes the need to support practices involved in ecosystem restoration in order to establish a resilient basin.

A scoping report on the Natural Resource Management Programmes (NRMPs) under the Department of Environmental Affairs within the South African section of the Olifants catchment was completed with a focus on programmes and projects involved in invasive alien plant (IAP) control. The assessment identified the range of agencies involved in this work, on what species and in which areas they have and currently are working, and the level of effort in each area of operation. The report also informed the RESILIM-O programme on implementation and management processes used by the various programmes and identified some of the challenges hindering IAP control by these programmes. In Phase II AWARD will embark on an intensive participatory exercise in responding to the challenges through a series of multiple and contextual engagements. The findings of the report has been shared with various stakeholders involved, and this includes, Working for Water, Working on Fire High Altitude teams, MTPA and LEDET through the K2C-BR NRMP forum.

The report highlighted the Upper Blyde and Klaserie catchments as the most important focus of IAP control by the NRMPs and other agencies within the Olifants catchment. The integrated spatial prioritization (noted above) has also identified this as a focus area for RESILIM-O, with this catchment being both a biodiversity hotspot and an important water source area. Based on these results RESILIM-O has chosen to focus its initial efforts to support NRMPs and agencies involved in IAP control in the Upper Blyde and Klaserie catchments. RESILIM-O has subsequently engaged with all the various stakeholders (as mentioned above) involved to inform an in depth activity systems analysis of the various agencies involved. Although this analysis is not yet complete a good understanding has been developed of the key challenges faced by these agencies. All the agencies involved have identified a lack of coordination and the absence of a strategic plan for collaborative action by all the agencies as the main challenge to IAP control in the Blyde catchment. In the next reporting period RESILIM-O will address this challenge along with key partners through the development of a collaborative medium term strategy for IAP control for the upper Blyde and Klaserie catchments and technical assistance provided in terms of its implementation. This is most likely to be executed through a consultancy or sub-grant in the coming year.

Community-based Initiatives for ecosystems and natural resource management

With a considerable part of the catchment under communal land-tenure the support for the development of custodianship and management of biodiversity and natural resources by local communities within the catchment is an imperative. The majority of protected areas in the catchment in SA are under land claim or have already been restituted to communities e.g. these all have to go into some form of co-management between the provincial conservation agencies and communities involved. Co- management is a relatively new concept in SA despite longer standing international practice.

Foundational work in this area involved a review of the co-management experiences involving communal property associations (CPAs) and provincial conservation agencies in relation to protected areas. The work underscored that co-management is not in a good state in the catchment, with communities inadequately involved in management decisions and limited benefits going to communities. Co-management clearly requires extensive assistance to both communities and provincial conservation agencies. As a result of the findings this review RESILIM-O has initiated a project to support the development of co-management in Lekgalameetse Nature Reserve as a test-site for further application elsewhere in the catchment. We have had meetings and workshops with LEDET and the various communities involved in the co-management of Lekgalameetse. This facilitated a better understanding of the historical context (forced removals of people from their land) from which the need for co-management originates. The purpose of these engagements was to better understand the historical roots causes and challenges (conflict between local community and people managing protected areas) the thereof. Capacity needs have already been identified and will be responded to within the coming year along with the further development of this project.

Towards a systemic framework for biodiversity management

In order to prepare the catchment for a systemic approach to biodiversity management, RESILIM-O conducted an exploration of polycentric governance, adaptive management and *integrated* natural resources management practices. The review noted the importance of forums and especially broad-based representation within these. Important too are the recognition of divergent perceptions of landscape values by different groups as well as the maintenance of close relationships with state agencies, in light of the decentralization of natural resource governance.

Community-based natural resources management (CBNRM) has been proposed as an important regional direction for local-level conservation for a few decades now. An investigation into the progress on CBNRM within the Mozambique Olifants River portion was initiated during this reporting period. The review outlined some of the major issues experienced in natural resources management in Mozambique. Its findings will inform the scope of work for our Mozambique partners. Further to this work, a *Stakeholder and Project database for the GLTCFA and surrounding region within South Africa and Mozambique* was developed to identify key stakeholders for the Resilience Assessment Process in Mozambique.

Policy: A Legal Register for International, African and Regional legislation on biodiversity governance for the joint management of the Olifants catchment

A legal register and an analysis thereof for International, African and Regional legislation on biodiversity governance relevant to the Olifants catchment has been developed. This consists of a categorised reference list and of all applicable legislation and policies and the implications within the context of transboundary biodiversity and natural resource governance. When managing shared resources across international boundaries conflicting legislation is a key challenge – the need policy harmonisation. RESILIM-O will be using this as a reference tool to inform future work in support of the bilateral agreement between South Africa and Mozambique in relation to joint management of the Olifants catchment. This report and register will also be shared with RESILIM-B in support of their work on the Greater Limpopo Transfrontier Conservation Area.

Challenges in supporting the Integration of Biodiversity Conservation

i. The delay in setting up a partnership in Mozambique has been the main reason in the completion of the Spatial Biodiversity assessment for Mozambique. Key data sources are currently being sourced from Verde-Azul to complete this assessment during the next quarter.

ii. The development of a strategy and (framework) for coordinated alien plant control by NRM Programmes in the upper Blyde catchment is ongoing and will be completed during the next quarter. Issues experienced in the development of the above has been the delayed sharing of data by the different NRMPs (this has been accomplished now), as well as a lack of up to date and accurate distribution maps of important invasive alien plants within the focus areas.

With regard to our work on Aquatic Biodiversity (Wetlands), a database of Key Aquatic Biodiversity Features (Wetlands) within the ORB in South Africa is currently nearing completion. This will be used to guide and inform the programme on its approach to the restoration, protection and sustainable use of wetlands by local communities.

Way forward

In response to what we have learnt along with stakeholders and partners through the extensive work carried out during the past year two main projects have emerged which will be taken forward during the next year. Both these projects fall within two major biodiversity hotspots within the catchment, where challenges faced by the above two practices, pose some of the key risks and threats to biodiversity and natural resources within these areas. The first is focused on the development of more sustainable and equitable co-management of protected areas and natural resources between local communities and conservation and natural resource management agencies. This work will be focussed initially in the Lekgalameetse and Blyde River Canyon Nature Reserves. The other project is focused on the restoration of ecosystems through the use of a coordinated, integrated and adaptive

management approach for IAP control in the upper Blyde catchment. The development of IAP control within Lekgalameetse Nature Reserve through the co-management structures will also be supported under these projects.

The table below (Table 3) reflects a list of key outputs for the reporting period. These outputs provide the basis for understanding the contexts in which various management interventions for resilience building and biodiversity conservation will be applied.

Table 3: Summary table of key Outputs

	Title	Study	Status
1	Spatial Prioritisation of Areas Important for Biodiversity		Completed
2	Spatial Risk Analysis to Identify Priority Issues in Support of the Selati Risk Assessment		Completed
3	Maruleng Case Study on Integration of Biodiversity and NRM into Land Use Planning		Completed
4	An Assessment of the Integration of environmental Biodiversity and NR Aspects into Municipal Planning Instruments of all Local and District Municipality on the South African side of the Catchment		Completed
5	A Review of Different Biodiversity Stewardship and Protected Areas Models		Completed
6	Review of Past International Experience of Protected Area Management Effectiveness and its Evaluation		Completed
7	Taking Stock: Analysis of Local Area Protected Management Experiences		Completed
8	Analysis of MTPA PA METT -SA Evaluations		Completed
9	Review of Co-management Experiences involving provincial conservation agencies and CPAs in relation to state owned protection Areas restituted to Local communities through land reform		Completed
10	Scoping Report of NRM Programmes within the Olifants Catchment with focus on Programmes involved in Alien Plant Control		Completed
11	Review of Polycentric Governance, Integrated Natural RM & Adaptive Management		Completed
12	Review of CBRM within Mozambique		Completed
13	Legal Register of Applicable Macro Legislation for Trans boundary Water & Biodiversity Management for SA and Mozambique		Completed
	Prototype of Systemic Spatial Planning Method		Completed
	Databases		
1	Database/Report of Proclamation Status of Protected and Conservation Areas in the Lower Olifants		Completed
2	Database of NRM Programmes involved in Alien Plant Control		Completed
3	Stakeholder and Project database for the GLTCFA and surrounding region within SA and Mozambique		Completed

3.4 BUILDING CAPACITY OF INDIVIDUALS AND INSTITUTIONS TO MANAGE THE OLIFANTS CATCHMENT

What are we aiming for?

To build the capacity of stakeholders to sustainably manage water resources and biodiversity in the ORB through media, training and social learning

What are we hoping to see?

The capacity of stakeholders of the ORB has been built through social learning, for the development of sustainability practices that contribute to resilience and collective identity

This area of support is fundamental to all aspects of the resilience building process as it is through the engagement of stakeholders that the capacity of individuals and institutions can be built. The function of this thematic area in Phase 1 of RESILIM -O has been to develop learning sequences, frameworks and platforms that provide the basis for social learning. Additional aspects include the multimedia learning platforms, events, media engagements materials that are fundamental to developing a discourse around climate change responsivity and resilience.

Learning - a critical process for adapting and responding within complex systems

To present meaningful and appropriate ways of learning within systems that recognise complexity, uncertainty and responsivity to context as important we developed the following frameworks and plans for continued reflexive learning in the catchment:

- A framework to facilitate social learning in complex systems such as river basins;
- A framework for collaboration and collective action through networks and forums
- A plan for developing action competence projects that will be used to guide sub grants programme

With the use of adapted and modified tools - VSTEEP, WatRES and Risk Assessment within the cultural historical activity theory (CHAT) social learning methodology AWARD has facilitated a deepened understanding of stakeholders as potential managers of their own contexts. The purpose was to pick on underlying practices that can be transformed in Phase II towards building a more resilient catchment. Preliminary findings from the use of these tools has revealed early signs of commitment to be part and parcel of the transformative process. Participants also found the tools to be empowering and providing them with a systemic picture of the interconnectedness of governance, power dynamics, deterioration of natural resources and calling for action.

Transforming natural resources management through social learning

As mentioned earlier, the social learning approach has already been built into the Resilience Assessment Process (RAP) so as to see the participatory risk assessment process as a socially grounded approach over the long run. We have developed an interactive stakeholder database. This database provides with specific names and contact details of stakeholders operatives in the catchment and beyond. This has helped AWARD conduct complex searches for stakeholders in terms identity, affiliation, management practices and interactions.

In order to deepen our understanding of stakeholders as potential managers of their own contexts, we carried out studies as shown in the table below. The studies and stakeholder profiling augmented our knowledge of stakeholders: who they are; what their values and interests are, and how they plan to respond to the challenges facing the catchment (identity and agency).

Resilience Support Initiatives: pathways to institutionalising resilience

The Resilience support initiative is an approach that AWARD has developed with the overall objective of strengthening key institution to better manage biodiversity and adapt to the effects of climate. The key focus will be to:

- improve preparedness and responsivity to climate change;
- improve institutional functioning (specifically land use planning, environmental protection and disaster management);
- improve collective action – so that local and regional capacity to respond is enhanced;
- improve ability to plan and act systemically;
- improve action competence – in other words the ability to take action;
- improve commitment and motivation to improve a situation

Currently the Resilience Support Initiative is engaging 2 district municipalities (Mopane and Sekhukhune) and their 10 constitute local municipalities. We aim to expand the initiatives to other municipalities in the catchment -South Africa and Mozambique.

Transforming and institutionalisation of practices

Our work during this reporting period also focused on assessing existing practices and potential ones that can support climate change adaptation, biodiversity conservation and resilience building in general. The aim was to develop **with** stakeholders, activity systems (configurations of practices) that have a positive effect on resilience in the Olifants Catchment. The following work in this regard is underway:

1. Identifying, tracking and analysing resilience practices
    a. a framework for tracking practice in the catchment
    b. a method and materials for training of Sub Grants (practices guide)
2. Preliminary identification of practices drawing on the Resilience Analysis and VSTEEP
3. Collaborative analysis of practices with stakeholders and practitioners
4. Recommendations report for transforming practices in the catchment feeding into resilience plans and catchment-based climate change responsivity plan.

Working with partners and stakeholders

One of the cornerstones of the project is to develop local and regional capacity for catchment competence. There is therefore a strong emphasis on working in collaborative ways so as to both review the status of the catchment as well as to collectively consider new ways of responding to the challenges of building a more resilient catchment. The process of forming partnerships through networks is through the decentralisation and devolvement of responsibility to the most appropriate level within the system. This is a process that requires planning for and acceptance by those that are expected to be involved. RESILIM-O has established such a framework during Phase 1.

Because transformations demand learning and ongoing adaptation, special attention is given to ensuring that learning is situated within the process of partner interactions. We see the network for co-ordinating resilience-based practices and learning as the **Resilience Learning Network (RLN).**

Table 4 Structure for engagement of stakeholders in the RESILIM-O project

	Civil Society	Government Structures	Parastatal and private	Traditional Leadership
Local	Projects, community development, Local Economic Development projects, churches, schools, farmers	Local government	Companies, local businesses	Traditional structures (village)
District	Non Profit Organizations, business forums, chambers of commerce, church councils, associations, co-operatives,	District municipalities and government departments	Catchment committees, water boards and forums	Traditional councils
Provincial	Councils, unions, forums and platforms	Provincial government departments	River Basin Authorities	Traditional authority (provincial)

	Civil Society	Government Structures	Parastatal and private	Traditional Leadership
National/ International	Councils, unions, forums and platforms	National government departments	Power generation, research commissions, regulation councils, transboundary commissions Multinational companies	National council for traditional authorities

In the graph below Figure 7, we categorised the various stakeholder groups and institutions that we have actively engaged in the process of resilience building through the Resilience assessment processes. These engagements has happened specifically through VSTEEPS, WatRES, Risk Assessments, and strategic meetings and workshops. Stakeholders/ partners were engaged at various levels such, local, district, provincial and national levels. And these stakeholders varied as reflected in the graph.

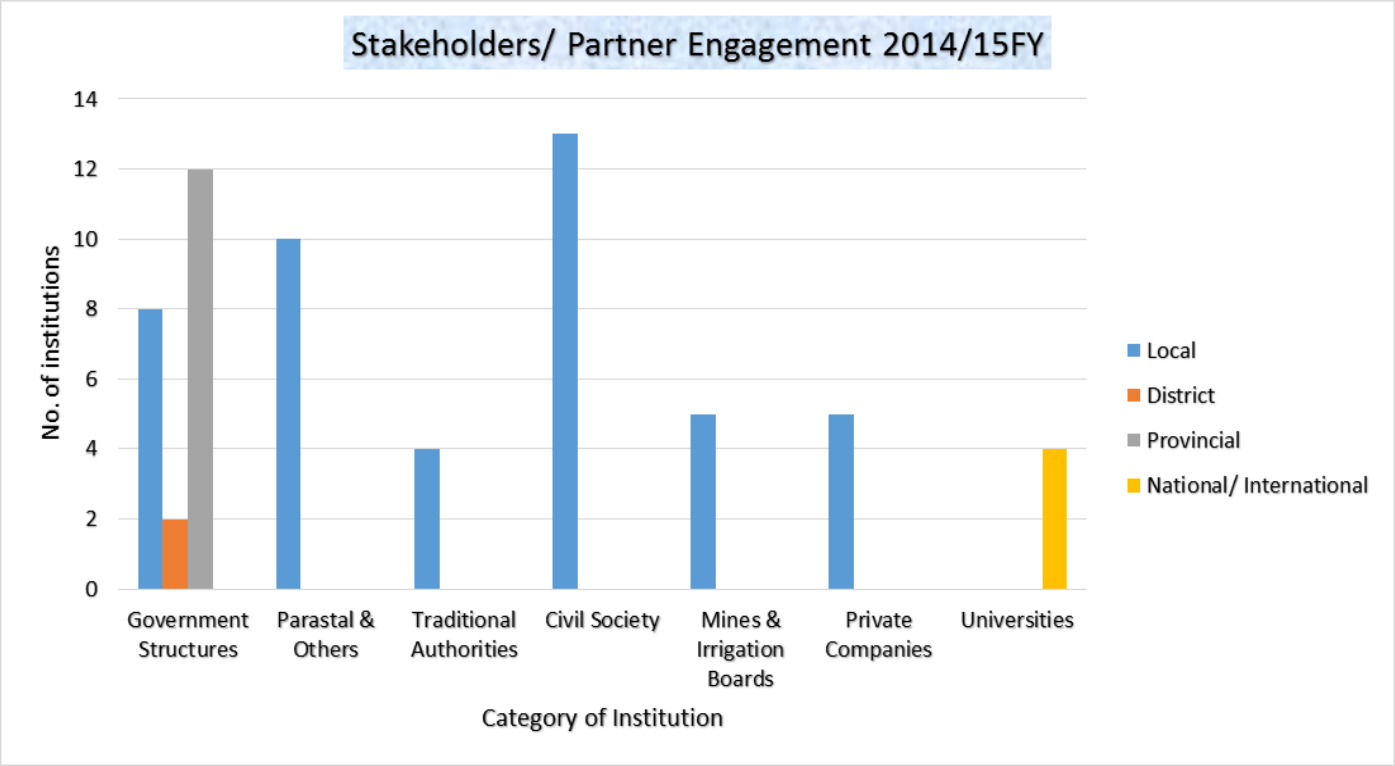


Figure 8: Stakeholders engaged in the process of resilience building so far

Way Forward

Through social learning processes we will focus on transforming practices in the following areas in the in-coming year:

- Land restoration work in the Blyde area
- Co-Management agreements for protected areas management in Lekgalameetse and Blyde
- Agriculture support for emerging farmers in the Selati catchment
- Improving practices associated with waste-water treatment works
- Integrated water quality and quantity management for the catchment
- Disaster risk reduction with district and local municipalities

The application of media and communication in developing a catchment resilience discourse

There is a tremendous challenge in a catchment such as the Olifants with its low levels of functional literacy and education. To this end, we have designed and started implementing media and communication mechanisms to promote the discourse of catchment resilience on a broad scale. The following outputs were achieved in this regard:

A web-based representation of narratives with opportunities for stakeholder interaction (under the "Our Olifants" campaign)

www.ourolifants.org

- A Media and Communication Strategy for developing Resilient River Basins
- A special brand for developing concern for the issues affecting the Olifants catchment, called the *Our Olifants* Campaign.
- A media campaign to support the *Our Olifants Campaign* including media, events days and social media platform
- An electronic media platform involving the web, Facebook, Titter and Instagram to showcase and communicate the *RESILIM-O* project
- Encouraging social interaction on the social media platforms so as to create awareness and build discourse
- Print media in the form of brochures, briefs, reports and flyers
- Reports on project progress

Information: 2 105 media and communication materials about the project distributed

Some stakeholders and civil society associated with the Olifants Catchment are familiar and engaging with the discourse of resilience and are interfacing with the media tools associated with the project.

Internship Programme – Developing Young Professionals for Resilience Initiative

We recognise that South Africa in general and the ORB in particular have serious shortage of skilled people to carry on with the resilience building work. RESILIM-O took a strategic decision to respond to this critical gap. As a result, 12 Learnership positions were created and filled young University graduates. Within AWARD we have a Learnership programme that help build biodiversity and climate change capacity of new University graduates from previous disadvantaged background seeking work experience. 5 of these will be employed into full-time positions by the second quarter of 2015/16FY. Of these one will be working with South African National Biodiversity Institute (SANBI).

12 Learnership positions were filled during this reporting period

We see this as an appropriate way to support learnerships and training that focus on developing specific knowledge and skills that are critical for resilience outcomes.

As part of the institutionalisation objective, we have started negotiations for the integration of resilience learning into the academic programmes in institutions of higher learning in the region. Perhaps as a single success story, one of the young university graduates received a bursary to study the Lekgalameetse Co-management initiative for his Master's Programme. His study will further enhance our resilience building work in Biodiversity Management.

What was most satisfying in your intern-ship program?

"Working with communities on environmental issues and how they can better manage their own surrounding natural resources to ensure that their livelihoods are improved" - Intern

"In my learner-ship I was exposed to new concepts related to environmental management (ecological infrastructure, systems thinking, etc). I got the opportunity to explore different fields within the environmental sector. Furthermore, I was awarded an opportunity to explore different fields within projects - climate change, biodiversity management, water related ecosystem services, social learning and many more" - Biodiversity-Intern now with SANBI

Challenges in supporting Capacity Development through Social Learning Approaches

Embedding resilience thinking into learning processes has been a challenge during this reporting period. The following are the key reasons identified as a cause:

i. The meaning of Resilience is vague. The understanding of resilience is 'fuzzy'
ii. There is a need to interpret work at catchment scale and work with contextual emerging meanings
iii. The current defined Social Learning processes do not adequately acknowledge complexity and diversity which is a reality in our programme context
iv. Need to translate complex work into a 'message'

v. The definition of media & communication routine functions: foundational, organisational, programmatic - typically more PR-type functions - there is a lack of internal capacity transformative learning

Way forward

Social learning will focus on transforming practices in the following projects in the in-coming year:

i. Focus on Natural Resource Management on the Blyde (Restoration work)
ii. Co-Management Work in Lekgalameetse and in the Blyde
iii. Agriculture in the Selati
iv. Waste Water Treatment Works
v. Integrated Water Quality Management
vi. Disaster Risk Reduction
vii. Municipal Support Initiative is also planned to strengthen the institutional capacity of Local and District Municipalities in the Catchment.

Table 5 Summary table of outputs for this area of work

Databases		
	Title	
1	Integrated Stakeholder Database in the Olifants Catchment	Completed
2	Database of NPOs Operating in the Olifants Catchment	Completed
Studies Commissioned		
	Title	
1	People of the Catchment: Stakeholder profiles/narratives/photo narratives that feed into understanding of stakeholders	Completed
2	Study on Catchment Management Forums Operative in the Olifants catchment	Completed
Frameworks		
	Title	
1	A framework for facilitating social learning in complex systems such as river basins (integrating methodologies for learning within complex environments) (social learning guide)	Completed
2	Framework for activity system analysis and transformation of practices	Completed
Action Plans for Resilience Building		
	Title	
1	A Plan for Developing Action Competence Action Projects – A Guide for Sub Grants Programme	Completed
2	A Media and Communication Strategy for Developing Resilient River Basins	Completed
Guidelines		
	Title	
1	Recommendations for the Transformation of Practice in Phase II	Completed
2	Guideline for Social Learning	Completed
3	Guideline for Analysis and Transformation of Practices	Completed

3.5 SHARING EXPERIENCES AND LEARNING

What are we aiming for?

To facilitate the exchange of experiences with other basins and especially catchments within the Limpopo Basin through the harmonisation with Basin processes

What are we hoping to see?

An increased knowledge sharing, networking and exchange of experience with other catchments within the Limpopo Basin

A specific objective has been created in the project in order to share lessons with other professional entities, institutions, sub-grants and like-minded projects as we go about the resilience building process. This includes interactions with the sister project, RESILIM-B. In this section we list the engagements we have conducted in this regard.

Inkomati-Usuthu Catchment Management Agency

The Inkomati-Usuthu Catchment Management Agency (IUCMA) requested an opportunity to share experiences regarding the use of strategic adaptive approaches, systemic governance and social learning. The support was well received by the IUCMA and ongoing knowledge sharing opportunities are committed to by both parties.

"Forum-of-Forums" Meetings

In order to seek ways forward for Catchment Management Forums, nationally and internationally, RESILIM-O, in conjunction with the Water Research Commission (WRC), hosted a Forum-of-Forums meeting in Johannesburg. This was a national event that aimed at seeking inputs from forum chairpersons, forum members, civil society members and DWS officials from over South Africa. A number of documents that RESILIM-O has contributed to are available for supporting CMF establishment in the Olifants catchment.

Learning visit with Mozambique partners

In August 2015 our Mozambique partner in Mozambique visited AWARD purposes of learning about RESILIM-O's technical approach to building resilience. As the partner to spearhead work with Mozambique strategic partners, the team of 4 were introduced to the tools and techniques used in RESILIM-O for building resilience.

RESILIM-B Sharing and learning opportunities

Through a Sharing and Learning Workshop facilitated by RESILIM-B, RESILIM-O was invited to be part of the RESILIM partners meeting to reflect on the program achievements and challenges over the past 3 years with a view to shape the future of the program. Partners shared their activities and experiences in supporting the RESILIM program. The theme of the workshop was Consolidation for Legacy for the period 2015/17. RESILIM-O continue to engage with RESILIM-B in the development of media and communication strategies and interventions in the Limpopo River Basin.

3.6 ORGANISATIONAL CAPACITY AND GOVERNANCE

What are we aiming for?

To develop and maintain internal organisational capacity and effectiveness through tenable management systems and sub-contract management

What are we hoping to see?

Effective organisational governance that supports the programmatic objectives and organisational policies

Programme management and integration

Given RESILIM-O's approach to building resilience, a greater demand in levels of effort in program management had to be exerted for the purposes of managing the program efficiently and effectively. A Program Manager was appointed at the beginning of June to carry administrative and operational responsibilities of the programme. This has enabled managers to increase their level of effort in program content and strategic matters. Where necessary, AWARD has continued to strengthen its operating systems borrowing from USAID practices to further strengthen its operational capacity.

Financial audit report

RESILIM-O has been audited in accordance with USG and South African statutory requirements and has embraced USAID compliance requirements and received cleared audits. The Audit reports affirmed our untiring efforts to comply with expectations and standards. More so, the outcomes of the Audits demonstrated the extent to which AWARD and its Board of Directors has been able to adapt and embrace the often stringent accountability requirements of USG and USAID funding. This has also assisted in strengthen the organisation's systems.

Contracts and sub-contracts /agreements management

Our contracts and sub-contracts management continue to reflect the core objective of our programmatic core focus areas for Phase 1. The quality of studies or outputs produced in Phase 1 and in particular in this reporting period reflect AWARD's demands for quality and relevant work from its selected networks of scarce skills. We have applied stringent technical monitoring of all contracted work specifically led by programme leaders as technical monitors.

A standard practice is that each consultant brought on board is assigned an AWARD – RESILIM-O staff member or intern to work with. This has enabled the transfer of skills, in some cases, scarce skills to AWARD as a growing and learning institution. Compliance monitoring of deliverables and cost effectiveness have been key in managing contracts and sub-contracts during this reporting period.

USAID technical approvals

In keeping with the requirements of the Cooperative Agreement and the accompanying USG compliance, we intensified our operational efforts in ensuring that required all work conducted and operational requirements are met with technical approvals as required. We continue to keep abreast with all USAID requirements to best ensure efficient and effective processes are followed to enhance the quality of our partnership.

Grants management

RESILIM-O has employed a Sub-granting strategy to advance and achieve its Phase 2 strategic objectives. In preparation for the sub-grant program which will begin in 2016, A Grants Management

Unit will be established in order to manage the administrative, financial and programmatic management requirements of the sub grants. A Call for Proposals based on key identified areas from Phase 1 will be published with clearly outlined competence areas. It is hoped that key strategic partners will be identified and brought on board to scale up program objectives. A two pronged approach is currently on the table, i.e. the use of Fixed Amount Agreements and or Cooperative Agreements based on a defined criteria. A draft Grants Management Manual that will guide both RESILIM-O and its Sub Partners on compliance matters. The Manual will be finalised and shared with USAID for review and approval in the 1st Quarter of the incoming year of implementation.

Environmental monitoring and mitigation plan

A compliance issue that RESILIM-O had overlooked was the importance of developing an EMMP, a mandatory environmental procedure that applies to USAID-funded and managed activities. A RESILIM-O specific EMMP was drafted and reviewed by USAID who further provided technical assistance towards its completion as required by Regulation 216 documentation governing the project. Unfortunately, the EMMP was completed late in the year. USAID advised that this be put on hold and await the October – September Annual Work Plan currently being drafted and align the EMMP to such.

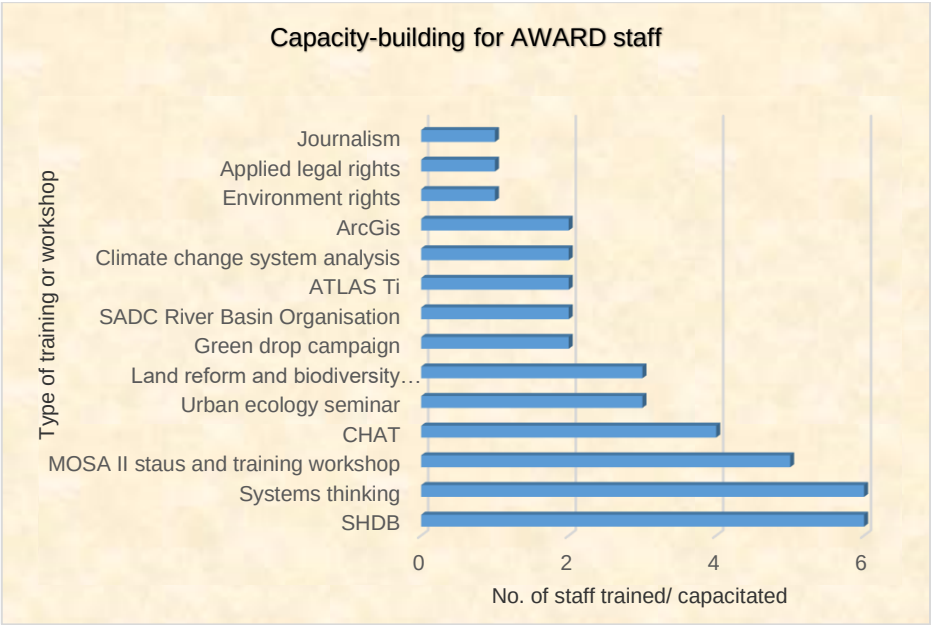
Human resources development & management

Human resources development and management proceeded well this year with staff at AWARD being complemented by research associates, consultants and interns. A number of Interns will be integrated into the programme as full-time staff to further bolster the Phase II planned activities. This is seen as a programme advantage on the basis that they are already familiar with the programme context. At the same time, others will be leaving to work in similar contexts, perhaps as RESILIM-O's contribution to building and strengthening human resources for biodiversity and climate change in southern Africa.

Human capacity development

AWARD recognises the overall strategic direction that the United Stated Government and in particular USAID is taking in the development of and strengthening of local organisations. On-going capacity development to efficiently and effectively implement the program is greatly upheld by RESILIM-O as a value. The table below (Table 6) illustrates the diverse but relevant training workshops undertaken by some of our staff.

Table 6: Capacity Development for AWARD staff



4. MONITORING, EVALUATION, REPORTING AND LEARNING (MERL)

In this reporting period, the following is quantitative results that reflect AWARDs efforts to date.

Table 7: Individuals and Institutions provided with capacity building and training in climate change and biodiversity conservation.

AWARD RESILIM-O PERFORMANCE INDICATORS & TARGETS					
Programme Area	Performance Indicator	PROGRESS TO DATE	PROJECTED RESULTS		
		Oct. 2014 - Sept. 2015	Oct. 2015 - Sept. 2016	Oct. 2016 - Sept. 2017	Life of Project Target Nov. 2012 - Sept. 2017
Climate Change	Number of individuals with increased capacity to adapt to impacts of climate change demonstrated as a result of USG assistance	387	165	182	734
	Number of institutions with increased capacity to adapt to the impacts of climate change as a result of USG assistance	23	22	37	59
Biodiversity	Number of institutions trained with increased capacity to integrate biodiversity and conservation into their function	12	14	29	43
	Number of hectares under improved natural resource management as a result of USG assistance	-	-	-	6.3Mil Ha
	Number of people receiving USG supported training in NRM and or Biodiversity conservation	258	140	154	552
Notes	*Under Biodiversity, the 6.3 million Hectares projected are inclusive of the Mozambican portion of the Olifants Catchment. This figure is projected and will be reported cumulatively on a quarterly and annual basis based on specific biodiversity interventions.*				

A framework for building evidence of project progress and impact

The process of evidence-building in RESILIM-O is associated with thematic outcomes. Thematic outcomes are supported within each theme by key areas with activities and outputs. These have been

reported on in the sections above. How these activities and outcomes hang together as evidence of transformation is guided by a framework as explained below;

The attainment of outcomes is guided conceptually by a "staircase" that shows how activities and associated outputs build up to a key outcome. There are three categories of outputs and activities for Phase 1. These are:

a) foundational – aimed at understanding context and systems functioning
b) intermediate – aimed at applying the understanding gained in the foundational activities and formation of partnerships as a way of collaborating towards resilience
c) consolidating – aimed at preparing the way for institutionalisation of policies, practices, protocols

The "outcomes staircase" as depicted in the table below is essentially a mechanism for sequencing activities and outputs so as to support transformation. The "staircase" approach supports the "design-down-and-implement-up" principle by allowing the project team to design activities down from the intended outcome and then to implement these in an appropriate sequence towards achieving the intended outcome. The thematic outcome must contribute to the impact. And the outcome in turn is supported by outputs and activities with associated indicators that reflect progress towards the outcome and indeed the impact of the project over time. Due to the sequential nature of transformations the process of collecting evidence of progress follows the sequence of A to B and then C (see Figure 9). Reporting on impact requires a narrative that explains the sequence of A+B+C = impact.

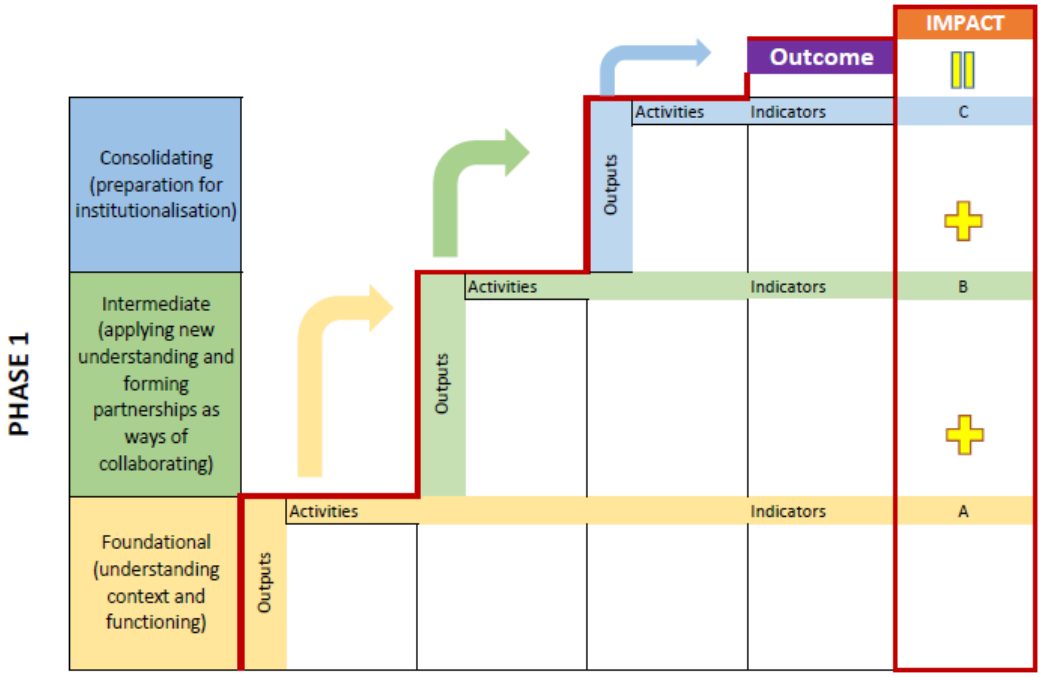


Figure 10: Staircase of outputs and activities leading to an expected outcome. The sequence of reporting against impact follows the formula of A+B+C=impact

Midterm evaluation

To mark the end of Phase 1 and inform Phase 2 an evaluation was undertaken, using the 'value added' framework of narrative evaluation developed by Wenger and Trayner-Wenger. The evaluation objectives were to:

1) Inform AWARD's work in the next phase of the RESILIM-O programme
2) Identify any early successes (evidence of change) and motivating stories to share with staff, USAID and other partners
3) Identify evidence of potential and areas on which to build
4) Identify areas where there is less scope for success and where a change of direction is required

5) Provide staff and partners with further opportunities to reflect and learn (in the process of conducting the evaluation and the analysis, and in sharing the findings).

The evaluation focussed on four areas of work in the programme that are likely to continue in 2016:

- Collaborative resilience and risk assessment processes
- Support for Forums
- Support for Water and Natural Resources Governance
- Media and Communications.

The findings are available in the full evaluation report.

The evaluation engaged stakeholders in the catchment through focus group discussions and interviews and represents the first opportunity to hear from stakeholders how they have experienced the programme thus far. In addition the evaluation has proven a useful moment of reflection for staff who contributed through interviews.

In addition to this scheduled evaluation, we continue to experiment with other ways in which to facilitate and capture internal learning alongside or within implementation processes.

AWARD has also been able to start logging the individuals and organisations engaged in capacity building initiatives through RESILIM-O, on USAID's TrainNet database.

Future MERL activities

A MERL Manager is now in place who will continue to explore the orientation of the MERL framework, contribute to its further development in relation to the 2016 workplan and lessons learnt from implementation in 2015, and arrange MERL training for programme staff and sub-grantees so that they understand the nature of the evaluation framework, and can optimally monitor and report on their work and achievements.

To ensure good quality data, Routine Data Quality Assessment (RDQA) will be conducted by cross-checking the accuracy, validity and reliability of reported data, both quantitative and qualitative, and the existence of supporting documentation for reported data. RDQA will also facilitate building the internal and sub-grantees' capacity for routine self-assessment and related systems development. The development of storage systems for both qualitative and quantitative data, for both AWARD and sub-grantees, will be a high priority in 2016.

In pursuit of compliance and more streamlined and effective reporting, the MERL Manager will also coordinate the building of capacity in report writing and compilation, both internally and with sub-grantees.

To share lessons learnt in this experiment in monitoring and evaluating a programme a MERL symposium will be hosted by AWARD in 2016, with stakeholders from other catchments in South Africa and elsewhere in the region. It is hoped that USAID will strongly participate in this event.

Reflective and Collaborative Meetings

Reference Groups Meetings continue to be an opportunity to reflect and collaborate around processes that promote integration, synergies and coherency between all programmatic objectives. Monthly RESILIM-O Meetings and the recently started rolling Strategic Planning Sessions have provided much needed exploration of how to respond to emerging learnings from the field as well as the search for tenable, systemic and multi-scaled (climate) risk adaptation strategies and practices. As we transition into Phase II, it is hoped that defined practices will be institutionalised in pursuit of a more resilient ORB.

Report on project impact for the period 2014/2015

In this section we provide both qualitative and quantitative data of activities suggested by the "outcomes staircase" sequence. We then provide a narrative of how these support particular outcomes and the intended impact. The intended impact in the case of the RESILIM O project ***is to reduce vulnerability to environmental (climate) change through building improved transboundary water and biodiversity governance and management of the Olifants Basin through the adoption of***

science-based strategies that enhance the resilience of its people and ecosystems through systemic and social learning approaches.

Of specific interest to the evidence building process is data associated with four areas:

a. number of hectares under improved natural resource management as a result of USG assistance
b. number of individuals with increased capacity to adapt to impacts of climate change demonstrated as a result of USG assistance
c. number of people receiving USG supported training in natural resource management and/or biodiversity conservation
d. number of institutions with increased capacity to adapt to the impacts of climate change as a result of USG assistance

These four areas are in fact the higher order indicators against which the project progress will be reported regionally. These are therefore impact indicators and not the output indicators reflected on with the outcomes staircase. However the output indicators provide the basis for assembling the evidence of impact as described by the formula A+B+C=impact in Figure 10.

5. PROGRAMME IMPLEMENTATION CHALLENGES

As with the nature of the transformation intended by RESILIM-O, challenges are to be anticipated. The key ones relate to the fact that deep structural and systemic changes are necessary for climate change responsivity to be institutionalised. This requires working in ways that require careful preparation, high levels of thrust and relationship building as well as very sound understanding of context. All this preparatory work takes time and ongoing engagement with stakeholders that HAVE the agency and mandate to exact the changes that the programme anticipates. The progress to basin-wide impact is hampered by the absence of a supportive institutional and legislative environment. At a more local level there are challenges associated with local governance and the capacity for local government structures to carry out their specific mandates. Within institutions such as local government there is a high turn-over of staff and/or there are large vacancies.

The intention to build capacity within such an environment has to deal with multiple incoherencies, dysfunctionalities and a lack of familiarity with the needs to plan and function in reference to the systemic realities facing the entire catchment. Historically this has never been the case and presents institutions with a different ethic and point of departure to how and why things were done in the past.

Lack of human skills and capacity in the biodiversity and natural resource management sector is an ongoing challenge in the region and specifically in South Africa and Mozambique. The project has needed to source experienced international candidates in this regard.

Programme sustainability

RESILIM-O is aware of the need to consolidate and integrate the gains achieved and those yet to be achieved through USG assistance. Therefore, programme sustainability is critical given the fact that our work on resilience building is key in climate change adaptation and mitigation including the integrated management of our natural resources.

The whole learning process has an institutionalisation agenda, that is, learning for resilience building will be done with partner institutions that have the potential to continue with the project approaches. In the first phase we have been working with potential partner institutions from a number of sectors, government departments, NPOs, common property associations and some private institutions including those in Mozambique. The forth coming Partners Meeting in the 1st Quarter of the forthcoming year is designed to cement relationships with a range of partners for the purposes of resilience building in the Olifants catchment.

We are currently exploring mechanisms that will support the continuation of the funding mechanisms to fund human capacity in coordination or carrying the work forward. There is a possibility currently being explored to apply for funding through Public Private Partnership (PPP). This is where sustainability of the RESILIM-O programme / work might be found.

6. THE YEAR AHEAD – KEY FOCUS AREAS: 2015/16FY

Our approach to planning for Phase 2 has been through on-going strategic planning sessions over the last four months. This has resulted in a number of projects and activities being identified some of which are continuations of current work as well as new projects, of which some may be considered as Sub – Grants focus areas. Whilst these are being reviewed and finalized in the next two months, the following list is indicative of planned work.

- Continued ***development and institutionalization of the systemic, Integrated Water Resources Management System (water quantity and quality) for the Olifants Catchment and Basin*** (Mozambique if feasible). This will include various guidelines and tools for considering scenarios (especially under climate change), instream and downstream impacts and real-time modeling. This key area of activity includes various sub-projects. It has started in the Ga-Selati and will be expanded for the catchment as a whole. Institutionalisation[12] will be a key focus but it is important to note that the depth to which this can happen will depend on a functional CMA being in place. Such a system may be considered for Mozambique if appropriate and tenable, an issue which will be explored in 2016.
- ***Training programme*** regarding water quality and bioaccumulation for DWS, OLCMA, SANParks, SAEON and Ara-Sul staff.
- Prioritization and ***support for improved effluent discharge practices of waste-water treatment plants and a Green Drop Campaign*** (compliance) to support this.
- ***Scoping of water supply and sanitation*** for riparian communities to ascertain direct use of riverine resources and hence systemic vulnerabilities.
- Review of the civil society ***biomonitoring work*** and an expansion to a wider stakeholder group.
- Support for ***integrated operating rules for dams*** so as to ensure downstream environmental water requirements
- Ongoing support for the ***establishment and functioning of the CMFs***.
- A mobile water resources "clinic" to support ***increased awareness regarding integrated water resources management***, the CMA and the reality of the current and potential future situation.
- ***Training and institutionalizing IWRM into the municipal plans (IDP, WSDPs***). This will include a key climate change adaptation strategy, namely water conservation and demand management for various sectors (e.g. agriculture, housing, industry) and support for WWTP management.
- Continued ***stakeholder engagement and scoping of the benefits and dis-benefits*** being felt by local riparian residents under current and future scenarios. If constitutional environmental rights are being infringed, AWARD may need to develop a strategic response to this.

[12] Such work could be the focus of a joint commissioned study as part of the transboundary bilateral agreement.

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