Agriculture Support Initiative

Farmer Support for Building Agroecological Skills & Farmer Networks for Collective Action Amongst Small-Scale Farmers in the Olifants Basin

FINAL REPORT
March 31, 2020

award

mahlathini development foundation

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USAID: RESILIENCE IN THE LIMPOPO BASIN PROGRAM (RESILIM) – OLIFANTS

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A number of AWARD staff have been involved in the AgriSI project over the years. We are grateful to Richard Hatfield, Dr Cryton Zazu, Dr Sharon Pollard and Ancois de Villiers who contributed to activities reported in this document.

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About USAID: RESILIM

USAID's Resilience in the Limpopo River Basin (RESILIM) program addresses ongoing degradation in the Limpopo River Basin in southern Africa, where people are facing water shortages, increased floods and declines in crop productivity as climate change further stresses an already water-limited region.

The two components of the program are:

- RESILIM-B operating at the scale of the entire Limpopo River Basin, implemented by USA-based Chemonix across the four SADC member states that share the Limpopo Basin, namely South Africa, Botswana, Zimbabwe and Mozambique.
- RESILIM-Olifants (RESILIM-O) covering the Olifants River Basin (shared by South Africa and Mozambique), implemented by the Association for Water and Rural Development (AWARD). The Olifants is the largest contributor of water to the Limpopo Basin, and is of particular concern because of the wide-scale threats to biodiversity and the ecosystem services that support people's livelihoods.

The RESILIM-O program aims to reduce vulnerability to climate change in the Olifants Basin by improving transboundary water and biodiversity governance and management, through science-based strategies and systemic and social learning approaches that enhance the resilience of people and ecosystems.

The RESILIM-O program comprises 26 projects in total which address AWARD's core focus areas of climate, water and land "systems". Twelve of these projects were implemented by partners through sub-grants.

About AWARD

The Association for Water and Rural Development (AWARD) is a non-profit organisation specialising in multi-disciplinary, participatory, research based project implementation aimed at addressing issues of sustainability, inequity and poverty. We have been in existence for over 20 years. Informing our work are the values of trust, dignity for all, justice, fairness, non-discrimination, unity and learning through practice. Our approach involves thinking across disciplines, boundaries and systems.

While working collaboratively with other organisations and developing strong and rich professional networks, we strive to build natural resource management competence in civil society, government agencies and private enterprise. We believe this will help provide a foundation for robust and sustainable development policy and practice in South Africa that can stand up to an increasingly complex world.

Our main, although not exclusive, geographical area of focus is the catchments of north-eastern South Africa, including the Olifants River Basin.

For further information, see http://www.award.org.za

Project Partners

AWARD is grateful to DKA for funding towards the AgriSI project.

The Dreikönigsaktion, the Relief Organization of the Catholic Jungschar, is responsible for coordinating the Austria-wide Sternsinger campaign for the professionally based awarding of the collected donations.

Promoting children and adolescents, education, securing food, drinking water and medical care, upholding human rights and pastoral work as a ministry to the weakest: over 500 million people in these poverty-stricken areas are living in the poverty regions of Africa, Asia and Latin America reached directly. The Dreikönigsaktion cooperates with reliable local partner organizations.

Industrial agriculture destroys our planet and makes people dependent – on seed companies, credit, supermarkets. But a good diet for all does not need more food, but variety from the field to the plate. Diversity protects against malnutrition and crop failures. That is why we champion the rights of smallholder farmers who can provide a stable and balanced diet. For this, peasant farmers worldwide need control over land, water and seeds. And they have to be able to market their products locally.

With our partner organizations we organize training courses on agro-ecological cultivation methods. These offer independence from large agribusinesses. Equally, farmers can react better to climate change - working in a soil-conserving and profitable way.

Dreikönigsaktion
Hilfswerk der Katholischen Jungschar

Implementing Partners

Mahlathini Development Foundation (MDF) is a small public benefit non-profit organization consisting of rural development practitioners who specialize in participatory learning and action processes, sustainable natural resource management and low external input farming systems, including a focus on rain water harvesting, conservation agriculture, intensive homestead food production, food security, climate change adaptation, micro finance and enterprise development.

MDF aims to work at the cutting edge of development methodology and processes-integrating learning (training), research and implementation into new models and processes emphasizing synergy and integration.

The vision of MDF is to support the harmonious living of people in their natural, social and economic environments in a way that supports and strengthens both the people and their environment.

mahlathini
development foundation

Ukuvuna is dedicated to the implementation of optimised sustainable projects within communities in southern Africa. It was established in March 2005 in response to the demand from southern African rural and urban communities, for diversified livelihood programmes to assist with climate change adaptation, HIV/AIDS and gender difference.

Ukuvuna aims for a fruitful process or a period of gathering produce or harvesting something positive that cares for the earth and the people (especially women and youth). The focus is on practical skills for diversified livelihood activities towards creating replicable models of best practice for living sustainably. This process involves mind-set transformation, adaptability and resilience of individuals, families and society, whilst creating awareness of climate change, HIV/AIDS and gender difference.

Ukuvuna focuses on facilitating a process that enables individuals, families and communities to alleviate poverty through resilience and creation of wealthy and healthy systems. In partnership with local stakeholders and/or actors, Ukuvuna creates replicable models of 'nodes' and 'cluster systems' in sustainable biodiversity management at household and community levels. In 2018 Ukuvuna focused on the two districts of Capricorn and Sekhukhune, both located within the Olifants River Catchment area, in the Middle Olifants RESILIM-O operation area. In these districts Ukuvuna engaged with two local municipalities and five wards: Lepelle-Nkumpi Municipality, Wards 7 and 21 and Elias Motsoaledi Municipality, Wards 20, 26 and 31.

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The Olifants Catchment: An Overview

The Olifants River Catchment falls within the Limpopo River Basin, which is part of an international drainage basin that stretches across South Africa, Mozambique, Zimbabwe and Botswana.
The Olifants River contributes nearly 40% of the water that flows in the Limpopo River making it important for the basin as a whole.

Figure i: Olifants Catchment

The Olifants River is a vital artery that flows for 560 km through South Africa and into Mozambique, where it is known as the Rio dos Elefantes. This mighty river originates in South Africa's Highveld, traversing three provinces (Gauteng, Mpumalanga and Limpopo) before flowing through the iconic Kruger National Park and into Mozambique before reaching the Indian Ocean near Xai Xai, just north of Maputo. The main tributaries are the Wilge, Elands, Ga-Selati, Klein Olifants, Steelpoort, Blyde, Klaserie and Timbavati Rivers. The Olifants Catchment occupies an area just short of 55 000 square kilometres and is home to about 3.5 million people in South Africa and 0.7 million people in Mozambique.

From both an aquatic and terrestrial perspective, the Olifants Catchment is a rich and diverse landscape. It is home to areas of endemism and high biodiversity, particularly along the Drakensberg Escarpment which includes the Blyde and Legalameetse Nature Reserves and some tributaries of the Olifants. The Olifants River flows into the Limpopo River and the Maputoland-Tongoland Ecoregion, an area of rich biodiversity and endemism which includes the Limpopo River estuary. Currently, the Olifants River is the only tributary that sustains flows of the Limpopo River in the dry season.

Large areas of the catchment have been substantially modified and the upper catchment is almost totally transformed through agriculture and mining with the latter increasing significantly in the last decade even across former agricultural areas. A number of ecosystems are considered either critically endangered or endangered and many more are vulnerable. Declining water quality and decreased flows threaten aquatic systems along the entire Olifants River within South Africa and to the Xai Xai estuary in Mozambique.

In Mozambique, the estuarine area is classified as a *National Maritime Ecosystem Priority* area. Equally, the mainstem of the Olifants River is regarded as critically endangered from its source to the protected areas in the Lowveld. Likewise almost all westerly-flowing rivers in the high and middle-veld are critically endangered. Intact river systems are limited to the Blyde and some tributaries of the Steelpoort and the lower Olifants.

Unchecked pollution, inappropriate land and resource use, poor enforcement of regulations and poor protection of habitats and biodiversity impact on the livelihoods of all the catchment's residents. With over 600 former or existing mines (coal and platinum in particular), impacts are felt in both the terrestrial and aquatic systems and on human livelihoods. The discharge effluent from many of the 100 plus waste-water treatment works (public and private), many of which are struggling to meet national standards, impacts on the aquatic systems downstream and again on peoples' livelihoods. Indeed AWARD's work suggests that the most vulnerable livelihoods in terms of the direct dependencies on ecosystem services are in the former "homelands" which cover about half of the catchment. Between 6,000 and 10,000 small-scale farmers as well as the mangrove ecosystem at Xai Xai are dependent on flows into Mozambique. These connections highlight the importance of the systemic approach adopted by AWARD.

Conceptual Background to this Report

MERL principles & approach: how we measure success

The "hybrid" framework for ongoing monitoring, evaluation, reporting and learning (MERL) in **RESILIM**-O informs our approach to evaluating the success of our projects and the program as a whole. Our MERL approach combines monitoring against indicators with reflective process monitoring and more open-ended processes for obtaining explanatory data and evaluative insights. It includes formative evaluation and aims to stimulate learning and enable strategic adaptive management.

Success at the program level is measured by whether project activities contributed to **reducing vulnerability to climate change and improving transboundary water and biodiversity governance and management** in the Olifants River Catchment. These programmatic outcomes are intended to **enhance the resilience of people and ecosystems** in the longer term (the program impact). Improved water and biodiversity governance and management is expected to take place through institutionalisation of collaboratively developed tools, guidelines and policies, and through building the capacity of individuals and organisations in the catchment. Capacity development is understood as any activity that enhances one or more of the following five aspects of capacity:

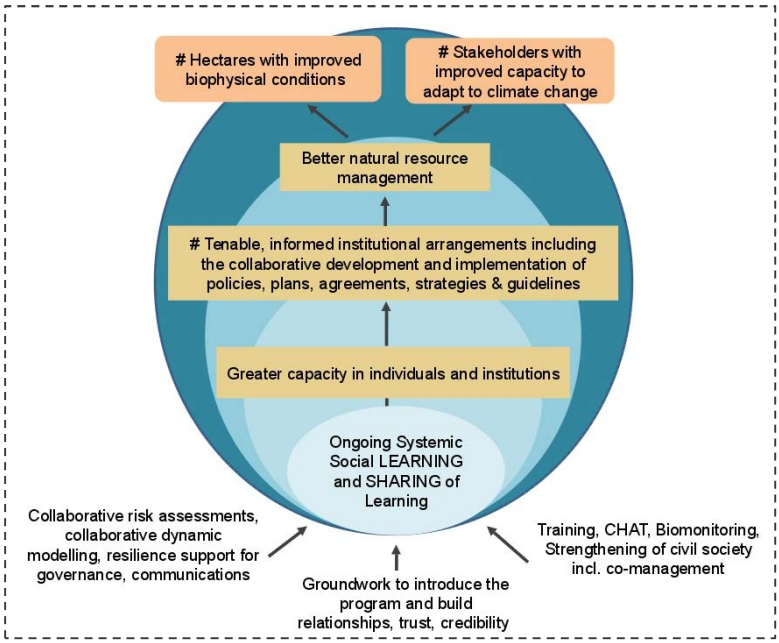


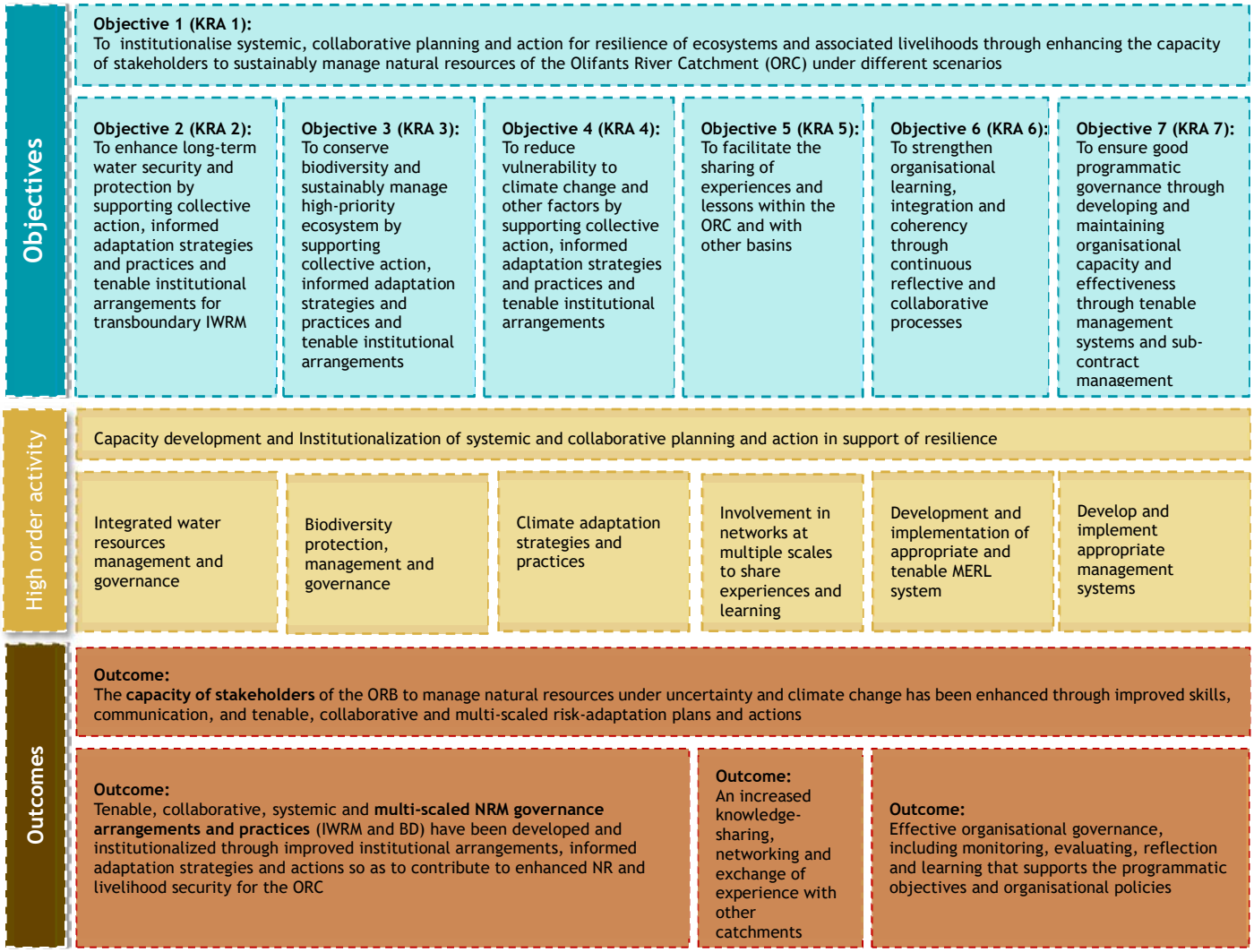
Figure ii: RESILIM-O theory of change showing the relationships between the high-level USAID indicators (coloured boxes) against which the program is reported

Individual capacity and competence (skills, behaviours, attitudes e.g. conflict resolution, application of tools and technologies, decision-making, management skills, systems thinking)

1. Organisational capacity (systems, processes for management, budget etc.)
2. Presence of "enablers" (e.g. policies, software, tools, maps, infrastructure)
3. Capacity for collective action (ability to work together, ability to build consensus, within and outside the organisation)
4. Capacity for appropriate communication (within and outside of the organisation)

The theory of change emphasises systemic, social learning as foundational to the program, both as a mechanism and an outcome. The concentric, shaded circles depict the non-linear way in which system-wide social learning is expected to spiral out from and inform all program activities. Desired outcomes (e.g. collaborative development and implementation of policies and plans) are a result of social learning but also contribute to further social learning.

The RESILIM-O program is structured under seven key result areas (KRAs), with the following objectives and outcomes:



Important Terminology:

- **Indicators** tell you if you are getting where you want to be; what you will measure to indicate success (indicators are NOT statements of what you want to achieve). Should be specific and measurable.
- **Outputs:** products, goods, tangibles - immediate and intended (e.g. training courses, tools, documents).
- **Outcomes:** results or effects (immediate effects arising from the project activities). Can be positive or negative.
- **Impacts**: longer-term results or effects (can be positive or negative).

Systems thinking for understanding complex systems

Systems thinking recognises that many environmental and social problems are interconnected across different areas of interest (food, water, land, livelihoods, climate) and across space and time. While referencing real features of the world, a system is essentially a socially constructed entity with particular boundary choices which suit the particular purpose. We recognise that so-called 'social' and 'ecological' systems are more usefully seen as interacting, co-evolving and complex socio-ecological systems (or SES).

Systems thinking requires a shift from a reductionist view to a complexity frame of reference which recognises variability, uncertainty and interactions between components. Researchers working within the complex social-ecological system conceptual tradition argue that it is necessary to 'live' complexity thinking in order to truly take part in action research and reflexive learning. Increasing engagement with systems thinking is usefully described by Shelley and Ison's three categories of 'systemic sensibility', 'systems literacy', and 'systems thinking in practice'.

AWARD strongly supports the need for a systemic basin-wide approach to natural resources governance. It is this commitment that underpins our transboundary approach, be it across administrative, political, social or economic 'boundaries'. Our integrated approaches for collaborative action recognise the integrated nature of socio-ecological systems.

What is social learning? And why social learning?

Social learning is not just learning in a social context. This would make any interaction a learning process. What distinguishes social learning from other forms of learning is that the aim is to transform and change practice. It is also a case of learning about that which is not yet there.

Social learning is defined as a change in understanding that goes beyond the individual and spreads throughout communities or groups through social interactions between people (Reed, et al 2010). Arjen Wals (2007) suggests important 'stages' in the process of social learning where one critically analyses one's own beliefs, norms and values (deconstruction), confronts those of others, and makes new meanings (reconstruction). Ison (2010) describes social learning as a process of socially constructing an issue with actors through which their understanding and practices change, leading to transformation of the situation through collective and concerted action. In the illustration, S2 refers to the situation, S3 to its modified solution, and Sn to the result of further iterations of modifying the situation, (SLIM 2004). Social learning is thus a feature of knowing and doing and at the same time an emergent property of the process to transform a situation (ibid).

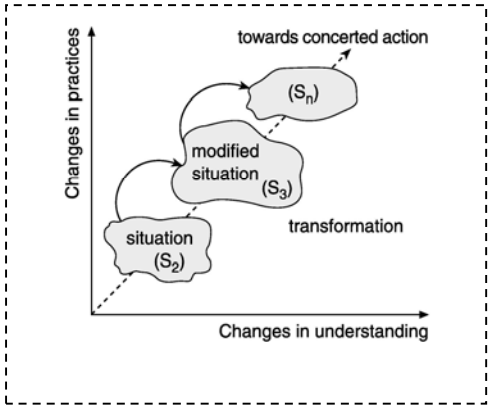


Figure iii: The process of social learning (Ison 2010)

These perspectives on learning have significantly influenced AWARD's way of working so that we are attentive to processes that foster a 'safe' learning space where people participate with each other to create new ideas or meanings. Most complex problem-solving around natural resources management requires action beyond the individual, making collective 'meaning-making' and collective action of central importance.

Resilience

Resilience is an ability to recover from or adjust easily to misfortune or change. The Resilience Alliance (www.resalliance.org) adopts a definition of resilience as the capacity of a social-ecological system to absorb or withstand perturbations and other stressors such that the system remains within the same regime, essentially maintaining its structure and functions. It describes the degree to which the system is capable of self-organization, learning and adaptation.

The following system features are important for building resilience (adapted from Biggs *et al*. 2015):

1. **Diversity** combined with overlapping function (e.g. if NGOs and government offer an extension service and one of these sources fails to deliver, the system can remain resilient)
2. **Connectivity** and flow of information into an otherwise isolated system can help with change.
3. **Feedbacks** if things start going wrong, for corrective action; or in positive situations, for continuation. Slow variables (like the effect of education) can take a long time to provide feedback.
4. **Complex systems understanding** to help avoid expectations of simple 'silver bullet' solutions.
5. **Learning** at all levels in a way that encourages the discussion of options, experimentation and mistakes.
6. **Participation** even across dissenting boundaries or "siloes".
7. **Polycentric governance** or a healthy multi-level network of governance (not only government).
8. **Equity to enhance participation and reduce exclusion**.

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Acronyms & Abbreviations

AcBio	African Centre for Biodiversity
Agri-SI	Agriculture Support Initiative
AWARD	Association for Water and Rural Development
CSOs	Civil Society Organisations
DAFF	Department of Agriculture, Forestry and Fisheries (former)
DEFF	Department of Environment, Forestry and Fisheries
DICLAD	Integrated Management System
DKA	Dreikonigsaktion
ITPGFRA	International Treaty on Plant Genetic Resources for Food and Agriculture
K2C	Kruger to Canyons Biosphere (non-profit organisation)
KRA	Key Result Area
LED	Local Economic Development
LRC	Legal Resources Centre
MDF	Mahlathini Development Foundation
NGO	Non-Governmental Organisation
PGS	Participatory Guarantee System
RESILIM-O	Resilience in the Limpopo Basin Program (RESILIM): Olifants Catchment
TVET	Technical and Vocational Education and Training
UPOV	Convention of the International Union for the Protection of New Plant Varieties
USAID	United States Agency for International Development

1 Executive Summary

Small-scale farming is an important activity in the middle and lower parts of the Olifants River catchment. Despite this, small-scale farmers farm in a world of challenges which have negatively affected the value and perception attached to agriculture as a viable household livelihood option or contributor to food security. In our experience, there is little sense of pride, collective identity or empowerment which, we argue, is a major constraint to farmers realising their true place in society.

The project therefore aimed to support increased capacity, agency and resilience of small-scale farmers, in targeted communities in the middle and lower catchment of the Olifants River, to the multiple challenges they face, including climate change.

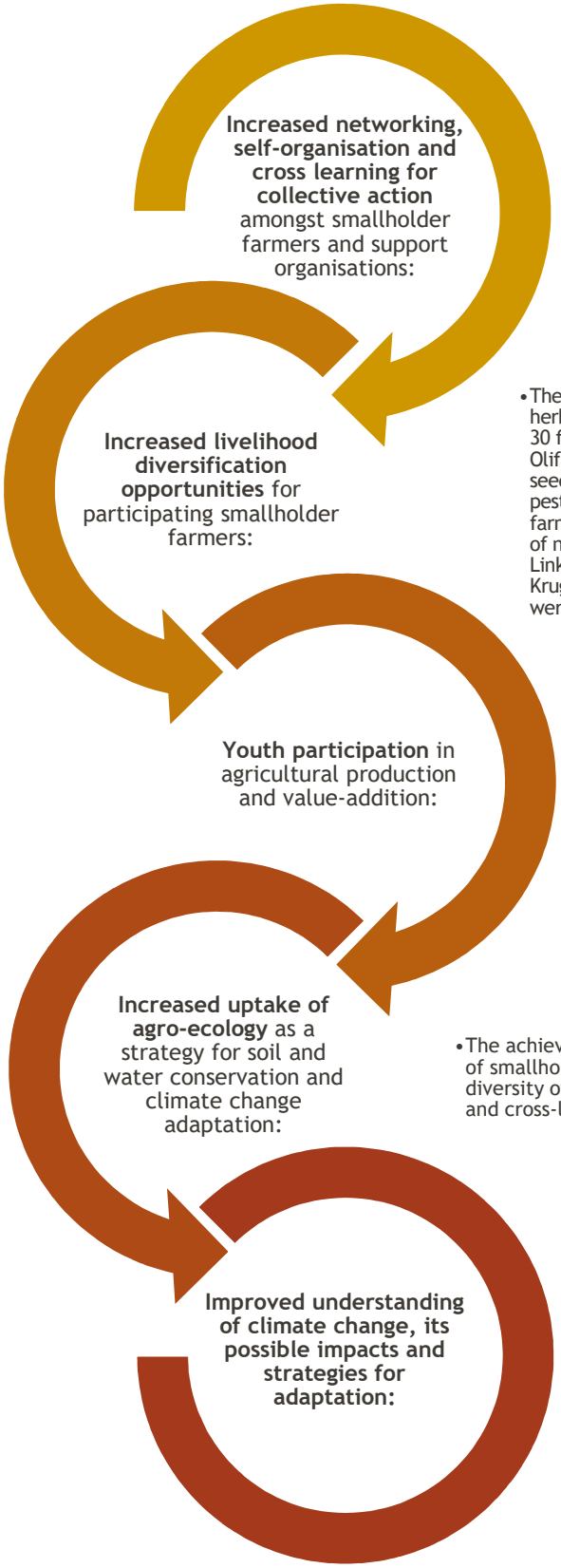
Specific objectives were to:

- Promote increased networking, self-organisation and cross learning for collective action amongst smallholder farmers, NGOs and relevant stakeholders and service providers in the middle and lower Olifants River catchment.
- Support the diversification of livelihood options for participating smallholder farmers.
- Where appropriate, support participation of the youth in agricultural production and value-addition.
- Support the uptake of agro-ecological, climate change adaptation practices and the use of Information Communication Technologies (ICTs) amongst the participating smallholder farmers.
- Ensure that climate change adaptation is explicitly embedded in agro-ecological processes and practices.

The project was one of a suite of projects falling under the **Agriculture Support Initiative (Agri-SI)**, which was one of several Resilience Support Initiatives under the RESILIM-O program. It was closely integrated with the Agri-SI Middle Olifants and Agri-SI Lower Olifants projects implemented through sub-grants to Ukuvuna Harvests and Mahlathini Development Foundation respectively.

The problems experienced by smallholder farmers cannot be solved only through training and capacity building in agro-ecological practices. It is necessary to work at both the individual and collective level to address the fundamental problems of disempowerment and lack of agency amongst farmers. The project theory of change therefore included a range of networking and transformative capacity building interventions, all designed to stimulate cross learning, develop a sense of self-respect, and improve capacity for collective action amongst the participating smallholder farmers. The intention was to contribute to the development of smallholder farmers who are “proud to be farmers”, “who value what they do”, and “who are, besides being aware of and able to demand” their constitutional rights to essential agricultural support services, also able to collectively mobilise their own resources to sustain their climate-smart agricultural practices. The project also provided support for livelihood diversification and active engagement of youth in agriculture.

The following outcomes were achieved:



- Strong agroecology networks were established through the project which improved the total reach of the two sub-grant projects and helped to create more integrated farmer support systems. The shared learning and networking events were very successful in building increased capacity, peer learning, motivation and farmers' identities, as well as establishing more integrated support networks for farmers and partners engaged in similar work in the region. These networks provided a foundation for the sustainability of this work.

- The project provided market access support for organic vegetables and herbs for 20 farmers in Mametja, training in organic mango production for 30 farmers in Lepelle as well as training in poultry production. In the lower Olifants, 74% of participants earned some income, and 76% implemented seed saving and value adding activities (such as producing juices, sauces, pesto and dried herbs). In the middle Olifants, 60% of the 292 participating farmers engaged in some form of entrepreneurship, including establishment of nurseries, sales of flowers, herbs, fruit, poultry and eggs, and teaching. Links with the PGS Hoedspruit network for organic endorsement and the Kruger-to-Canyons Biosphere's "From the Region, For the Region" initiative were established to further increase market access in future.

- Although around 50 young people received training and and material support, and engaged in agro-ecological activities through the project, many did not sustain their involvement and left to pursue other opportunities. We therefore focused on supporting a few motivated and innovative young people with the aim of setting up a network of 'youth influencers' to carry the ideas forward and become examples for others to follow.

- The achievements of the two sub-grant projects in increasing the number of smallholder farmers implementing agro-ecology and also the range and diversity of agro-ecological practices were supported by the networking and cross-learning events implemented under this project.

- The impact of the climate dialogues (run in collaboration with the *DICLAD* project) workshops is evident in the way that most of the smallholder farmers can now talk about climate change and the way the agro-ecological practices they are implementing help them adapt to the challenges of increased temperatures and uncertain rainfall patterns.

Major challenges experienced were farmers' limited access to water for agriculture, the lack of buy-in from state actors (government departments and municipalities) to small-scale farming as a development option, and the difficulties around youth engagement. Our experience with supporting livelihood diversification showed that a fair amount of experimentation is required to find options that work and are sustainable in each particular context. This highlights the importance of having sufficient trust between farmers and project staff to be prepared to experiment without being sure of whether experiments will be successful or not.

Despite the challenges, however, there was evidence of great success in building motivation and farmers' identities, as well as establishing more integrated support networks for farmers and partners engaged in similar work in the region, as a basis for collective action. The networks and collaborations established through this project will help to sustain support for participating farmers even when USAID and DKA funding comes to an end.

Important recommendations emerging from the project are:

- **Small-scale farming as an agricultural practice deserves FAR more recognition** on many fronts: from the Minister and Department of Agriculture, from agricultural extension workers, from Traditional Authorities, from municipalities, and from farmers and communities. This project has highlighted the important contribution small-scale farming can make to food security, livelihoods, job creation, identity, empowerment of women and resilience. Rather than being ignored in favour of larger-scale commercial agriculture, or seen as a starting point in a necessary progression towards commercial agriculture, small-scale farming should be **encouraged, supported and celebrated in its own right as a route to resilience**. Practical implications of this recommendation include:
  - The need for municipalities and Traditional Authorities to ensure that sufficient land is allocated to small-scale farming, and that this land is protected from competing land uses such as mining and housing developments
  - The need for consistent agricultural +extension support and support through municipal Local Economic Development plans
  - The need to include small-scale farming in local educational curricula
- **Advocacy and lobbying for policy changes and recognition of small-scale farmers** are important at all levels, in light of the above. Appropriate communication materials should be developed to make a case for the importance of small-scale farming for climate preparedness, food security and resilience. A clear position statement is needed to co-ordinate these efforts.
- **Allow time for trial and error at all levels** otherwise adaptative capacity will not develop in the system. Share ideas, lessons and experiences across the network regularly. Promote an "experimental" mindset, in which failure is not avoided but is seen as part of the learning journey. Promote and support local innovations.

2 Introduction

A large proportion of the population in the middle and lower Olifants River catchment is rural (Figure 1). Dense rural settlements reflect the country's political history and the location of the former "homelands" or "bantustans" (Figure 1). Approximately 35% of households engage in small-scale farming through small homestead gardens (0.01 to 0.1 ha for vegetables, grain and fruit production).

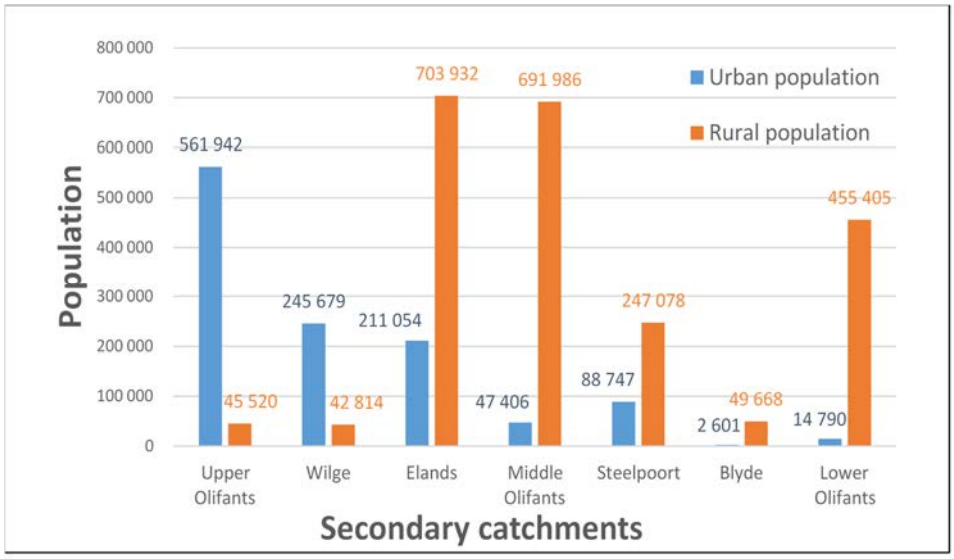


Figure 1: Urban and rural population in each secondary catchment of the Olifants catchment in South Africa.

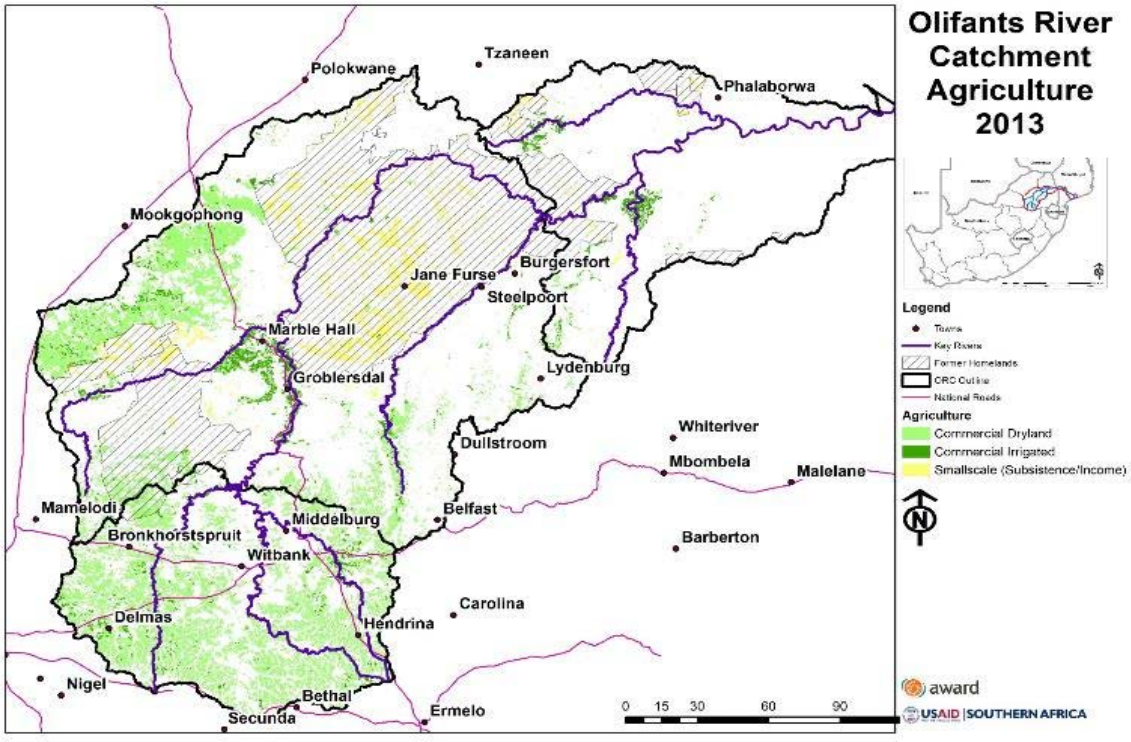


Figure 2: Agriculture in the Olifants catchment, showing the predominance of small-scale farming (yellow) in the former "homeland" areas of the middle and lower catchment.

Despite the importance of agriculture, smallholder farmers in South Africa farm in a world of challenges which have negatively affected the value and perception attached to agriculture as a viable household livelihood option or contributor to the country's food security. In our experience, there is little sense of pride, collective identity or empowerment which, we argue, is a major constraint to farmers realising their true place in society. In reality they face various challenges that not only constrain household production but that also impede their growth and ability to effectively contribute to wider food security relative to commercial farmers.

Most smallholder farmers are influenced by poor soil and water conditions combined with the lack of physical and institutional infrastructure. Lack of access to proper roads or transport and communication services for example, constrains the farmers' ability to access inputs, markets and also information. The same smallholder farmers also lack credit worthiness and thus struggle to access finance to expand their agriculture ventures[1]. The added vagaries of climate change are likely to exacerbate some of these challenges, where projections of increased temperatures and more intense climatic events[2] will require further resilience in the farming sector.

Consequently those households trying to engage in agriculture feel neglected, unimportant and often excluded. The overall sense of identity and agency of farmers to collectively advocate for themselves (for example for access to support services or recognition in policy) is greatly compromised. It is arguably for this reason that despite "access to water for agriculture" being a constitutional right, most of the small-holder farmers in Mopani, Sekhukhune and Capricorn districts continue to grapple with the challenges of accessing adequate water to sustain their agricultural activities. In addition, because of their inconsistency in production coupled with lack of market information, many of these smallholder farmers lack bargaining power and are often short-changed when they sell their agricultural produce. Moreover few farmers advocate for essential support services from relevant farmer support service institutions nor do these farmers plan collectively to mitigate failure by government to support them. Added to this is the negative attitude of youth towards agriculture, in general resulting in very low levels of participation in agro-related livelihoods options[3].

Therefore, to build farmers' adaptive capacity and resilience to deal with climate change, the important issues of agency, self-organisation and collective action need to be addressed alongside improved soil and water conservation practices and livelihoods diversification. The Agriculture Support Initiative (Agri-SI) comprises a suite of coordinated projects being implemented by AWARD in the Olifants River catchment, under the USAID-funded RESILIM-O (Resilience in the Limpopo Basin Program – Olifants) program.

[1] *GrainSA Smallholder Farmer Innovation Programme, Annual report (2015-2016)*
[2] *AWARD Internal Report (2017 and in prep.)*
[3] *Dube. B (2014) http://www.youthvillage.co.za/2014/05/promoting-youth-participation-agriculture/. Accessed 09 March 2018*

3 Project Objectives

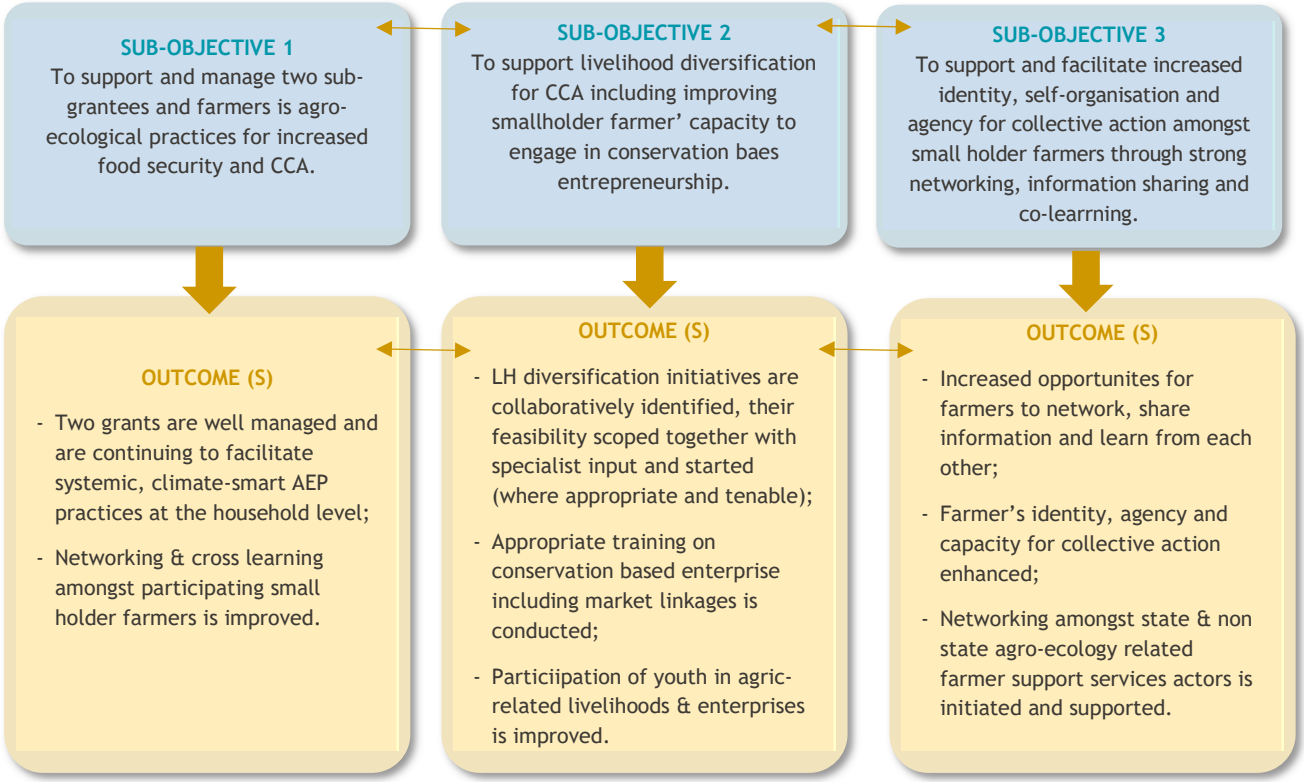
3.1 RESILIM-O KRA objective

The Agriculture Support Initiative falls under Key Result Area (KRA) 4 with the objective *to reduce vulnerability to climate change and other factors by supporting collective action, informed adaptation strategies and practices, and tenable institutional arrangements.*

3.2 Project objectives

The project aimed to support increased capacity, agency and resilience of small-scale farmers, in targeted communities in the middle and lower catchment of the Olifants River, to the multiple challenges they face, including climate change. Specific objectives were to:

- Promote increased networking, self-organisation and cross learning for collective action amongst smallholder farmers, NGOs and relevant stakeholders and service providers in the middle and lower Olifants River catchment.
- Support the diversification of livelihood options for participating smallholder farmers.
- Where appropriate, support participation of the youth in agricultural production and value-addition.
- Support the uptake of agro-ecological, climate change adaptation practices and the use of Information Communication Technologies (ICTs) amongst the participating smallholder farmers.
- Ensure that climate change adaptation is explicitly embedded in agro-ecological processes and practices.



3.3 Links to other RESILIM-O projects

This project was one of a suite of projects falling under the **Agriculture Support Initiative (Agri-SI)**, which was one of a number of Resilience Support Initiatives under the RESILIM-O program. Projects under the Agri-SI included:

- **An overarching project led by AWARD (this project),** focusing specifically on developing agroecological networks, collective action and agency, and additional learning opportunities across the whole project area, and which also maintained oversight of the work carried out by the two sub-grants (below).
- **Agri-SI Lower Olifants,** implemented by Mahlathini Development Foundation in the Mopani District. This covered eight villages, namely Mabins A, Mabins B - Sedawa, The Oaks, Willows, Finale, Turkey and Lepelle (the Memetje cluster – see Figure 3).
- **Agri-SI Middle Olifants,** implemented by Ukuvuna Harvests in the Capricorn and Sehkuhkune Districts. This covered ten villages, namely Makweng, Makuhleneng, Hwelereng, Magatle, Dithabaneng and Ga-Rakgoatha, Motetema, Tafelkop, Monsterlus and Groblersdal; Figure 3).

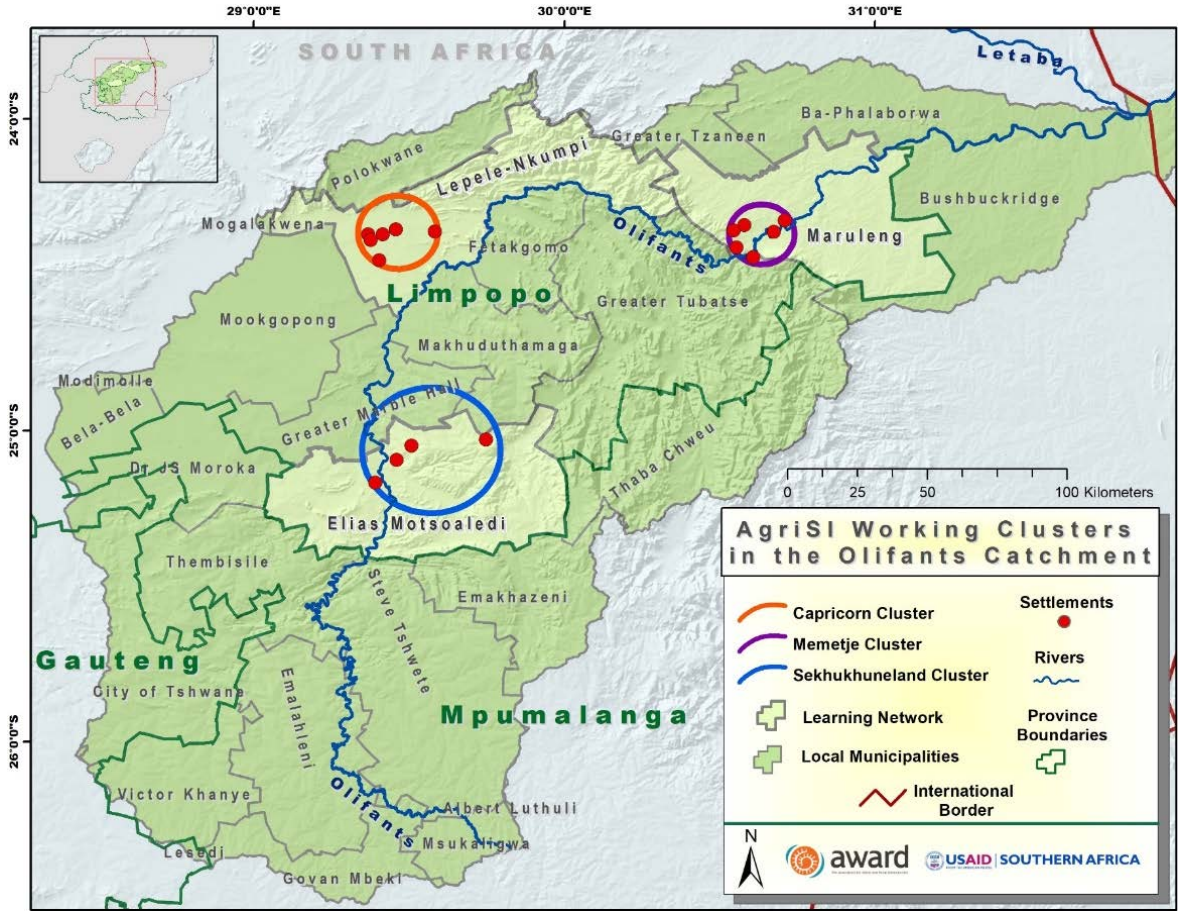


Figure 3: Map showing Agriculture Support Initiative project areas

All the Agri-SI projects had a close connection with the RESILIM-O project *Dialogues for Climate Change Literacy and Adaptation (DICLAD)* as this provided an important complement to the work on climate-smart agricultural practices. Module 1, 2 and 3 dialogues were held with all Agri-SI farmers (see the DICLAD final report).

4 Approach/Process/Activities

4.1 Project theory of change

The problems experienced by smallholder farmers (described above) cannot be solved only through training and capacity building in agro-ecological practices. It is necessary to work at both the individual and collective level to address the fundamental problems of disempowerment and lack of agency amongst farmers.

The project theory of change includes a range of networking and transformative capacity building interventions, all designed to stimulate cross learning, develop a sense of self-respect, and improve capacity for collective action amongst the participating smallholder farmers. The intention was to contribute to the development of smallholder farmers who are “proud to be farmers”, “who value what they do”, and who are, besides being aware of and able to demand their constitutional rights to essential agricultural support services, also able to collectively mobilise their own resources to sustain their climate-smart agricultural practices. The project also provided support for livelihood diversification and active engagement of youth in agriculture.

Our key entry point was agroecological farming practices. This collection of practices for soil and water conservation has the advantage of being locally tenable and cost effective through a reduction in input costs. Agro-ecological approaches are widely considered to support small-scale farmers to be responsive to and adapt to change, enhancing food security. The Hand of Change, or “Five Fingers” heuristic developed by AWARD (Figure 4) was used as a framework to guide the development of agroecological capacity. Farmers participated in experimentation and monitoring their own practices, creating a vision of development as social learning.

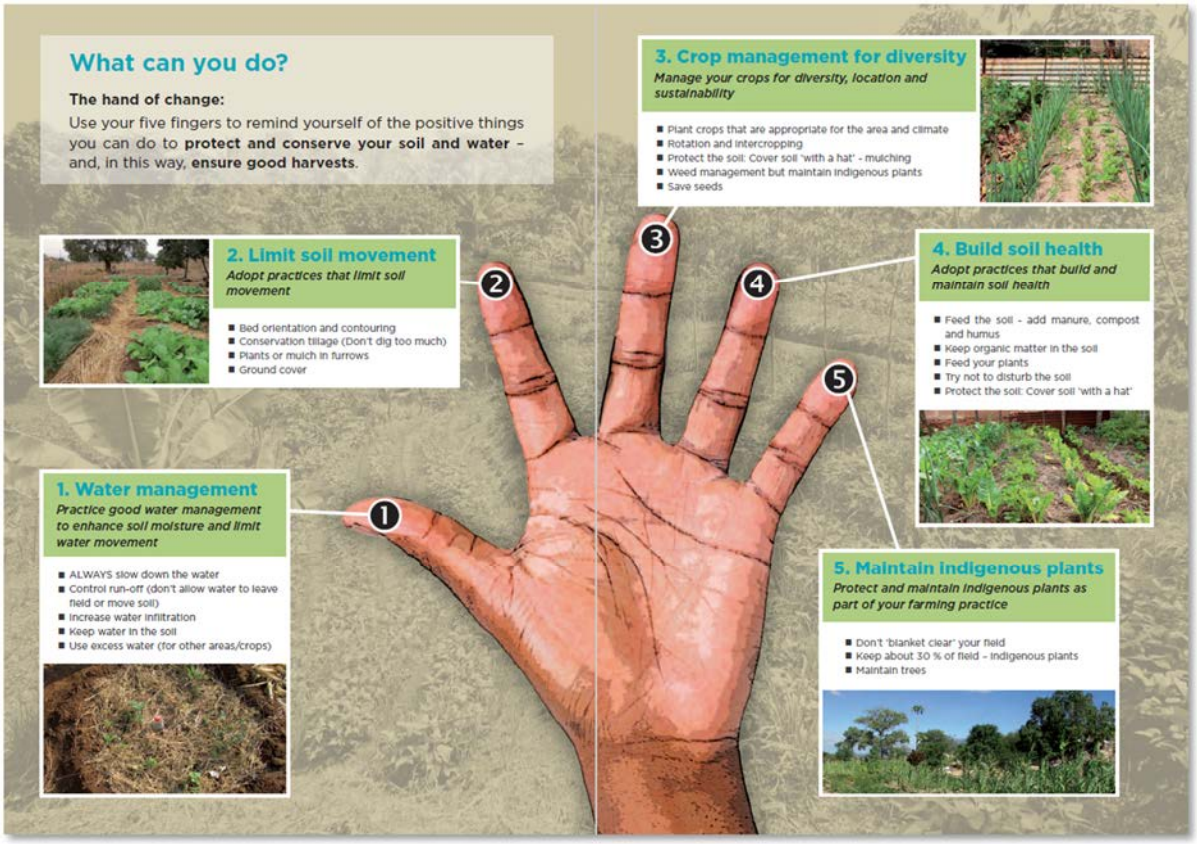


Figure 4: The Hand of Change or “Five Fingers” heuristic

Livelihood diversification and income generating activities are an important part of integrating local producers into the value chain as well as providing livelihood security. Once farmers improve their production they become interested in providing produce for the local markets. The theory of change therefore explored multiple avenues for integrating the small-scale farmers into local networks through skills development, training, and confidence and identity building.

Ensuring that vulnerable and marginalised groups would benefit from the project was considered key:

- **Women:** More than 55% of the population in all the target districts is women, and women are most actively involved in small scale agriculture.
- **Youth:** Approximately 7% of the population in Capricorn[4], Sekhukhune and Mopani districts are youth (19—35 years). Research has also shown that youth interest and participation in agriculture is very limited, yet unemployment is also very high, leaving the youth with very few opportunities to engage in any kind of livelihood option.
- **The elderly:** Despite being a minority in the three districts, the elderly possess very valuable experience which is critical for the promotion of various agriculture-related livelihood options.

The selection of beneficiaries was motivated by the need to implement the project in a way that is pro-poor, gender sensitive and socially inclusive, and thus covering the most marginalized and vulnerable people of the villages involved. These are the same populations most vulnerable to the effects of climate change.

The Agri-SI aims to build resilience of smallholder farmers to climate change through:

- Supporting diversification of crops, practices and livelihoods;
- Improving networking and connectivity among farmers and partners in the region, as well as connecting farmers to markets;
- Addressing important "slow variables" with long-term impacts on resilience (soil fertility, farmer identity and pride);
- Supporting peer learning and experimentation among farmers;
- Addressing equity by supporting particularly vulnerable groups: youth, women and the elderly.

[4] *Statistics South Africa. Retrieved 08 March 2018 (based on Census 2011)*

The overall starting conditions for the project and the nature of the intended transformation are summarised in Figure 5.

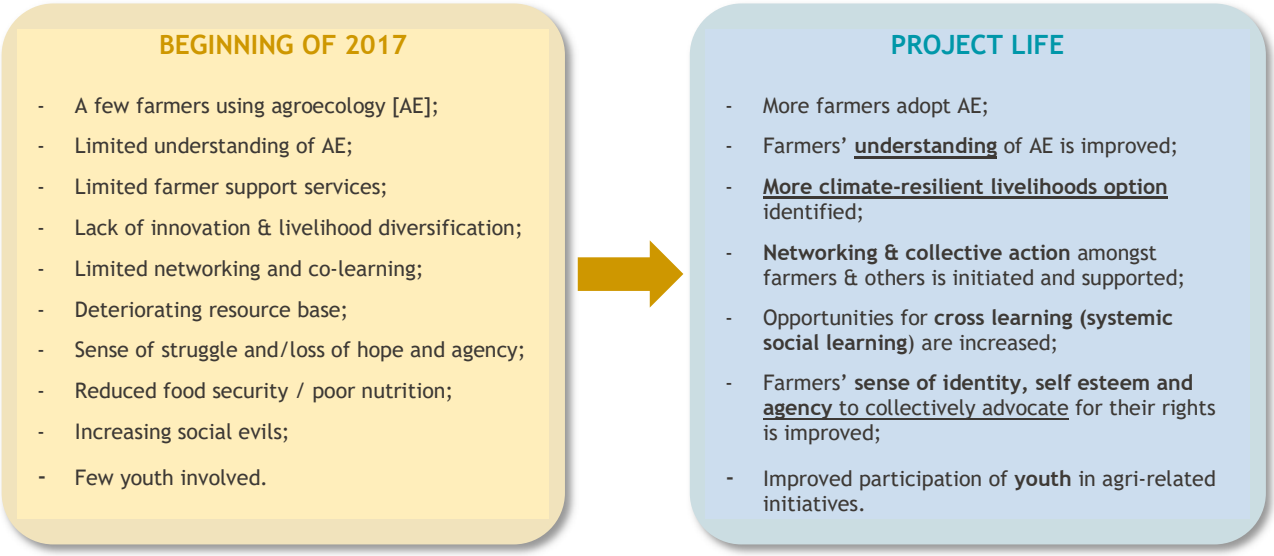


Figure 1: Schematic summarizing the Agri-SI Theory of Change

4.2 Summary of activities

Project activities are described under the project objectives as presented in Section 3.2.

4.2.1 Promoting increased networking, self-organisation and cross-learning for collective action

Several **learning exchanges** were held, providing opportunities for farmers from different villages and different parts of the catchment to visit each others' gardens and share experiences, practices, innovations, seed and produce (Table 1).

Figure 6: Learning exchange between lower and middle Olifants farmers, 1-3 October 2018.

TABLE 1: FARMER LEARNING EXCHANGES SUPPORTED BY THE AGRI-SI PROJECT

DATE	EVENT	NO. OF PEOPLE	DESCRIPTION
APR 2017	Farmer Open Day in the Lower Olifants	70	Learning group exchange between different villages in the Lower Olifants, held at Sedawa
SEP 2017	Visit to the Pretoria National Botanical Garden	11	Farmers from the Middle Olifants visited the National Botanical Garden to learn about propagation and use of indigenous plant species
OCT 2018	Cross-learning trip to Middle Olifants	25	15 Farmers from Mametja (Lower Olifants) visited 10 farmers from the Middle Olifants
MAR 2019	Farmer Open Day in the Middle Olifants	33	Participants visited three villages in the Middle Olifants (Motetema, Tafelkop and Monsterlus); 13 farmers travelled from the Lower Olifants
AUG 2019	Agro-ecology shared learning event	103	Farmers from 4 districts, namely Mopani (Lower Olifants), Sekhukhune and Capricorn districts (Middle Olifants) and Ehlanzeni (Bushbuckridge), were hosted at a homestead in Sedawa, as well as traditional authorities, NGOs, CBOs, government departments, farmer projects and private businesses involved or interested in agroecology

Figure 7: Farmers sharing knowledge, innovations, experiences, seed and produce at the Open Day on 14 March 2019.

The shared learning opportunities listed in Table 1 were supplemented with frequent learning opportunities provided through the two sub-grants. These included internal exchanges between cluster leaders and members to share skills and knowledge, exchange seeds, and plan and work together, as well as ongoing monitoring of gardens by cluster leaders. The approach was highly participatory and allowed many opportunities for peer learning in participants' home languages.

Figure 8: Group photo at the shared learning event in the Lower Olifants, 16 August 2019.

Figure 9: Farmers visiting Ukuvuna cluster leader Anna Molala's seed bank at her homestead in Makweng in the middle Olifants.

The project also established and operationalised the **"Climate smart Agroecology Network[5]" (CSAN)** bringing together around 35 organisations (including NGOs, Universities, CSOs and government departments) with interest in agroecology, climate-smart agriculture, livelihood diversification, food security and working with smallholder farmers. Two network meetings were held (Table 2).

TABLE 2: MEETINGS OF THE CLIMATE-SMART AGROECOLOGY NETWORK INITIATED BY AWARD

DATE	EVENT	NO. OF PEOPLE	DESCRIPTION
APR 2018	First Climate-Smart Agro-ecology Network meeting in Hoedspruit	30 (25 organisations)	Hosted by AWARD
NOV 2018	Second Climate-Smart Agro-ecology Network meeting in Nelspruit	47 (18 organisations)	Hosted by University of Mpumalanga. Keynote addresses by ACBio and the LRC focused on the Seed Bills and Seed Treaties.

Figure 10: (Left) Dr Sharon Pollard giving an overview of the social systemic learning approach that AWARD uses for its programming; (Right) Members engaging in group discussions at the network meeting, April 2018.

AWARD also engaged with broader agroecology networks in order to learn and share experiences. Bigboy Mkhabela attended the Agroecology South Africa strategy workshop in Cape Town in December 2019, made possible by our partner ACBio (African Centre for Biodiversity). This event drew together partners from all over South Africa to develop a common vision and strategise on how to work together better as a network and how to influence policy.

[5] *The naming of this network as "climate smart agroecology network" is influenced by the need to have a broader conceptual framework, within which different sustainable and environmentally sensitive agricultural practices can be accommodated.*

Fighting for Smallholder Farmer's Rights to Food and Seed Systems

Another important aspect of networking to support collective action and agency was the work done in collaboration with the Legal Resources Centre and African Centre for Biodiversity to empower smallholder farmers to advocate for their rights to food and seed systems. This was made necessary by the amendment of the Plant Improvement Act 53 of 1976 (PIA) and Plant Breeder's Rights Act 15 of 1976 (PBRA) coupled with the possible accession to the 1991 Convention of International Union for the Protection of New Plant Varieties (UPOV) and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGFRA), all of which will have huge implications for smallholder farmers' food sovereignty and right to seed saving, exchange and sale.

Figure 11: Linzi Lewis from ACBio presenting on SA seed systems at the 2nd network meeting, November 2018.

Two two-day education and awareness workshops were held with 116 farmers from the Middle and Lower Olifants in October and November 2018. The Agri-SI team also attended a series of workshops in Johannesburg run by the African Centre for Biodiversity to discuss the Seed Bill and Seed Treaties.

The first set of two day workshops was held in Lebowakgomo on 4—5 October 2018 and was attended by 55 smallholder farmers. The second series of workshops was held in Mametja, Sedawa Community hall on 7—8 November, attended by 61 farmers.

Figure 12: Seed Bill workshops in Lebowakgomo in the Middle Olifants, October and November 2018.

4.2.2 Supporting the diversification of livelihood options for participating smallholder farmers

Organic herb growing and marketing initiative

As part of adding value to the soil and water conservation initiatives that are integral to the agro-ecological practices promoted by the Ukuvuna and MDF sub-grant projects, training in herb production and market access linkages was started mid-2018. This innovative intervention has seen more than 20 smallholder farmers engage in the production of different types of herbs, with market access linkages provided by Hoedspruit Hub.

Figure 13: Herb production and marketing workshop

Various marketing models were tried, including direct supply to restaurants through Hoedspruit Hub, sales at the monthly farmer's market in Hoedspruit, a "box scheme" where clients order boxes for a fixed price (with the box contents varying according to what is available), and a more conventional marketing process with an NGO called Hlokomela as the middleman.

In order to help smallholder farmers to access the lucrative organic foods market, the AgriSI team piloted the Participatory Guarantee System (PGS) with small-scale farmers. This is a locally focused quality assurance system which certifies organic producers based on active participation and peer assessments.

What is PGS (Participatory Guarantee System)?

Participatory Guarantee Systems (PGS) are **locally focused quality assurance systems**. They certify producers based on active participation of stakeholders and are built on a foundation of trust, social networks and knowledge exchange. The PGS is an international system and each country sets its own rules for use.

(IFOAM Organics International http://www.ifoam.bio/en/organic-policy-guarantee/participatory-guarantee-systems-pgs).

Figure 14: Farmers undergoing training in harvesting and packaging. Herbs commonly grown are parsley, basil, coriander and fennel, and vegetables include spinach, beetroot, onions and tomatoes. Right: Organic veggie box scheme.

The Agri-SI farmers, MDF and AWARD are full members of the PGS Hoedspruit network. Being part of this network means we are able to get recognition and endorsement for organic production. AWARD contributed to the development of the logo and PGS Hoedspruit identity, participated in assessments of partners seeking PGS Hoedspruit organic endorsement, translated the agroecological criteria for PGS affiliation into Sepedi and promoted water quality compliance amongst PGS members.

The PGS Hoedspruit Assessment Pack was translated by AWARD for use by the Agri-SI farmers. The Pack comprises:

1. *Questionnaire and assessment form for crops*
2. *Questionnaire and assessment form for animal husbandry*
3. *Standard operational procedures*
4. *Questionnaire and assessment form: conclusion and outcome of assessment*
5. *Members pledge*
6. *PGS farm visit checklist*

Two PGS assessments were done in October and December 2019, for the applicants Hlokomela Herbs and Hoedspruit Hub. The aim was to fully understand the system before initiating it with the small-scale farmers in 2020.

Figure15: Members of the PGS network review the assessment criteria in preparation for the first assessment, October 2019

Figure 16: Collaborative PGS assessments carried out during October and December 2019.

Mango Production and Value Addition

The goal of the mango production and value addition initiative was to help local farmers, particularly those in Lepelle and Sedawa villages, to unlock the full economic value of the mango trees traditionally planted at their homesteads. Mango trees are drought tolerant and thus have high chances of surviving with minimal watering.

About 29 farmers participated in this initiative. In September 2018 a baseline assessment of the status (quantity, production and health) of the mango trees in the two villages was done. Historical information regarding changes in the productivity of the trees was also investigated through interviews with the selected households. The assessment was followed by a four day training workshop on mango production, in which a learning visit was made to Bavaria Estate, a commercial mango farm. Topics covered in the workshops included; pruning, improving flowering, water saving, pest control, harvesting, and packaging and value addition. The workshops were run by Jeffrey Tshishonga, the Mango Estate Manager for Bavaria.

Figure 17: Visit by Jeffrey Tshishonga to smallholder mango farmers (L); farmers visiting the Bavaria Estates mango nursery (R).

A similar livelihood diversification option supported by the Agri-SI was training of farmers to establish tree nurseries.

Poultry Production

Traditional poultry production is deemed important for climate change adaptation because indigenous chickens are disease resistant and can cope with the changing climatic conditions. Training workshops on traditional poultry production were conducted for all the farmer learning groups in the lower Olifants (Mametja), with support from MDF and oversight by the AWARD Agri-SI team.

Figure 18: Small-scale farmer visit to Turkey village, Phedisang Drop-in Centre.

Learning visits were arranged within local villages for farmers interested in chicken farming as a livelihood option. Fifteen farmers visited chicken farming operations in Turkey village and at Mr Malepe's homestead in Santeng village, both of which are producing eggs for sale. These visits allowed famers to learn from each other and to create a local support network.

Access to Capital

The project explored supporting the formation of voluntary village saving and lending schemes to enhance access to capital. However this was not pursued because it was found that most people already belonged to other, more powerful, local savings groups (stokvels and burial societies) and interest was therefore low. However, some water committees in the lower Olifants did collect money for construction of boreholes (see the final report for the Lower Olifants Mahlathini sub-grant).

4.2.3 Supporting participation of the youth in agricultural production and value-addition.

In 2018 a group of youth interested in farming emerged in the middle Olifants. The Agri-SI project, working in close cooperation with Ukuvuna Harvests and Hoedspruit Hub, identified and trained 60 youth from the Sekhukhune and Capricorn districts in agroecology.

Figure 19: After receiving training in agroecology, youth transformed bare pieces of land into green patches of vegetable production.

These youth went on to set up two demonstration permaculture gardens, one in Motetema and the other in Makweng (Figure 15 and Figure 16). They were provided with capacity-building support, training and access to resources such as tanks and fencing, through our partnership with Hoedspruit Hub.

In August 2018 a four-day learning exchange was held in Monsterlus with 15 youth from different villages, facilitated by one of the Ukuvuna cluster leaders whose garden is a learning centre for the Sekhukhune district. Topics covered included entrepreneurship, water and soil management, herbs and medicinal plants, preservation and processing, animal integration and record-keeping.

Figure 20: Youth in Motetema posing for a group photo after working on their demonstration plot at the Youth in Agroecology training workshop, July 2018.

However, we found that maintaining interest among the youth was difficult. Most young people do not see farming as a high-priority career path and leave if they find other opportunities. We therefore changed our strategy to one of supporting those few young people who are really interested, by trying to boost their status and showcasing their work.

For example, Reginald Mashabela, a youth farmer who has shown interest, talent and motivation, was given an opportunity to attend the International Moringa Symposium in Pretoria in November 2019, which focused on "Unlocking Moringa Market Access".

4.2.4 Supporting the uptake of agro-ecological practices and the use of information and communication technologies

Activities under this objective were carried out by the two sub-grantees, Ukuvuna Harvests and Mathlatini Development Foundation under the guidance and management of the Agri-SI project. Activities included training workshops, collaborative experimentation with different practices, ongoing garden monitoring and reviews, and piloting the use of moisture sensors and rain gauges (see the respective final reports for these two projects for further details).

4.2.5 Ensuring that climate impacts and climate change adaptation are explicitly embedded into agro-ecological practices

Through a collaborative effort with the *DICLAD* project team, a series of workshops was held in March 2018 in the Lower Olifants (Willows, Botshabelo, Mabins A, Sedawa, Turkey, Finale, Lepelle and the Oaks) and in August 2018 in the Middle Olifants (Motetema, Tafelkop, Makweng, Makhusuaneng, Dithabaneng, Magoonong, Rakgoatha/Rama and Monsterlus). One of these workshops was specifically dedicated to the youth who had received training in agro-ecology and whose knowledge of climate change needed to be improved.

Figure 21: Farmers working in groups to document their indigenous knowledge on weather forecasting and climate change (Motetema Village 14 August 2018).

The DICLAD workshops focused on helping smallholders farmers to harness their local knowledge systems and practices for better weather forecasting and planning for planting of the different crops and vegetable varieties. Using insights generated from workshops, context-specific planting calendars were developed for use by the farmers.

5 Results

5.1 Project outcomes

The project significantly achieved many of its intended outcomes although some challenges were encountered (Section 5.3). It is important to note here that activities of this project are ongoing under funding from DKA.

5.1.1 Increased networking, self-organisation & cross learning for collective action amongst smallholder farmers & support organisations

Strong **agroecology networks** were established through the project in both the middle and lower Olifants. These networks improved the total reach of the two sub-grant projects (see Section 3.3) and helped to create more integrated farmer support systems.

- Several networks were established for learning and sharing (Box 2), supported by WhatsApp groups to facilitate communication and mutual support.
- Cross-learning visits between the middle and lower Olifants) boosted farmers' confidence and pride in being farmers, expanded their peer networks and helped stimulate their interest to innovate, for example, to engage in seed saving. Practices such as singing cultural songs at events also helped to grow farmers' identity and pride.
- Collaborations with Hoedspruit Hub, the Amanzi for Food Project and the Legal Resources Centre strengthened AWARD's capacity to support smallholder farmers in both practice and policy.
- Youth farmers were provided with capacity-building support, training and access to resources such as tanks and fencing through our partnership with Hoedspruit Hub.

Box 2:
Agroecology networks for social learning & collective action

- The Smallholder Farmers Network connecting the 388 participating farmers in the middle and lower Olifants.
- A Climate-Smart Agroecology Network with 32 members from partner organizations and related projects in the region.
- Two youth networks (Future Farmers & Permaculture Youth).
- The Don't SEED my Right Network for organisations and individuals with a shared interest in the protection of smallholder farmers' rights and farmer-centred advocacy on the right to food systems.
- The PGS Hoedspruit Network for endorsement of organic producers in the Hoedspruit area.

The various WhatsApp groups established through the project were, and continue to be, important platforms for sharing information, encouraging farmers and building a community of practice to support collective action (Figure 22).

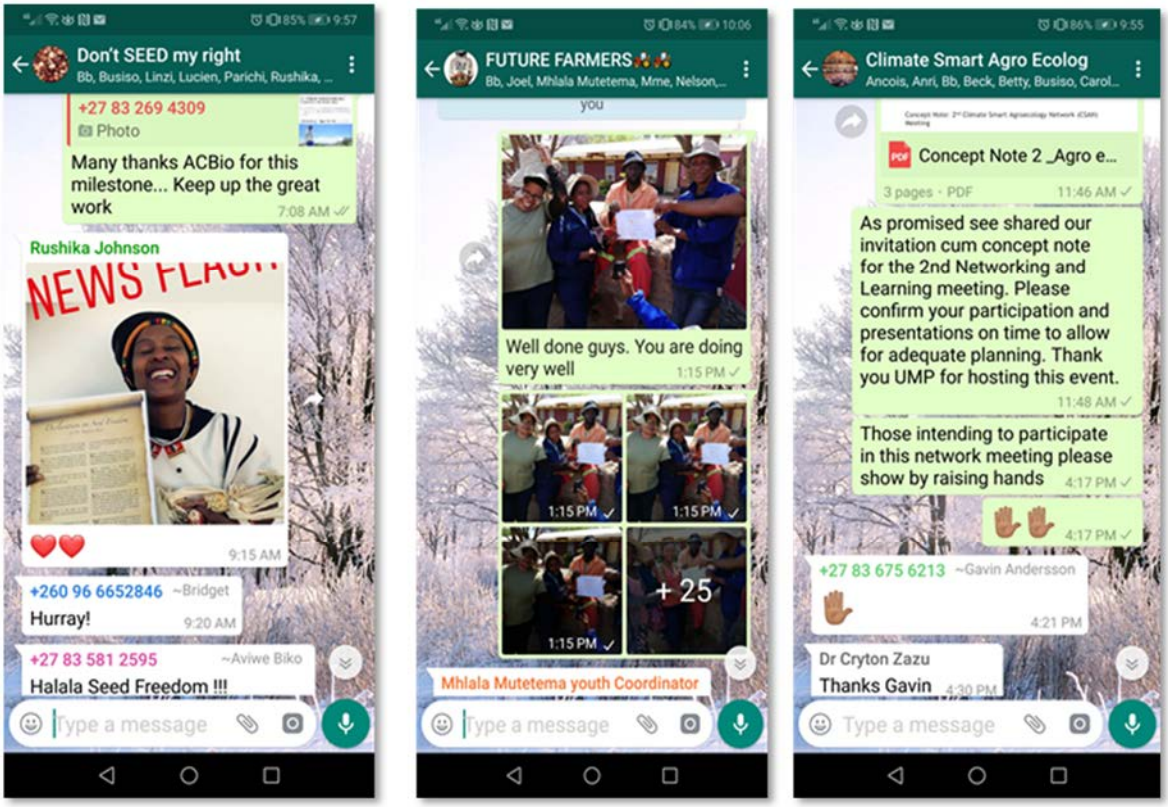


Figure 22: Screenshots of Agri-SI WhatsApp groups formed in 2018

The contributions of our key partners in the Agri-SI networks towards establishing more integrated farmer support systems are highlighted below.

Hoedspruit Hub is a partner with the potential for providing SAQA accredited training, and is also the secretariat for the PGS Hoedspruit network which was a major focus of the work on livelihood diversification (Section 5.1.2).

Hoedspruit Hub

An AgriSETA accredited NGO for commercial farmers' training and community development needs. It is a social enterprise funded by GIZ and others. Key focus areas are:

- Skills audits for local farmers, employees and managers
- Skills and development plans
- Compliance training
- AgriSETAand other SETA skills development training
- Customised training
- Training in agroecology
- Provision of bursaries to Lowveld Academy for students whose parents are working on farms
- Supporting communities in agriculture and agroecology

The "**From the Region For the Region**" network established by our partners, K2C, is a collective that supports the development of markets for local produce. AWARD has engaged with this network as a possible route for farmers to access local commercial and tourism lodge markets once they have achieved their PGS accreditation (see following section).

Figure 23: AWARD & Mahlathini Development Foundation staff meeting with Hoedspruit Hub at their offices to further strengthen our relationship.

We also worked with the **Maruleng Local Municipality** to integrate small-scale farming into their Local Economic Development programs and to gain support for local produce. The municipality is the co-ordinating entity for all community and small business projects and works with the Department of Agriculture in determining annual priorities. The key areas in which we provided support were **livelihood diversification** and **youth** (opportunities for youth to participate in agricultural production and value addition processes).

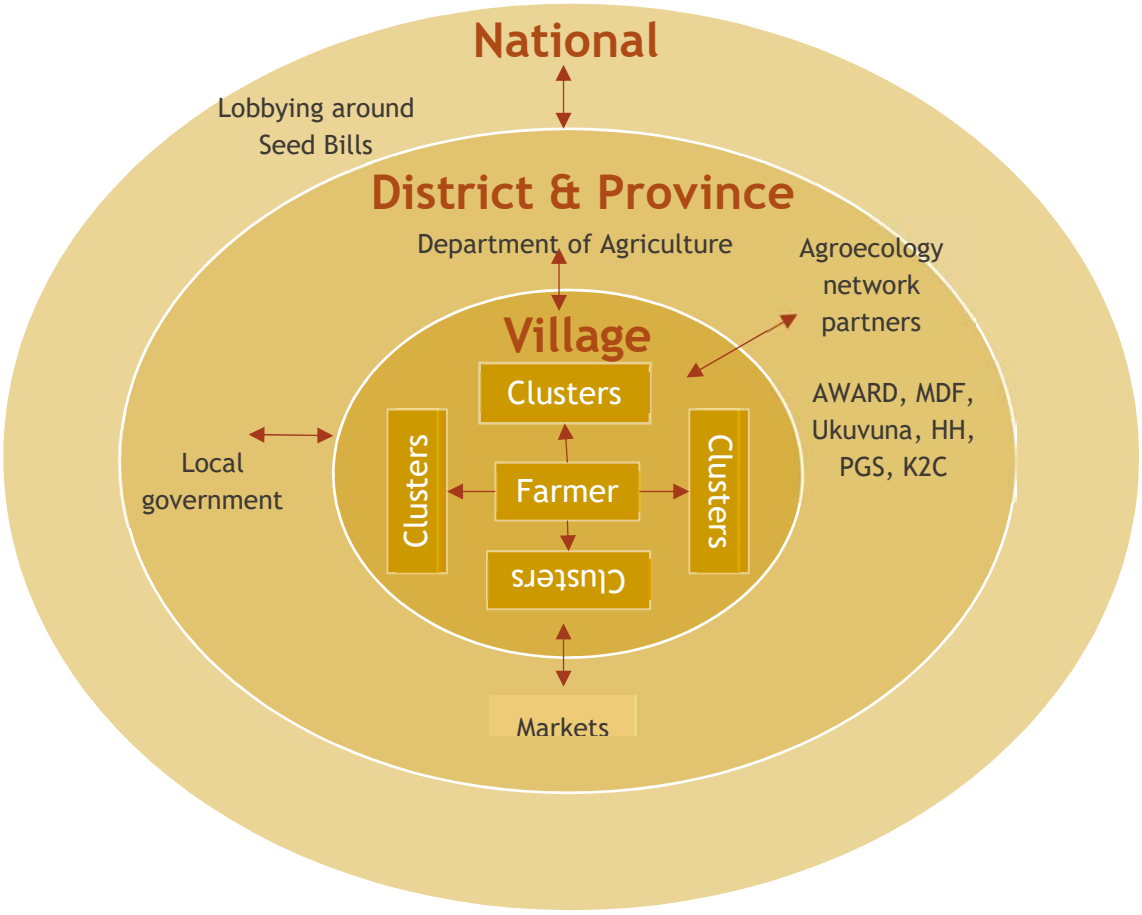


Figure 24: Enabling environment for farmers created through the networks established at village, district/provincial and national levels.

The **Farmer Open Days** were a great success. They allowed learning groups from different villages to share what they were doing and to showcase the innovations they had tried. They helped to build connections between farmers and Traditional Authorities, other NGOs and extension officers from the Department of Agriculture, and also provided farmers with opportunities for capacity development and collective action. Many aspects of these days were organised by the farmers themselves – including venues, sale of produce, seed sharing and food and drink. At one event, 13 farmers presented their stories using posters they had developed themselves with assistance from AWARD.

Social learning:

- The importance of failure for learning – farmers trusted each other and the project staff enough to be prepared to experiment without being sure of whether experiments would be successful or not. This is very different to the government's way of working with farmers (in which the tendency is to only present methods that are considered "sure to succeed").
- The garden assessment process was also a social learning process.

Many people were interested in the "Five Fingers" guideline and there is evidence that it is being used and adapted.

There was much positive feedback on the Open Days, including this comment by a representative of the Extension Services for the Department of Agriculture in Maruleng: "very humble yet one of the best innovative events, we have learned a lot".

The **Seed Bill workshops** provided farmers with information on their constitutional rights to food and seed systems, particularly the right to save, exchange and sell (saved) seeds. The farmers were able to appreciate how the proposed Seed Bills (Plant Improvement Act & Plant Breeder's Rights Act) and accession to the two international conventions (Convention of the International Union for the Protection of New Plant Varieties or UPOV, and the International Treaty on Plant Genetic Resources for Food and Agriculture or ITPGRFA) could impact on their rights as farmers and how these bills and conventions may be skewed towards protecting the interests of corporate agriculture. These instruments are seen as problematic for small scale producers because they create dependencies on commercial seeds and pesticides.

It is anticipated that smallholder farmers will now be able to act collectively, with support from AWARD, LRC and ACBio, to petition government to ensure the protection of their rights and to make input into the regulations (e.g. around exemptions). Farmers thanked AWARD and LRC for bringing them "such useful information".

Collective action:

Formation of water committees in 3 villages under the Agri-SI is a promising sign of collective action and agency. Water committees established by smallholder farmers in different villages have organised neighbourhood groups of 10-15 families who work together to collect money to manage one water source (spring or borehole) and do the reticulation for themselves. Committees from different villages have actively sought to learn from each other. Members from these groups have also entered into discussions with their local authorities to ensure that their initiatives are supported, and negotiated with more powerful individuals in their villages who presently hold 'power' over certain water sources and attempted to draw them into the broader process of sharing and managing water resources in their village.

The Water Committee at Sedawa has put together around R12, 000 to drill a borehole, and are planning to collect enough to install at least two. They have also been proactive in writing to the Maruleng LM, various NGOs and the drilling company for assistance with funding.

Figure 25:(Left) Martha Moloto from Mametja explaining the uses of herbs to Jabulani Baloyi from SABC Radio in Polokwane; (Right) Journalist Noé Hochet-Bodin interviewing farmers in the Lower Olifants.

Opportunities for farmers to tell their stories, demonstrate their innovations and explain what they had learned proved motivational to farmers and encouraged them to be an example in their communities. These opportunities included a series of farmer interviews conducted by SABC Radio in the lower Olifants, and another series of interviews by a journalist from Radio France Internationale focusing on the impacts of climate change in the Limpopo River Basin. Farmers shared their difficulties with obtaining water for agriculture and the agroecological practices introduced by AWARD and Mahlathini to help them cope with and adapt to climate change, such as mulching, minimum tillage, trench beds, water harvesting techniques and tunnels.

5.1.2 Increased livelihood diversification opportunities for participating smallholder farmers

The partnership with Hoedspruit Hub enhanced farmer livelihoods by providing market access support for organic vegetables and herbs for 20 farmers in Mametja (19% of participating farmers in the lower Olifants). Of these, 74% were able to make local sales. One success story is Christina Thobejane from Sedawa who is earning income of about R800-R1500 per month from selling her organic herb produce. However, various challenges were also encountered with market access and ongoing work is needed in this area (see Section 5.3).

Figure 26: Value addition and sale of produce.

All participants in the lower Olifants (110 farmers) doubled their food production and 74% of participants earned some income, ranging from R50 to R200 per week. Around 76% of participants implemented seed saving and value adding activities (such as producing juices, sauces, pesto and dried herbs).

Figure 27: Mr Dichaba and his flourishing tree nursery

In the middle Olifants, 60% of the 292 participating farmers engaged in some form of entrepreneurship, including establishment of nurseries, sales of flowers, herbs, fruit, poultry and eggs, and teaching. For example, Mr Dichaba in Lebowakgomo's Makweng village reported earning an average income of R450 per month through his tree nursery.

In Motetema, Mr Cossa is running a very successful poultry project. He has more than 100 birds of different sizes at any time of the year, providing a monthly income of not less than R1000. Further details can be found in the final reports for the two sub-grant projects for the middle and lower Olifants.

Figure 281: Poultry project at Mr Cossa's homestead, Motetema, Sekhukhune District.

THE AGRI-SI FARMERS PLAN TO GO ORGANIC…

The Hoedspruit branch of the Participatory Guarantee System for organic endorsed produce was launched with its new logo in December 2019. Local organisations involved in food production that strives to meet organic standards can become affiliated and have their means of production assessed by the team of PGS members.

AWARD and Mahlathini Development Foundation are supporting small scale farmers from Mametja-Sekororo to understand the criteria for organic production and endorsement through a series of workshops and training, and through translation of the assessment documentation. The intention is to increase the number of endorsed organic producers in the Hoedspruit area and establish access to local markets. So far, the invitation to participate has been extended to 112 farmers.

The new PGS Hoedspruit Logo.
Those that qualify will be able to market their produce under this endorsement.

5.1.3 Youth participation in agricultural production and value-addition

This aspect of the project was particularly challenging as many rural youth don't see farming as a high-priority career path and aspire to move to the urban areas in search of jobs and other livelihood opportunities. The elderly complain that the youth have no interest in agriculture. Although a group of around 50 youth showed interest, many of these young people participated only for a short period and left once other opportunities became available. However, a small number of youth farmers showed strong commitment and produced some interesting innovations (such as an irrigation system constructed from old school desks, bicycle wheels and plastic bottles).

We therefore focused on supporting these few young people and trying to boost their status. It was clear form the initial assessments done with youth that they were mainly interested in the value-addition aspects of food production.

An exciting opportunity facilitated through this project was the participation of one young farmer, Reginald Mashabela, in the International Moringa Symposium in Pretoria, focused on "Unlocking Moringa Market Access". An extract from his letter of thanks to AWARD expresses how he benefitted from the experience:

"I had conversations with many qualified people then I placed my work and knowledge to scale and it came to my attention that AWARD had actually afforded me a great privilege and for that and many others I am beyond words to express my gratitude. I realised that I am not far from reaching where I have to be, this had given me more reason to thrive and push above what I already had. The pictures I send to you will show more than I can report about and soon will send you the change I am about to initiate. I am very grateful that you saw our potential and opened this fruitful door for us. Kind regards, Reginald and Jafta Mashabela."

Figure 29: Mr Reginald Mashabela attended the International Moringa Symposium in Pretoria, 22 November 2019.

5.1.4 Increased uptake of agro-ecology as a strategy for soil and water conservation and CCA

A lot of progress was made with regard to increasing the number of smallholder farmers implementing agro-ecology and also the range and diversity of agroecological practices (soil and water conservation practices). In Mopani district (Lower Olifants) an additional cluster was formed by expanding the project to include an additional village called Turkey in Sekororo. This expansion brought in a total of 72 new smallholder farmers to the Agri-SI in the Lower Olifants. In November 2019 we had requests from two more villages to join the Agri-SI. The majority of these farmers are elderly women. Their key focus is dryland cropping for profit, depending on a canal irrigation system used by commercial farmers who have since left the area. They are being assisted by department of Agriculture and are given "starter packs" with seeds and fertilizers. In the Middle Olifants (Capricorn and Sekhukhune districts) the number of participating farmers implementing agroecology increased from 174 to 195, an increase of 12%.

Data on implementation of agroecological practices and innovations by the participating farmers are summarised briefly below. Further details are provided in the final reports for the middle and lower Olifants sub-grant projects.

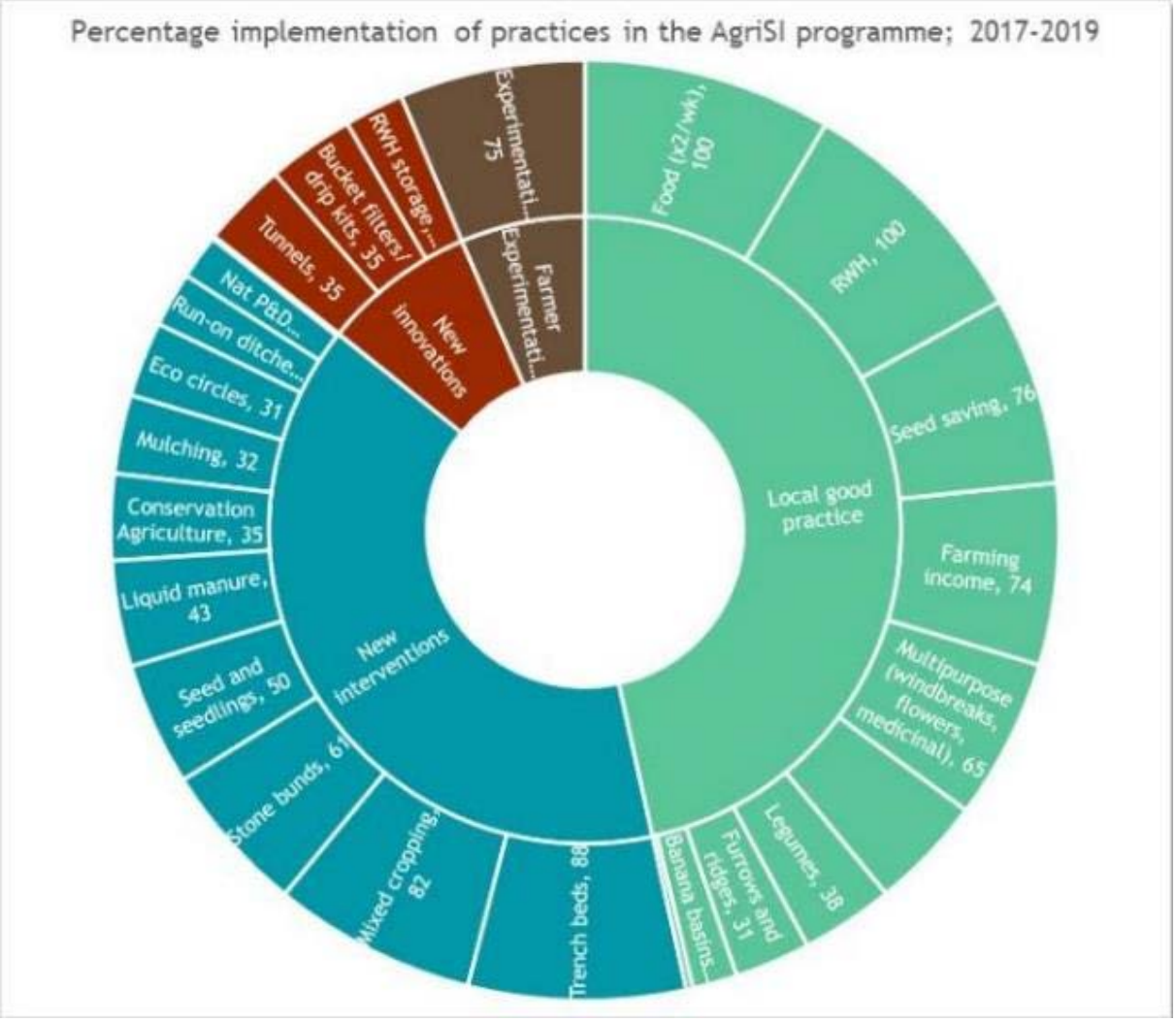


Figure 30: Soil and water conservation practices adopted by small-scale farmers in the lower Olifants (2017-2019).

Participating farmers in the lower Olifants added a number of new practices and innovations to their existing suite of local good practices (Figure 27), the most prominent of which were the use of trench beds, mixed cropping, seed and seedling production, use of liquid manure, conservation agriculture, tunnels and bucket drip kits. Implementation of rainwater harvesting technologies and practices can help smallholder farmers to improve their access to water for food, given the uncertainties around rainfall patterns and the unreliable water supply services by local municipalities that characterize their everyday lives. Coupled with soil and water conservation techniques such as tunnels, trench beds, eco-circles, mulching and drip kits, farmers practising rainwater harvesting were able to produce food for their own consumption and well-being despite very difficult conditions.

Figure 31: Some of the agro-ecological practices and technologies implemented (from top left): seed saving, mixed cropping, tower beds, mulching, rainwater storage, and shadecloth tunnels.

In the middle Olifants, the proportion of farmers maintaining soil cover (through mulching or cover crops) increased from 2% to 76%, those implementing crop diversity principles increased from 8% to 100%, and those engaging in seed saving increased from 0% to 70%.

Figure 32: Practices successfully established in the middle Olifants: use of soil cover, seed saving systems, and crop diversity (leading to improved food security and health)

5.1.5 Improved understanding of climate change, its possible impacts and strategies for adaptation

The impact of the climate dialogues (DICLAD) workshops was evident in the way that most of the smallholder farmers can now talk about climate change and how the agroecological practices they are implementing help them to adapt to the challenges of increased temperatures and uncertain rainfall patterns.

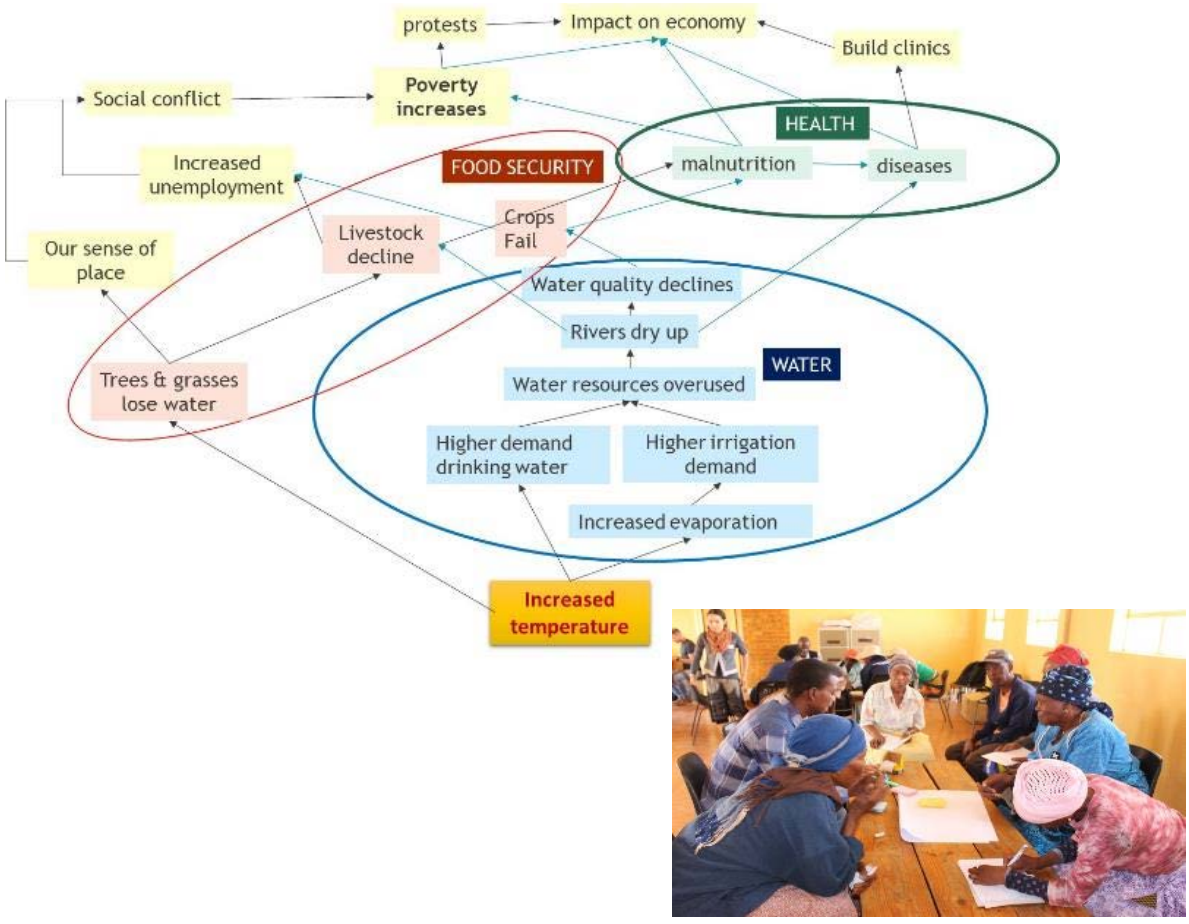


Figure 33: A systems diagram produced by farmers during the DICLAD workshops, showing an understanding of the systemic impacts of climate change (increased temperatures) on water, health, food security and wellbeing.

Ukuvuna (sub-grantee for the Middle Olifants project), reported that despite communities' lack of familiarity with the concept of climate change, there was evidence of emerging awareness and understanding of climate change, its relevance to food production, and adaptation interventions. The DICLAD dialogues contributed to the following:

- As an exemplar of awareness of the relevance of climate, an elder was quoted as stating: "Climate change is real in these communities, for example there was not a drop of rain from October 2018 to January 2019 and weather is extremely hot. Lack of rain within these months is not normal. Farmers lost their livestock due to weather conditions and lack of water in the rivers. Livestock, just sleep and never wake up. It was bad. If you looked around, you could see bones of cows scattered near the road. This is real climate change in our villages" (Ukuvuna, 2019, p. 23-24).
- External evaluators of Ukuvuna's activities reported that farmers mentioned climate change as a prominent aspect of the training activities run by Ukuvuna and AWARD, after agroecology practices and learning and experimentation. "Through the stories on how climate change information was spreading among farmers, it was evident that farmers are integrating information gathered through various methods to broaden their knowledge." (Mabhachi, 2019, p.13-14).

Mahlatini Development Foundation (sub-grantee for the Lower Olifants project) found the facilitation process of DICLAD Module 1 useful to introduce climate change and its relevance to farming, an activity with which the small-scale farmers reportedly engaged and understood. The MDF Director observed the following during an interview in 2019:

- "There's a lot of mention now of climate change. People talk about it a lot. [Voicing it] often. But like I'm saying, there is a bit of a doomsday feeling amongst people and they attribute pretty much all their problems to climate change."
- On any observed signs of small-scale farmers thinking more systemically about their challenges as climate change impacts: "I would say that a lot of that has happened. And we underplay it because the results are not what we were hoping for and it's not as coherent as we would have liked. But it is definitely there. And it would not have been there if we didn't run this process. And so, no, I am very impressed."

Further details can be found in the DICLAD final report.

Systems thinking in practice

- The systems diagram produced by farmers during the DICLAD workshops showed an understanding of the systemic impacts of climate change (increased temperatures) on water, health, food security and wellbeing.
- This project helped farmers with the broader systemic issues beyond just growing food for their own needs (including markets, institutions, transport, access to resources, security, equity etc.) – not so much teaching them how to think systemically but how to deal with these issues in practice.
- The "Five Fingers" principles promote systemic practice, because they encourage integration of soil, water, climate and vegetation aspects.
- The project also promoted understanding of upstream-downstream linkages, helping farmers to understand their position in the catchment.

5.2 Indicator data

The project's contribution to the USAID indicators is shown in Table 3

TABLE 3: PROJECT CONTRIBUTION TO USAID INDICATORS

INDICATOR ID	INDICATOR NAME	TARGET (LIFE OF PROJECT)	ACHIEVED (LIFE OF PROJECT)
EG.10.2	**Biodiversity**		
EG.10.2-1	Number of hectares of biologically significant areas showing improved biophysical conditions as a result of USG assistance	NA	NA
EG.10.2-2	Number of hectares of biologically significant areas under **improved NRM** as a result of USG assistance	NA	NA
EG.10.2-5	Number of **laws, policies, or regulations** that address biodiversity conservation and/or other environmental themes officially proposed, adopted or implemented	NA	NA
AWARD	Number of **institutions with improved capacity to address NRM and biodiversity conservation** issues as a result of USG assistance	NA	NA
EG.10.2-4	Number of **people trained in sustainable NRM and/or biodiversity conservation** as a result of USG assistance	370	439[6] (183 men, 256 women)
EG.11	**Climate Change - Adaptation**		
AWARD	Number of stakeholders (individuals) with **increased capacity to adapt to the impacts of climate change** as a result of USG assistance	415	505 (182 men, 323 women)
EG.11-2	Number of **institutions with improved capacity to assess or address climate change risks** supported by USG assistance	37	36
EG.11-3	Number of **laws, policies, regulations, or standards addressing climate change adaptation** formally proposed, adopted, or implemented as supported by USG assistance	4	4
EG.11-1	Number of **people trained in climate change adaptation** supported by USG assistance	695	698[7] (261 men, 437 women)
	Cross-cutting		
AWARD	Number of people reached by the **Our Olifants campaign** including social media	Not set	Over 3 million[8]
STIR	**Science, Technology and Innovation / Research**		
STIR-12	Number of **peer-reviewed scientific publications** resulting from USG support to research and implementation programs	1	0[9]

[6] *This includes field officer and leadership training offered through Hoedspruit Hub, youth training, learning exchanges, Seed Bill workshops, and pest management, soil health and herb marketing workshops held through Hoedspruit Hub. It does not include training done under the two sub-grant projects.*

[7] *This includes DICLAD workshops done in 2017 (when this was counted under the host project rather than under DICLAD).*

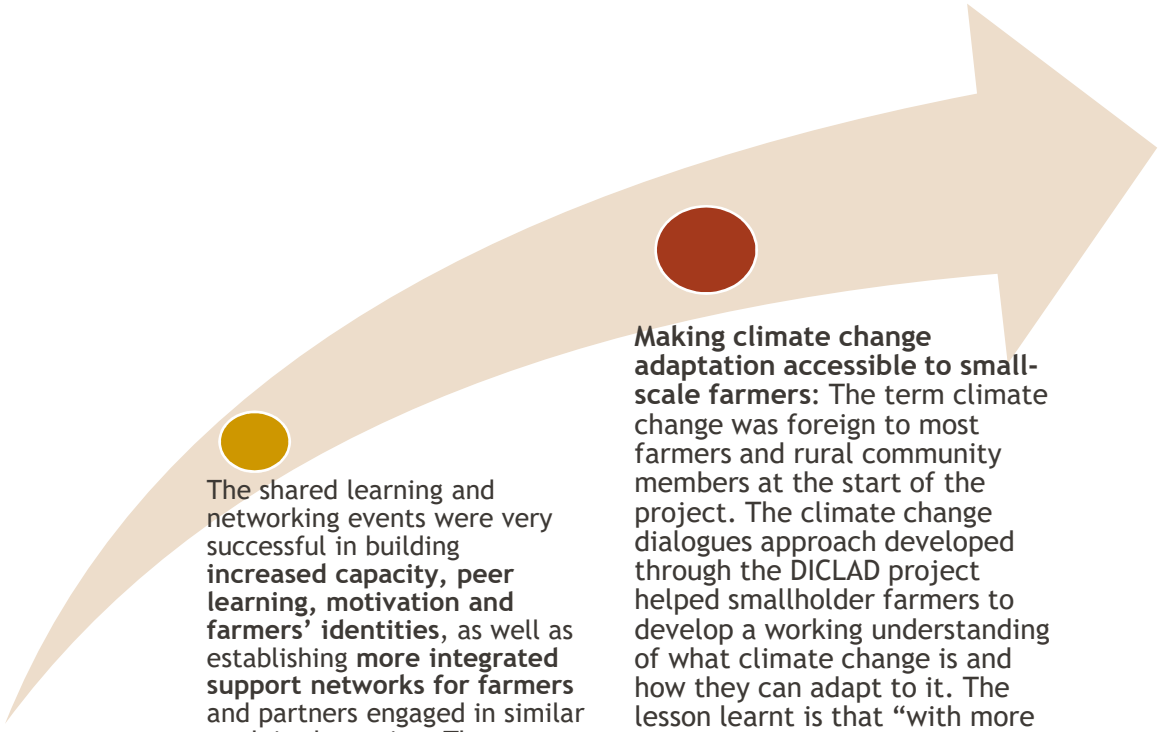
[8] *Radio interviews on Thobela FM (2019) alone reached 2.7 million people.*

[9] *The AgriSI team collaborated with Hoedspruit Hub to present a paper "Investigating the impact of agro-ecology amongst smallholder farmers in Limpopo" at the 21st Century Agroecology Conference in Cape Town (28—30 January 2019), but has not yet been published in a peer-reviewed journal.*

Around 40 organisations participated in agroecology network meetings, learning exchanges, farmer open days and other events. These included NGOs, CSOs, government entities and private sector roleplayers[10].

5.3 Successes and challenges

Major successes, as outlined in Section 5.1 included:



The shared learning and networking events were very successful in building **increased capacity, peer learning, motivation and farmers' identities**, as well as establishing **more integrated support networks for farmers** and partners engaged in similar work in the region. These networks provide a foundation for the sustainability of this work.

Making climate change adaptation accessible to small-scale farmers: The term climate change was foreign to most farmers and rural community members at the start of the project. The climate change dialogues approach developed through the DICLAD project helped smallholder farmers to develop a working understanding of what climate change is and how they can adapt to it. The lesson learnt is that "with more creativity and innovation it is possible to communicate climate change to the wider communities including those with low levels of education". The uptake of agro-ecological practices by farmers is climate change adaptation in action.

[10] *The following 36 organisations were considered to have increased capacity to support climate change adaptation through agroecology because of their involvement in the network: Amanzi for Food, A Spring of Hope, Zingela Ulwazi, Exilite 499cc, Mopani Farmers Association, University of Mpumalanga, MASDT, DARDLEA, LDARD, Seeds of Light, Wits University, Ehlanzeni DM, Maruleng LM, Nova Institute, Department of Agriculture (DAFF) - Venda and Mopani, Dilika Project, Kilibone Project, Makungu Farming & Seedlings, Nwamihangu, LIMA, Choice Trust, WRC, ARC (Soil, Cimate & Water), Spar, Ofcolaco Green Hub, Mupo, Nedbank Green Trust, World Vision, WWF Sabie Water Stewardship Project, Mbombela Municipality, Holani Home-based Care, Khanimamba Training & Resource Centre, Ramothsinyadi HIV/AIDS Youth, Hlokomela, Seriti Institute and Londolozi Private Game Reserve.*

The main challenges experienced were:

Limited access to water for agriculture

- The main challenge for the communities in which the Agri-SI project was implemented was access to water for agriculture. There are still massive water insecurities in the former "bantustan" areas due to dysfunctional infrastructure, unreliability of supply, water quality issues caused by surrounding land uses and changing rainfall patterns, and the water supply is not designed for small-scale farmers. However, the same water shortages motivate farmers to implement soil and water conservation practices and technologies. Farmers can easily see the difference that agroecological practices can make. Water issues also prompted some communities to engage in collective action to try to find solutions, such as contributing money towards boreholes and lobbying for support from local councillors.

The buy-in from state actors (government departments and municipalities) was weak

- This could mean that the hard work invested so far in Mopani, Capricorn and Sekhukhune districts may not be easily sustained beyond the project funding period. Despite our continued effort to invite government actors to our workshops, participation and support from DAFF and related provincial agricultural agencies remained weak. Part of the reason could be that climate change adaptation is embedded in both DAFF and DEFF mandates and neither of the two departments appreciates the role that agro-ecology can play in food production and helping farmers to adapt to climate change. Commercial agriculture in still the dominant food paradigm and the relevance of small-scale farming is not widely recognised by government. Communal land is also not recognised as agricultural land in municipal Spatial Development Frameworks, and Traditional Authorities tend to allocate land for housing rather than for maintaining food production capacity. However, the new Municipal Manager at Maruleng is very keen to support small-scale agriculture, which is a hopeful sign.

Youth engagement

- The participation of youth in agriculture in South Africa is generally very low, and small-scale farming is not seen as a desirable or viable career path. The absence of agro-ecology or permaculture in the curriculum of agricultural and TVET colleges is a major drawback. It did indeed prove challenging to attract sustained interest from youth in the project and many young people participated only for a short period and left once other opportunities became available.

5.4 Sustainability & impact

The Agriculture Support Initiative was designed from the start to build in strategies for sustainability. Notably the project was designed to build the capacity of small-scale farmers to ensure that they are able to continue implementing the agricultural practices or innovations beyond the funding period and to form strong networks that sustain themselves beyond the project life. The social learning and experimentation approach built the capacity of participating farmers to do things by themselves. The strong link between climate change knowledge and agro-ecological practices will contribute to the sustainability of these practices. The successful establishment of farmers' networks and networks of partner organisations with an interest in agro-ecology was also a strategy for ensuring continuation of project interventions beyond the current funding period.

Emerging out of the networks established are a couple of collaborations which will particularly help to sustain the project going forward. Work with Hoedspruit Hub, LRC and ACBio will see AWARD being able to continue supporting the participating smallholder farmers even when USAID and DKA funding comes to an end. This collaborative and multi-sectoral approach to project implementation is key for the sustainability of the Agri-SI.

Finally AWARD has a long term vision for working in both the lower and middle Olifants communal areas and as such the organisation will endeavour to remain active in these areas. AWARD will continue mobilise resources through different means to continue its presence and work with smallholder farmers in the three districts covered.

Rollout of the PGS (Participatory Guarantee System) organic endorsement system among farmers is an important stepping stone to help farmers with one of their biggest challenges: accessing markets for their produce. After receiving PGS endorsement, farmers will be able to register with the "From the Region For the Region" initiative of the Kruger-to-Canyons Biosphere Region for access to distribution networks and markets.

"From the Region for the Region" is an initiative of the Kruger-to-Canyons (K2C) Biosphere Region NPC, aimed at developing market access for local produce and products. This initiative however, offers much more than marketing as it also focuses on helping business owners to run more effective businesses.

In keeping with the ethos of the K2C Biosphere, this initiative aims to develop the people, the environment and the prosperity of people in the environment. The K2C NPC has implemented various strategies to educate residents about sustainable resource management and eco-friendly business practices. Once they reach a level of offering environmentally safe products, produce and services they are offered the use of market access services. This includes linking them to the general public and formal businesses in the region.

5.5 Key learnings

- **It is possible to make climate change accessible:** The climate change dialogues approach developed through the *DICLAD* project involved much learning about how to help smallholder farmers to develop a working understanding of what climate change is and how they can adapt to it, using entry points relevant to their farming practices. Further details on these lessons can be found in the *DICLAD* project final report.
- **Youth engagement:** We had to rethink how to approach this aspect, given that young people who showed an interest tended to move away or take up other opportunities as they arose. We therefore adapted our approach to support the few young people with strong interest and motivation with the aim of setting up a network of 'youth influencers' who can carry the ideas forward and become examples for others to follow.

- **Integration with the Municipal Support Initiative (MSI):** We would have liked to be able to support the Agri-SI better through the MSI - another Resilience Support Initiative under RESILIM-O - in particular by engaging with municipal LED (Local Economic Development) processes. However, there was not much support from the municipalities we worked with for small-scale farming as a development option. Support from the new Municipal Manager at Maruleng Local Municipality towards the end of the project period was a hopeful sign. The lesson learned was that at this stage, local government support for small-scale farming is low. Having interested and supportive officials in key positions is a major opportunity that should be seized wherever it exists, while engaging in ongoing advocacy to boost the profile of small-scale farming.
- **Creating an enabling environment for small-scale farmers:** There are many factors that need to come together to create an enabling environment for farmers - including policy and land-use planning practices, access to water, markets (formal and informal), capital and support networks. Our experience with supporting livelihood diversification in this project showed that a fair amount of experimentation is required to find options that work and are sustainable in each particular context. An example is the various market access options that were tried for the herb and vegetable farmers. This highlights the importance of having sufficient trust between farmers and project staff to be prepared to experiment without being sure of whether experiments will be successful or not.

5.6 Communication materials

Communications materials developed through this project are listed in Table 4.

TABLE 4: COMMUNICATION MATERIALS DEVELOPED THROUGH THE AGRI-SI NETWORKING PROJECT

TYPE	DESCRIPTION	LOCATION
BOOKLETS AND BROCHURES	- Principles of Soil and Water Conservation in Agroecology: What can we as farmers do? (presenting the "five fingers" heuristic) - Medicinal and Edible Herbs used by Farmers in the Lower and Middle Olifants Catchment (English and Sepedi)	AWARD website
REPORTS	- Project final report (this report) - Back-to-Office reflection reports on workshops and events held with stakeholders - 3 x field visit reports (observations made during field visits by the Agri-SI team) - Project monthly reports (2015 onwards) - This project is featured in quarterly and annual RESILIM-O program reports from 2015 onwards	AWARD
PRESENTATIONS	- "A conceptual critique of climate change adaptation and agro-ecology": paper presented at the National Agroecology Conference, 28-30 January 2019, Cape Town by AWARD and Hoedspruit Hub. - Webinar: Farming for the future with small-scale farming (17 June 2020)	AWARD, Hoedspruit Hub AWARD website
PHOTOGRAPHS	- Photographs of workshops, farmer open days, learning exchanges and other project activities	AWARD

The resources listed in Table 4 are complemented by those produced through the two sub-grant projects. These include brochures, project summaries, final reports and several other resources such as farmer stories of change and a participatory video documentary exploring water issues in the lower Olifants (Mametja). See the final reports for the Agri-SI Lower Olifants and Agri-SI Middle Olifants projects for a comprehensive list.

5.7 Other outputs

Planting calendars for farmers were developed in collaboration with the DICLAD project.

6 Conclusions & Recommendations

The intention of this project was to contribute to the development of smallholder farmers who are "proud to be farmers", "who value what they do", and who are, besides being aware of and able to demand their constitutional rights to essential agricultural support services, also able to collectively mobilise their own resources to sustain their climate-smart agricultural practices. Despite the challenges, there was evidence that we succeeded in this task. The challenge for future work will be to grow the support for small-scale farming within the relevant local, provincial and national governance and policy networks.

Important recommendations emerging from the project are:

- **Small-scale farming as an agricultural practice deserves FAR more recognition** on many fronts: from the Minister and Department of Agriculture, from agricultural extension workers, from Traditional Authorities, from municipalities, and from farmers and communities. This project has highlighted the important contribution small-scale farming can make to food security, livelihoods, job creation, identity, empowerment of women and resilience. Rather than being ignored in favour of larger-scale commercial agriculture, or seen as a starting point in a necessary progression towards commercial agriculture, small-scale farming should be **encouraged, supported and celebrated in its own right as a route to resilience**. Practical implications of this recommendation include:
  - The need for municipalities and Traditional Authorities to ensure that sufficient land is allocated to small-scale farming, and that this land is protected from competing land uses such as mining and housing developments
  - The need for consistent agricultural +extension support and support through municipal Local Economic Development plans
  - The need to include small-scale farming in local educational curricula
- **Advocacy and lobbying for policy changes and recognition of small-scale farmers** are important at all levels, in light of the above. Appropriate communication materials should be developed to make a case for the importance of small-scale farming for climate preparedness, food security and resilience. A clear position statement is needed to co-ordinate these efforts.
- **Allow time for trial and error at all levels** otherwise adaptative capacity will not develop in the system. Share ideas, lessons and experiences across the network regularly. Promote an "experimental" mindset, in which failure is not avoided but is seen as part of the learning journey. Promote and support local innovations.

award

The Association for Water and Rural Development

AWARD is a non-profit organisation specialising in participatory, research-based project implementation. Their work addresses issues of sustainability, inequity and poverty by building natural-resource management competence and supporting sustainable livelihoods. One of their current projects, supported by USAID, focuses on the Olifants River and the way in which people living in South Africa and Mozambique depend on the Olifants and its contributing waterways. It aims to improve water security and resource management in support of the healthy ecosystems to sustain livelihoods and resilient economic development in the catchment.

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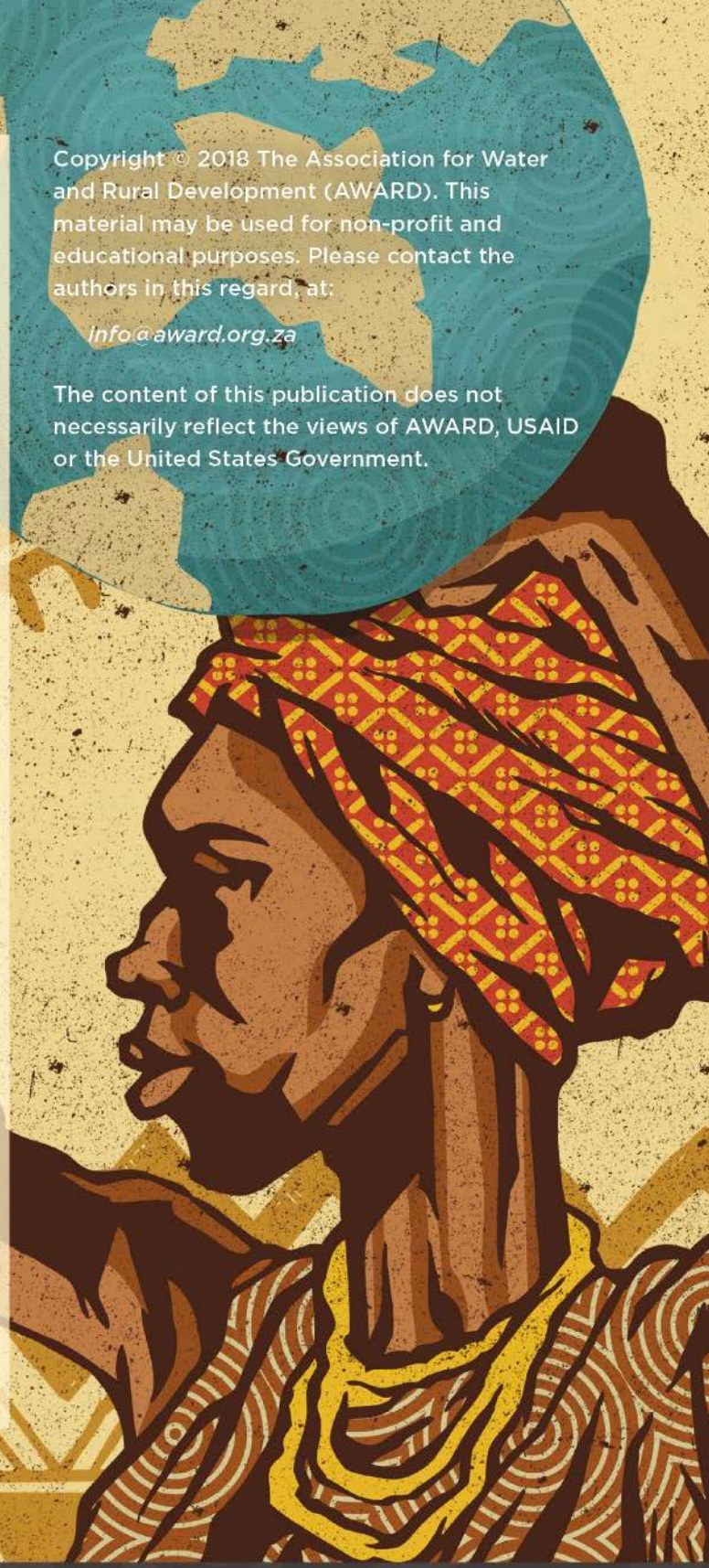
About USAID: RESILIM-O

USAID: RESILIM-O focuses on the Olifants River Basin and the way in which people living in South Africa and Mozambique depend on the Olifants and its contributing waterways. It aims to improve water security and resource management in support of the healthy ecosystems that support livelihoods and resilient economic development in the catchment. The 5-year programme, involving the South African and Mozambican portions of the Olifants catchment, is being implemented by the Association for Water and Rural Development (AWARD) and is funded by USAID Southern Africa.



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