

Project title	<i>Coping with Drought and Climate Change</i>
Implementing agency	United Nations Development Programme
GEF project ID	3155
UNDP PIMS ID	3786
Region and countries included in the project	Mozambique, Southern Africa
Executing agency	Ministry for the Coordination of Environmental Action (MICOA)
Implementing partners (in alphabetical order)	Faculty of Veterinary, Eduardo Mondlane University; Government of the District of Guijá; Institute for Social Communication (ICS); Institute for the Promotion of Medium and Small Enterprises (IPEME); National Institute of Meteorology (INAM)
Evaluation timeframe	October-December 2013
Date of evaluation report	January 2014

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Executive Summary

Project Summary Table				
Project title	Coping with Drought and Climate Change in Mozambique			
GEF project ID	3155		At endorsement ⁽¹⁾	At completion ⁽¹⁾
Country	Mozambique	GEF financing	0.960	0.960
Region	Africa	IA/ EA own	0.005	0.002
Focal area	Climate change	Government	0.729	nd
Operational program	SCCF	Other	0.195	nd
Executing agency	MICOA ⁽²⁾	Total co-financing	0.929	nd
Other partners involved	Guijá district government.	Total project cost	1.889	0.962
	ICS, IPEME,			
	INAM, UEM ⁽³⁾			

(1) Million US dollars

(2) Ministry for the Coordination of Environmental Action/ Ministério para a Coordenação da Acção Ambiental (MICOA)

(3) Institute for Social Communication/ Instituto de Comunicação Social (ICS), Institute for the Promotion of Medium and Small Enterprises/ Instituto para a Promoção de Pequenas e Médias Empresas (IPEME), National Meteorological Institute/ Instituto Nacional de Meteorologia (INAM), Eduardo Mondlane University (UEM)

Project Description

The objective of the project *Coping with Drought and Climate Change in Mozambique* was to contribute to food security and capacity to adapt to climate change in agricultural and pastoral systems in the district of Guijá, Province of Gaza, Southern Mozambique. The project strategy proposed to overcome the barriers to reduce vulnerability of the target population through four mid-terms development changes (outcomes):

1. Improved livelihoods through drought tolerant crops and improved livestock keeping techniques
2. Enhanced use of meteorological information by setting up an early warning system that would combine meteorological information for disaster management and agricultural planning with dissemination through community radio
3. Mitigated drought effects by enhancing water supply through groundwater exploitation and rain water collection systems

A fourth outcome referred to the documentation, dissemination and replication of the project approaches and solutions.

The district of Guijá is located in the lower Limpopo River Basin. Almost all the district population depends on agriculture and pastoralism for their livelihoods. The climate is semi-arid, with a marked dry season and like most drylands, is characterized by high variability in rain patterns and drought cycles. Being a flat area, floods due to extreme rains can take disastrous proportions on

a decadal return period¹. Over the next 20 years, temperatures are very likely to rise by 2.5°C and rainfall variability is likely to increase² thus exacerbating the effects cited above.

The project was developed in 2005 as part of a regional effort by the UNDP to combat impacts of climate change in drylands in Africa. Four projects were approved by the GEF-managed³ Special Climate Change Fund (SCCF). In Mozambique, the project was funded with 960,000 USD.

The project document, which defines the project strategy and management arrangements, was approved in 2006. The project was implemented under the national implementation (NIM) modality of the UNDP with the National Directorate of Environmental Management (DNGA) of the Ministry for the Coordination of Environmental Action (MICOA) as executing agency⁴ and the support of different government institutions and NGOs according to their mandates and lines of expertise. Actual implementation began in 2009, with different implementing partners as originally planned, notably without the Ministry of Agriculture and the National Water Directorate. .

The project was implemented according to plan albeit with some delays and set-backs. Of the planned outputs, facilitation of drought resilient crops, establishment of a central district nursery, construction of improved livestock enclosures, installation of one pump for irrigation and trainings on food conservation techniques (outcome 1), installation of water collection systems, as well as the strengthening and equipment of local disaster management committees (outcome 3) were implemented. The project also conducted a very important hydrological study that demonstrated the unsuitability of groundwater in the area for human or productive uses. The early warning system, consisting of an automated meteorological station and a community radio (outcome 2) was not yet completed at the time of the final evaluation. The dissemination and replication of project experiences (outcome 4) was very limited.

All project outputs, particularly the early warning system, the drop-resistant crops plots, the district nursery and some rain water collection systems were severely affected by the 2013 floods. The floods caused severe disruptions and damages to livelihoods and infrastructures throughout the district. **The project contributed to the strengthening of the local disaster management committees that significantly contributed to the absence of human losses⁵.**

¹ The latest catastrophic floods occurred in 2001 and 2013

² INGC, 2012, Responding to Climate Change in Mozambique, Synthesis Report, Instituto Nacional de Gestão de Calamidades (INGC), Maputo, Mozambique

³ The GEF, Global Environmental Facility is the financial mechanism of the three Rio Conventions, including the United Nations Framework Convention on Climate Change (UNFCCC) and the United Nations Convention on Drought and Desertification (UNCDD)

⁴ The NIM (national implementation, formerly national execution, NEX) modality is used when there is sufficient capacity in the national authorities to undertake the functions and activities of the project (UNDP, Program and Operations Policies and Procedures); in this case UNDP acts as guarantor of compliance and proper use of resources

⁵ Former INGC Gaza focal point, pers. comm.

Summary of conclusions, recommendations and lessons learned

Ratings

All evaluations of GEF/ SCCF/ LDCF projects must be rated according to the rating guidelines established by the GEF. The following table summarizes the ratings obtained by this project. A brief explanation of the rating system and a justification of the ratings are given at the end of the table

Evaluation rating table		
Monitoring and evaluation		
Overall quality of M&E	(rate 6 point scale) ⁽⁴⁾	MU
M&E design at project start up	(rate 6 point scale)	U
M&E plan implementation	(rate 6 point scale)	MU
IA&EA Execution		
Overall quality of project execution/implementation	(rate 6 point scale)	MS
Implementing agency execution	(rate 6 point scale)	MS
Executing agency execution	(rate 6 point scale)	MS
Outcomes		
Overall quality of project outcomes	(rate 6 point scale)	MS
Relevance	(rate 2 point scale) ⁽⁵⁾	R
Effectiveness	(rate 6 point scale)	MS
Efficiency	(rate 6 point scale)	MS
Sustainability		
Overall likelihood of risks to sustainability	(rate 4 point scale) ⁽⁶⁾	ML
Financial resources	(rate 4 point scale)	MU
Socio-economic	(rate 4 point scale)	ML
Institutional framework and governance	(rate 4 point scale)	L
Environmental	(rate 4 point scale)	MU
Impact		
Progress towards reduction of vulnerability	(rate 3 point scale) ⁽⁷⁾	M
Overall project results	(rate 6 point scale)	MS

(4) 6 point scale: Highly satisfactory (HS); Satisfactory (S); Moderately satisfactory (MS); Moderately unsatisfactory (MU); Unsatisfactory (U); Highly unsatisfactory (HS)

(5) 2 point scale: Relevant (R); Non-relevant (NR)

(6) 4 point scale: Likely (L); Moderately likely (ML); Moderately unlikely (MU); Unlikely (U)

(7) 3 point scale: Significant (S); Minimal (M); negligible (N)

Conclusions

Project design, monitoring and evaluation

The project design was coherent, i.e. there was a strong vertical logic between outputs, outcomes and intended objective and impact. However, there were significant weaknesses in

terms of risks and assumptions, which were poorly analyzed, and weak or unfeasible mitigation strategies. The original indicator framework was non-SMART⁶ and had to be reviewed prior to actual project implementation. The reviewed indicator framework was SMART and robust albeit with too ambitious targets in terms of beneficiaries. Moreover, the indicators were not made operational and monitoring and reporting was not conducted in a systematic manner.

IA & EA Execution

The project governance structure included a project management unit and a national steering Committee. The steering committee met once a year and on two occasions at the project site, allowing participation of local stakeholders and beneficiaries. However, the national steering committee was not able to promptly respond to management issues and challenges.

The project management team could not be completed at any time during project implementation. This was caused by lengthy recruitment processes and high staff turn-over. The reason for the high staff turn-over was the poor competitiveness of the compensation packages offered, as well as the insufficient degree of empowerment of the management unit by the executing agency.

The executing agency was constraint in terms of mandate and capacity to implement actions at field level. The implementing agency also presented limitations in terms of human resources in its support to project implementation.

Outcomes

Overall quality of project outcomes

There has been some progress towards the project objective of reducing vulnerability in the newly created awareness of the district government on climate change, as well as the potential adaptation benefits in terms of reduced sensitivity of the agricultural and livestock sectors and increase adaptive capacity if the rainwater collection tanks and the early warning system are completed. However, the project did not achieve an effective and sustainable increase of productivity or water supply.

⁶ SMART refers to the quality criteria Specific, Measurable, Achievable, Relevant and Time-bound, that ensure that indicators specifically respond to the change they intend to measure, that the costs involved in collection and analysis of information are reasonable and that they have a baseline and target to allow visualization of the progress towards the projects intended objective.

Relevance

The project concept was discussed with an array of stakeholders at both national and local level, including community representatives. However, the participatory process involved only two formal consultations that were held four years prior to project implementation⁷. Notwithstanding the insufficiencies of the consultation process, **the project was relevant to the needs of local population and for the development objectives of the district government**. The project was also aligned with the national policy framework for poverty reduction, agriculture and disaster risk reduction, as well as with the UNDP and UN System planning instruments.

Effectiveness

Most of the projects outputs were delivered although the planned targets in terms of number of households have not been met by a big margin.

The project facilitated the setup of plots of drought resistant crops, installed a pump for irrigation, established a central district nursery and provided training on food conservation techniques for farmers associations, as well as built improved livestock enclosures, installed rain water collection systems, contributed to the strengthening and equipment of local disaster management committees and was setting up an early warning system composed of a meteorological station and a community radio. **The project demonstrated the unsuitability of groundwater resources in the district's interior (Nalazi administrative post) for human and animal consumption, limiting the options to enhance water supply to rain water collection.**

Some key products of the project were vulnerable to and were actually affected by climatic factors: droughts and primarily floods destroyed agricultural plots, rainwater collection systems and damaged the meteorological station.

There were also issues of the adequacy of technologies to the local circumstances: the rainwater tanks and the improved enclosures could not be maintained or replicated with local materials and means. The intended improvement in animal health management expected from the improved enclosures has been severely limited by the unavailability of veterinary products and assistance. The trainings on food preservation could have a potential impact on food security at household level but the expected market linkage and associated income generation was not realized.

Although the project facilitated international cross-visits, the documentation and dissemination of project activities fell short of the intended targets. Some very limited replication of rainwater collection technology took place but the expected replication potential of the project did not materialize.

⁷ Only two workshops are documented

Efficiency

The project complied with the incremental cost criteria⁸ and compares well with a similar project in terms of efficient delivery. However, the dislocation between project activities in the district of Guijá and the project management unit based in Maputo and lengthy recruitment and procurement processes meant constant delays in execution, misunderstandings over leadership with district officials and an excessive proportion (49%) of the project budget expended in management activities.

There were also significant discrepancies between financial planning and actual expenses, in terms of amount expended and budget line. This implies weaknesses in financial management and oversight. Also, most of the committed co-finance failed to materialize due to the time gap between the co-funding commitments and the start of project implementation.

Sustainability

Further financial assistance will be needed to be able to sustain the intended adaptation benefits. Although the project has contributed to the level of awareness on climate change and commitment to adaptation by the district government officials, the capacities of the district services would need development in both organizational and technical dimensions, e.g. the extension services of the district would need strengthening. The district government is already taking actions to reduce vulnerability with their own means, so that mainstreaming climate change into the districts planning instruments could catalyze funding and efficient investment in climate resilience.

The vulnerability of the project outputs to climatic factors and the limitations to significantly increase water supply due to the lack of quality ground water resources and the variability of rain patterns makes necessary to reconsider the appropriateness of agricultural interventions in dry interior areas, as well as the setup and/or relocation of infrastructure to safe zones.

Impact

The project did not count with a solid impact framework: assumptions and drivers of impact were not properly identified. Also, the project did not attempt to conduct a baseline vulnerability assessment against which to measure the changes at the end of implementation. A vulnerability assessment commissioned in September 2013 did not analyze the parameters of vulnerability but the project accomplishments thus overlapping significantly with the terminal evaluation.

⁸ That is, the additional costs incurred by adding adaptation costs to the “regular” development costs

Recommendations

Based on the conclusions above, the evaluation makes the following recommendations:

Project design, monitoring and evaluation

The implementing agency should ensure the quality of critical aspects of project design for successful implementation, particularly robust assumptions and a sound risk analysis with feasible mitigation strategies, as well as a SMART and operational monitoring and evaluation framework. The development of a quality logical framework needs the active involvement of local stakeholders in the analysis and development process.

The executing and implementing agencies need to take the necessary steps to develop capacities in terms of budgetary and human resources to enable the collection and analysis of monitoring data aligned with the indicators and targets, review the targets and ensure that the reporting is done systematically and in coherence with the results and indicator framework.

IA & EA Execution

The executing and implementing agency, together with other stakeholders and implementation partners should be able to promptly react to challenges and take agile decisions on implementation. A technical management committee that would meet at least monthly and open and accessible to participation by local stakeholders and beneficiaries could be an effective venue to discuss such management issues.

The terms of reference for the management team should be developed considering the additional capacities and expertise needed to support project execution by the implementing partners, for instance field presence and/ or technical knowhow and the competitiveness of the compensation packages considering the available budget.

The implementing agency should ensure that the project management arrangements are aligned with the executing agency mandate and capacities, as well as taking measures to develop capacities of the implementing partners based on updated capacity assessments and/ or ensure that the needed combination of capacities including field presence are provided by the implementing partners. The implementing agency should also be aware of its own limitations in terms of human resources.

Outcomes

Effectiveness

The vulnerability of the project outputs to climate factors should be carefully analyzed including all plausible hazards. Failing to do this would mean investing in maladaptation. Hence, the district

nursery and the meteorological stations should be relocated to secure zones to prevent their destruction or damage by floods.

Local capacities to maintain or replicate introduced technologies should be carefully analyzed by the active involvement of the beneficiaries in the design and implementation. Therefore, the project should invest in the development of downscale rainwater collection solutions for household use and design mechanisms, e.g. through district or provincial budgets to provide mid-term maintenance for the tanks already built. The project must conclude the unfinished rainwater collection tanks. Locally available woods should be identified as alternative materials for the construction and maintenance of the improved cattle enclosures. Moreover, limiting factors such as the availability and access to veterinary products or the assistance needs of local producers must be taken into consideration to maximize the effectiveness of investments in improved animal health.

Income generation activities should take the establishment of market linkages into consideration, including the quality and volume of production demanded and the capacities needed to produce, store and deliver. The project should therefore focus on the development of food preservation skills for food security. Future interventions should identify factors and partnerships needed to create and maintain a market for local products.

The replication of successful project activities, such as rainwater collection systems would need a better documentation of the results including at least the costs of construction and expected costs of maintenance and alternative local materials, optimal size of the collection surface and expected replenishment rate based on expected precipitations (link to early warning system). To allow a better dissemination, manuals appropriate for the intended target groups should be developed.

Efficiency

To maximize the potential benefits of the NIM implementation modality, the project governance should have been exerted at the district and/ or provincial level, ideally with the project management unit immersed in the district government. The executing agency could have exerted its leadership in terms of coordination and technical support through the national and technical/ provincial/ district project governance bodies.

The implementing agency should coach proactively the administration of the project by the implementation partners and management unit to prevent weaknesses in the financial management of the project.

Sustainability

To ensure political sustainability and enhance the effectiveness of public investment from external or internal sources, an adaptation project should always include a component of

mainstreaming climate change aspects and issues in the local investment and planning instruments.

Provided that the project remaining funds would not be enough to complete and consolidate the benefits delivered, the implementing and executing agencies should take steps to create synergies with currently planned interventions by the government (national, provincial level) or international development partners, particularly the Pilot Programme for Climate Resilience and any intervention that focus on water and/or disaster risk reduction.

Marginal agricultural environments such as the target area of this project, which are very sensitive to even small increases in temperatures or precipitation variability could not sustain agricultural production in the current climate change projections materialize. Therefore, a switch in adaptation focus should be taken into consideration by e.g. abandoning agriculture in favor of livestock and translocation of key services and infrastructures to safe areas to avoid the risk of maladaptation⁹. The project should invest more in the development of irrigation in suitable areas along the Limpopo river bank as well as seeking mechanisms to provide the means for improved animal health in interior districts. This would involve identification of providers of veterinary products, as well as the development of a strategy to strengthen the capabilities of the district government to provide extension services, either through their own funds or combining national and/or provincial support for extension services.

Impact

The project design should include a robust impact framework that includes solid assumptions and identifies drivers of change¹⁰ that is understood and agreed upon by all stakeholders, particularly local stakeholders and beneficiaries. Such a framework would account for multiple factors and drivers affecting the project intervention area and, combined with a necessary vulnerability assessment that would be conducted prior and after project implementation, it would give local stakeholders and implementors critical information on factors of success and failure of adaptation interventions.

⁹ Maladaptation are “regular development” or even adaptation measures that lead to an increase in vulnerability, such as promoting agriculture in flood prone areas or promoting coastal development without taking sea level rise into consideration

¹⁰ Refer to the impact section in the report for an explanation of terms such as drivers of change

The Recommendations are synthesized in the following table, including critical actions, timeframe and responsible unit.

Recommendation	Key Actions	Timeframe	Responsible Unit
Project follow-up actions			
Relocate vulnerable infrastructure	Negotiate relocation of district nursery and meteorological station to safe zones	Immediately	Executing and implementing agencies
	Conduct relocation of vulnerable infrastructure	Before project conclusion	Executing and implementing agencies Local stakeholders
Ensure sustainability of rainwater collection systems	Develop models for downscale replication of rainwater collection tanks	Immediately	Executing and implementing agencies Local stakeholders National ministries or agencies and provincial government (DNA, Ministry of Education)
	Conclude and repair the unfinished and damaged rainwater collection tanks	Immediately	
	Develop funding mechanisms for maintenance of rainwater collection tanks installed at schools	Before project conclusion	
	Document cost associated with construction and maintenance, optimal size of collection surface, etc.	Before project conclusion	
Ensure effectiveness of cattle enclosures	Identify best available local woods	Immediately	Executing and implementing agencies Eduardo Mondlane University Local stakeholders National ministries or agencies and provincial government (Ministry of Agriculture)
	Conduct workshops or trainings to inform and develop capacities for the construction of the improved enclosures using local materials	Before project conclusion	
	Identify providers of veterinary products and extension services and develop a strategy for engagement		
Ensure effectiveness of food preservation trainings	Conduct new trainings not focusing on commercialization but on food security	Immediately	Executing and implementing agencies IPEME SETSAN

Recommendation	Key Actions	Timeframe	Responsible Unit
Ensure efficiency in investment in agriculture	Facilitate the expansion of irrigation in suitable areas at the river bank Set the stage for the strengthening of district extension services, i.e., capacity needs analysis, capacity development strategy	Immediately Before project conclusion	Executing and implementing agencies Ministry of Agriculture
Identify sources of funding to complete and consolidate project benefits	Initiate negotiations to establish partnerships with government institutions or NGOs and international development partners	Immediately	Executing and implementing agencies District government
Recommendation for future interventions			
Ensure LFA quality, particularly assumptions, risk analysis and indicator framework	Conduct detail analysis with local stakeholders of local circumstances that includes plausible scenarios Workshops to ensure the robustness of the assumptions and indicator framework	Prior to project implementation	Executing and implementing agencies Local stakeholders
Develop capacities to enable a systematic implementation of the M&E framework	Coach the management team on results based management and monitoring as a management tool Critically review reports Conduct field missions to collect information for the indicator framework	Prior to project implementation During the length of project implementation	Implementing agency Executing agency
Setup a technical committee	National steering committee selects membership of technical committee based on technical, mandate, leverage and availability Meet at field location regularly and extraordinarily for urgent matters Raise issues and report to the national steering committee	At start of implementation Throughout project implementation	Implementing agency Executing agency

Recommendation	Key Actions	Timeframe	Responsible Unit
Develop adequate ToR and provide competitive compensation for the management team	Analyze capacities needed Analyze workforce pool	Prior to project implementation	Implementing agency Executing agency
Ensure capacities and mandate of the implementing partners are aligned with project design	Conduct and update capacity assessments Involve partners throughout design and implementation stages	Prior to project implementation Throughout project implementation	Implementing and executing agencies
Carefully plan the sequence of activities to ensure delivery of output	Analyze and climate proof project activities Analyze all factors needed for the delivery of the output and achievement of the outcome, e.g. identify the actors and partnerships needed to create and maintain a market for local products	Throughout project implementation	Executing agency and implementing partners, including local stakeholders
Bring project management close to the target area to ensure development of capacities and accessibility by local stakeholders	Identify local institutions and mechanisms Develop capacities for project management	Prior to project implementation Throughout project implementation	Implementing agency Executing agency Implementing partners
Enable replication of successful activities/ technology	Carefully document all aspects of the introduced technology such as construction and maintenance cost, capacities, alternative materials etc.	Throughout project implementation	Project management unit
Mainstream climate change into local planning and investment instruments	Climate proof existing planning framework Agree on entry points and integrate climate change consideration into planning and investment instruments	Project design stage First half of project implementation timeframe	Executing agency Implementing partners
Avoid maladaptation to ensure environmental sustainability	Assess vulnerability of project actions Account for climate change projections and scenarios Implement correction measures to reduce vulnerability (e.g. move vulnerable structures to safe zones)	Project design stage Project implementation	Implementing agency Executing agency Local stakeholders

Lessons learned

The critical factors for the success of an adaptation intervention could be summarized as follows:

Field realities should always determine the course of action and the mid-term changes (outcomes) necessary to achieve the objectives of the project, as well as the right indicators and realistic targets to measure the achievement of results. Therefore, project management teams need to be coached and provided with sufficient understanding of results based management and the importance and use of monitoring and evaluation instruments. Weak monitoring processes hurt not only the ability to measure change from a project intervention but also the opportunity for communities and policy makers to learn from experience.

Mandate and capacities, particularly organizational capacities of the executing agencies and implementing partners should be analyzed in an open and participatory manner to ensure that the executing agency has the leadership, the mandate and the capacities needed for the demands of the intervention. Success in implementation is determined to a great extent by the capacity to lead of key people involved in the project structure, such as the national director, the head official of the implementing agency and the project coordinator.

Mid-level or local project governance bodies or steering committees composed by technical representatives of the project implementation partners are necessary to support and give direction to the project management teams. Active involvement and ownership by local actors would enable the adequate sequencing of activities, including administrative and procurement processes and the identification of capacity development needs.

Environmental sustainability needs to be a determining criterion to decide whether an intervention should be continued. In the case of semi-arid zones without adequate or cost-efficiently available groundwater resources and variable and unreliable precipitation that would allow a significant enhancement of supply through rainwater collection, water demanding economic activities such as agriculture can lead to maladaptation and alternatives must be sought. This may lead a process of transformation of long-held views and traditions.

Political support by national or local government institutions alone would not guarantee sustainability if there are financial and/ or legal constraints. Therefore, the sustainability strategy of a project must be directed by choosing durable formal or informal institutions that have (or at least have a good chance) financial stability or access to funds to assume the benefits of the project.

Acronyms and Abbreviations

APR	Annual Performance Reports
CCA	(UN System) Common Country Analysis
CPAP	(UNDP) Country Programme Action Plan
DNGA	National Directorate for Environmental Management (of MICOA)
DNA	National Directorate of Water
EA	Executing agency
ERV	Green Revolution Strategy (Government Agricultural Strategy)
FEWS	Famine Early Warning System (US Agency for International Development)
GEF	Global Environmental Facility
IA	Implementing Agency
ICS	Institute for Social Communication
IIAM	Mozambican Institute for Agrarian Research
INAM	National Meteorological Institute
INE	National Statistics Institute
INGC	National Disaster Management Institute
IPEME	Institute for the Promotion of Small and Medium Enterprises
LFA	Logical Framework Analysis
M&E	Monitoring and Evaluation
MICOA	Ministry for Coordination of Environmental Action
NAPA	National Adaptation Plan of Action
NGO	Non-government Organization
NIM	National Implementation (modality)
NSC	National Steering Committee
PMU	Project Management Unit
PARPA	Strategic Plan for Poverty Reduction
PEDD	District Strategic Development Plan
PEDSA	Strategic Plan for Agricultural Development
PIR	Project Implementation Reviews
PQG	Government Five Year Plan
SCCF	Special Climate Change Fund
SDAE	District Services of Economic Activities
SDPI	District Services of Planning and Infrastructure
SETSAN	Technical Secretariat for Food Security and Nutrition
SMART	Specific, Measurable, Achievable, Relevant and Time-bound (indicator criteria)
UEM	Eduardo Mondlane University
UNCDD	United Nations Convention to Combat Desertification
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNFCCC	United Nations Frame Convention on Climate Change
USD	Dollars of the United States of America

1. Introduction

1.1 Purpose of the evaluation

According to the GEF guidelines and evaluation policy, terminal evaluations have four complementary purposes:

- To promote accountability and transparency, and to assess and disclose levels of project accomplishment
- To synthesize lessons that may help improve the selection, design, and implementation of future GEF activities
- To provide feedback on issues that are recurrent across the portfolio and need attention, and on improvements regarding previously identified issues
- To contribute to the GEF Evaluation Office databases for aggregation, analysis, and reporting on the effectiveness of GEF operations in achieving global environmental benefits and on the quality of M&E across the GEF system

1.2 Scope

The terminal evaluation covered the following aspects of the project:

- Formulation, including logical framework analysis and risks and assumptions
- Implementation, including project management, stakeholder involvement and ownership, finance and co-finance, including budget planning and actual disbursements and actual co-finance commitments, monitoring and evaluation
- Results, i.e. actual achievements against the targets set, contribution to the project's ultimate goal and likelihood of sustainability of project benefits

To establish the likelihood of achievement of the projects impacts (reduced vulnerability and/ or increased adaptive capacity) this evaluation draw elements from the GEF's ROTI methodology to assess the links between impacts, outcomes and outputs, including the intermediary stages needed to achieve the impacts and the assumptions and impact drivers.

The terminal evaluation took into account the views of all implementing partners (executing and implementing agencies) and relevant stakeholders, particularly the intended beneficiaries of the project, i.e., local government, farmers or pastoralist associations and households.

1.3 Methodology

The terminal evaluation is guided by a series of evaluation questions that covered the evaluation components (project formulation, implementation and results) and criteria (effectiveness,

efficiency, sustainability and results). The evaluation questions and related sub-questions were organized in an evaluation matrix (see annex I) that details sources of information and data, the collection method and the analysis criteria.

The evaluation questions were answered by collecting and analyzing primary and secondary data. Primary data consisted in data gathered during the evaluation mission by means of field visits and individual or group interviews with implementers, beneficiaries and other key informants. The main purpose of the primary data collection is to record the views and perceptions of stakeholders and to confirm the secondary information sources.

Semi-structured individual interviews of an approximate duration of 45 minutes were conducted with relevant stakeholders (see annex III for a complete list):

- Officials of the executing agency, i.e. the Ministry for Coordination of Environmental Action (MICOA)
- Officials of the implementing partners, i.e., National Meteorological Institute (INAM), National Disaster Management Institute (INGC), and the Institute for the Promotion of Small and Medium Sized Enterprises (IPEME)
- Guijá district officials, including the district secretary and the district's agricultural officer
- Former project coordinator
- Officials of the implementing agency, i.e., United Nations Development Program (UNDP)
- Community leaders and representatives in the district of Guijá

Secondary or documental data was obtained from (see annex V for a complete list of documents):

- Project reports (annual reports, combined delivery reports, minutes of steering committee meetings, communications and vulnerability assessment)
- National policy papers such as the Government's Five Years Plan (PQG), Poverty Reduction Plan of Action (PARPA), Strategic Plan for Agricultural Development (PEDSA), or the National Adaptation Plan of Action (NAPA)
- District policy papers, (Strategic Development Plan, PEDD)
- United Nations and UNDP's programming instruments: United Nations Development Assistance Framework (UNDAF) and Country Program Action Plan (CPAP)
- Strategy and programming documents of bilateral and multilateral actors, such as the World Bank and the European Union, as well as peer reviewed papers and grey literature on the project area, climate change and agriculture in Mozambique

2. Project description and development context

Coping with Drought in Mozambique is a mid-size project funded by the Special Climate Change Fund with a grant of 960,000 USD. The project document projected mobilization of 929,840US\$ co-financing from the government of Mozambique (USD 729,840), NGOs (USD 70,000), UNDP (USD 5,000) and others (USD 125,000).

Main stakeholders

The project is being implemented by the UNDP and the Ministry for Coordination of Environmental Affairs (MICOA) under the NIM¹¹ implementation modality. MICOA coordinates the actions of the other implementing partners: National Institute of Meteorology (INAM), Institute for the Promotion of Medium and Small Enterprises (IPEME), Eduardo Mondlane University, Faculty of Veterinary and the Institute for Social Communications (ICS). A key stakeholder is the government of the district of Guijá, Province of Gaza, Southern Mozambique that coordinates actions on the ground, particularly through the District Services for Economic Activities (SDAE) and Planning and Infrastructure (SDPI). The beneficiaries of the project are farmers/pastoralist households of the district of Guijá.

Project start and duration:

The project was designed and consulted in 2005 and approved in December 2006 with an implementation timeframe of five years. Implementation started in September 2009 with the officiation of the first Steering Committee meeting. Field activities started implementation in mid-2010. Although the project was expected to be completed by December 2012 the delays it suffered made it necessary to secure a non-cost extension till December 2013, i.e. the terminal evaluation has been conducted two months before project closure.

Background: overview of the projects barriers and strategy

The project seeks to strengthen the resilience to drought of rural communities in the district of Guijá, province of Gaza, located in the lower Limpopo River basin. The project area was selected based on vulnerability and accessibility criteria and confirmed during a national workshop held on September 2005 with attendance of provincial and district officials.

The main livelihood options for the great majority of the population of the project area are subsistence agriculture and pastoralism. The climate is semi-arid¹², with precipitation ranging

¹¹ The NIM (national implementation, formerly national execution, NEX) modality is used when there is sufficient capacity in the national authorities to undertake the functions and activities of the project (UNDP, Program and Operations Policies and Procedures); in this case UNDP acts as guarantor of compliance and proper use of resources

¹² i.e. the ratio of precipitation to potential evapotranspiration is equal or less than 0.66 but more than 0.5

between 800 and 400 mm/ year and a marked dry season between March and October. The whole district possesses sandy soils and numerous seasonal water bodies and streams. The flatness of the area makes it prone to flooding.

Local communities have been coping¹³ with floods and droughts for generations¹⁴. However, the coping threshold of local communities could be surpassed as increasing intensity and/ or frequency of droughts and floods is likely in the next decades¹⁵, combined with population growth and consequent increasing demand on ecosystem services.

Problems that the project sought to address:

1. Disappearance/ abandonment of traditional structures, practices and weather forecasting methodologies¹⁶
2. Narrow range of crops and genetic base for each crop (implicitly high sensitivity of farm systems to drought), and vulnerable farming¹⁷
3. Insufficient capacity of the official extension services
4. Low income resulting in food insecurity in drought years, HIV prevalence and lack of health services
5. Inadequate communication system, access roads and transportation (for information, e.g. early warning and agricultural, as well as road network, e.g. for market access)
6. Destroyed or poorly maintained water infrastructure

Project strategy:

The project adopts a **vulnerability approach** to adaptation focusing on the reducing **sensitivity of local livelihoods** (rain-fed agriculture, livestock production) to current climate vulnerability (droughts) and increase the **adaptive capacity of local communities**. To do that, the project intended to strengthen the capacity of the agricultural extension services to deliver technical assistance in terms of training, pest and disease treatments, and new cultivars (outcome 1), improve the collection and dissemination of meteorological information, as well as enhance the capacity of local producers to interpret and use such information to allow better agricultural planning (outcome 2), strengthen access by communities to land and water resources by 1) facilitating local dialogue to implement the 1995 land policy and improving the water supply through rain water harvesting and reservoirs, as well as develop local capacities for water

¹³ Note that the terminology used is “cope” and not “adapt” since there is no evidence in long-term changes or adjustments to changing climate conditions

¹⁴ During the consultation workshop for this project, held in Guijá the following coping strategies were cited: drought resistant crops (cassava), wild fruits and other wild food, storage

¹⁵ Van Logchem, B. & Queface, A.J. (eds), 2012, Responding to Climate Change in Mozambique Synthesis Report, INGC, Maputo, Mozambique

¹⁶ Implicitly, traditional structures and practices meant a better adaptive capacity resilience; § 59 of ProDoc

¹⁷ This is not elaborated in the project document but it most likely refers to farmer’s preference for maize and tilling practices that expose soil to erosion

management (outcome 3). All processes and results of the project should be documented and disseminated with the aim of replicating them at national or regional scale (outcome 4).

Significant socio-economic and environmental changes since the beginning of project implementation and any other major external contributing factors

The data for the project document refers mostly to the 2002 FEWS Atlas for Disaster Preparedness and Response in the Limpopo Basin and data from the Vulnerability Assessment Committee of the Technical Secretariat for Food Security and Nutrition (SETSAN).

A review of key indicators does not reveal significant change in the last decade except a growth in population since 2005 at an annual rate of 3%.

Table 1; Change in selected indicators for the district of Guijá since project start (data from the National Statistics Institute, INE)

Indicator	2005 ¹⁸	2008	2011	2013
Population	66,631	75,306	84,125	No data
Pop. Density	19	21	21	No data
Birth rate	No data	No data	45.2	No data
Public tap	No data	2,831	2,831	No data
Protected well	No data	6,499	6,499	No data
Other well	No data	2,636	2,636	No data
River/ lake	No data	1,500	1,500	No data
Rain water	No data	181	181	No data
WC w/septic tank	No data	56	56	No data
Improved latrine	No data	1,774	1,774	No data
Latrine	No data	4,324	4,324	No data
None	No data	7,792	7,792	No data
Electricity	No data	900	900	No data
Fuel wood	No data	10,787	10,787	No data
Liquid fuels	No data	634	634	No data
Area (Ha)	No data	No data	19,857	No data
Number of parcels	No data	No data	11,155	No data
Radio own (%)	32	No data	46	No data

¹⁸ Data for 2005 from project document

3. Findings

3.1 Project Design / Formulation

Analysis of LFA/Results Framework (Project logic /strategy; Indicators)

The project outcomes correctly describe a short to medium term change in the human development status: diversified and resilient agricultural and livestock production (outcome 1), improved access to production means: water and land (outcome 3), supported by reliable meteorological information (outcome 2) and improved drought coping capacity (outcome 3). The approach, if successful, was intended to be replicated and/ or have a catalytic role outside the project sites (outcome 4).

The outcomes were articulated in outputs: diversification of crops, introduction of drought resilient crops and conservation agriculture (output 1.1), improved livestock production, through improved enclosures and treatment (output 1.2), establishment of disaster preparedness committees equipped with communication facilities and a meteorological station (output 2.1), as well as the necessary capacity development to interpret and transmit relevant information (output 2.2), development of community plans to cope with droughts (output 3.1) together with improved access to land (output 3.2) and water (output 3.3). Outputs 4.1 and 4.2 called for the documentation of the processes described above and the organization of learning tours.

Assumptions and Risks

The project document lists the following assumptions:

1. Floods will not affect the area during project implementation (but droughts could happen)
2. Stakeholders will remain committed to the project implementation and sustainability of the project results
3. The community radio network will remain committed to the project

And the following factors were identified as risks for the sustainability of results:

1. Floods affecting the project area
2. Low community and political commitment
3. Delays in fund disbursement

The first assumption is not justified given the history of the project site. Contradictorily, the occurrence of floods is also identified as risk but without any clear mitigation strategy: *“Project re-working. Timing will be affected and therefore additional funding may be needed or to keep the initial funding then project activities, outcomes and outputs will be substantially changed”* As it turns out, the floods of 2013 severely affected outputs of the project and will necessarily impact the timely achievement or contribution to the achievement of the outcomes.

Likewise, the project document assumes the commitment of the stakeholders: *“commitment from the Government of Mozambique, local government staff, extension workers and local beneficiaries”* but then identifies lack of commitment as a risk. The mitigation strategy is also weakly defined: *“government authorities to be consulted and project continuity to (be) reconsidered”*

Finally, the project document identifies delays in administrative processes, particularly disbursement of funds as a risk. The mitigation strategy calls for *“alternative funds from other sources”*. This alternative fund source is not identified; hence the mitigation strategy for this risk is unlikely to be feasible. In fact, the project suffered severe delays due to administrative bottlenecks.

The project risk log was later updated, although the mitigation strategies were not strengthened. The evaluation could not find any evidence of revision of the project assumptions.

Replication approach

A whole outcome of the project is dedicated to replication and identification and dissemination of lessons learned through the Adaptation Learning Mechanism and study tours to project sites. The project document suggested unfolding the replication strategy by concentrating activities in localities of one administrative post, which would have served as demonstration sites to promote replication.

Lessons from other relevant projects incorporated into project design

The project document identifies actions and projects conducted on the field by the NGOs Samaritans Purse, Community Development Foundation and the Red Cross of Mozambique. According to the project document, these projects have similar approaches to Coping with Drought and aimed to increase agricultural productivity through drought resistant crops and improved water supply albeit the project document does not incorporate any specific lesson learned.

The project design is partly based on the UNDP Adaptation Policy Framework (AFP) and the situation analysis is largely based on the FEWS vulnerability assessment conducted in 2002¹⁹.

The Official Development Assistance to Mozambique Database²⁰ identifies only two projects in the district of Guijá, both funded by the European Union and executed by the NGO Medicus Mundi and the German Red Cross. Focus of the projects was safe motherhood and HIV respectively. However, there is/was a number of seemingly unconnected interventions in agriculture conducted at localities in Guijá by the UNDP implemented ART-PAPDEL and The

¹⁹USAID/FEWS NET MIND,2002, Atlas for Disaster Preparedness and Response in the Limpopo Basin, <http://edmc1.dwaf.gov.za/library/limpopo/>

²⁰<http://www.odamoz.org.mz/reports/provinces>, consulted 15 October 2013

Ministry of Foreign Affairs of the Netherlands, as well as interventions by international NGOs such as Word Vision, Lutheran World Relief, the Fundación Reina Sofia, the International Potato Center and IUCN. Other projects related to agriculture in the Province of Gaza were mostly focused on reconstruction/ rehabilitation of road and irrigation infrastructure in Chokwé and Xai-Xai.

Linkages between project and other interventions within the sector

The project approach responded in general terms to the agrarian and food security policy framework at national and local level, as well as to the development assistance programmatic framework.

Similar approaches to resilience and adaptation to drought were adopted by the *Joint Programme Environmental Mainstreaming and Adaptation to Climate Change in Mozambique*²¹ and the pilot projects implemented by the *Africa Adaptation Programme*²² in similar social and environmental settings in the district of Chicualacuala (Gaza). These projects started implementation almost simultaneously with *Coping with Drought*.

Planned stakeholder participation

The project document cites 14 national directorates²³, institutes and secretariats depending or associated to four ministries²⁴ at national level and the district government and 12 NGOs²⁵ at local level. Of these, 13 government agencies (see table 2), the district government and 3 NGO (Samaritan's purse, FDC, CVM) had explicit roles and responsibilities for the delivery of the projects outputs in the project document. However, as shown in table 2, most of the institutions included in the project document were not consulted and did not actually participate in the implementation. Moreover, a project with 15 implementing partners would have faced important coordination challenges.

Two consultation workshops were held. At national level, one was conducted in 2005 **with the participation of only three of the government stakeholders** (DNGA, DNA and DNPR), as well as UNDP, other UN agencies and international donors representatives. At local level, one workshop was held (no date provided) that included district government and community representatives.

²¹ Funded by the Spanish MDG Fund with a grant amounting to 7 million USD and implemented by the UN agencies FAO, UNEP, UN HABITAT, UNIDO, UNDP, and WFP.

²² Funded with a grant of 2,987,620 USD by the Government of Japan and implemented by the UNDP. A budget of 1,000,000 USD was allocated for pilot projects.

²³ DNGA, DINA, DINAP, DNER, DNHA, DINAT, DNFB, DNDR, DNA, DNPDR, INGC, INAM, IIAM and SETSAN,

²⁴ MICOA, MINAG, MAE, MPD

²⁵ Samaritan's purse, CVM, KULIMA, LWF, FDC, AMRUD, UKOSHA, CARITAS, HOPE, ATAP, ORAM and World Vision

Table 2; Implementation partners, roles

Institution /Organization	Type	Planned role in the project²⁶	Actual role in the project
National Directorate for Environmental Management (DNGA)	National government	Project implementation and coordination	Project implementation and coordination
National Directorate of Agriculture (DINA)	National government	Agricultural and early warning outputs	None
National Directorate for Animal Husbandry (DINAP)	National government	Technical support for livestock development	None
National Directorate for Rural Extension (DNER)	National government	Provision of extension support to communities	None
National Directorate for Agricultural Hydrology (DNHA)	National government	Technical support for irrigation activities	None
National Directorate of Lands (DINAT)	National government	Output 3.2, facilitation of land access	None
National Directorate of Forestry and Wild Fauna (DNFFB)	National government	Technical assistance in spatial analysis	None
National Directorate of Water (DNA)	National government	Hydrological data, TA on water management	None
National Directorate for the Promotion of Rural Development (DNPDR)	National government	Support of rural development strategies	None
National Institute for Disaster Management	National government	Drought preparation plan	Training and equipment of local disaster management committees
National Meteorological Institute (INAM)	National government	Provision of meteorological information	Meteorological station procurement and set-up, trainings on interpretation of meteorological data
National Institute for Agrarian Research (IIAM)	National government	Provision of innovative agricultural techniques	None
Technical Secretariat for Food Security and Nutrition (SETSAN)	National government	Food security assessment	None
Institute for the Promotion of Medium and Small Enterprises (IPEME)	National government	None	Trainings in agroprocessing
Social Communications Institute (ICS)	National government	None	Community radio set-up and trainings
National Hydrology and Navigation Institute (INAHINA)	National government	None	Participation in project meetings
Eduardo Mondlane University, faculty of veterinary	Academic institution	None	Technical assistance for livestock development
District Services of Economic Activities (SDAE)	District government	Output 2.2, use of met. data Output 3.2, 3.3 land, water access	Coordination of field activities and site selection
District Services of Planning and Infrastructure (SDPI)	District government	Output 2.2, use of met. data Output 3.2, 3.3, land, water access	Coordination of field activities and site selection
Samaritan's Purse	NGO	Community facilitation, livelihood training	None
Red Cross of Mozambique (CVM)	NGO	Community facilitation, livelihood training	None
Community Development Foundation	NGO	Community facilitation, livelihood training	None

²⁶ As defined in the project document

Management arrangements

Under NIM, the executing agency (MICOA) implements the project, including all procurement and recruitment processes and the implementing agency (UNDP) provides administrative and technical support, as well as acting as guarantor for the project compliance and accountability.

The planned project governance structure included a National Steering Committee (NSC), a Provincial Steering Committee, a District Advisory Committee and a Project Management Unit. The National Steering Committee's membership included all stakeholders, including executing and implementing agencies, implementation partners (government agencies and NGOs). The role of the NSC was to provide overall direction and advice to the project. The Provincial and District Steering Committees responsibilities were to provide technical support and coordinate project implementation. There is no indication in the project document as to the membership of this committee.

3.2 Project Implementation

Adaptive management

Changes to the project design and project outputs during implementation

Prior to the start of implementation, there were modifications to the project design, including logical framework and implementing partners.

Management arrangements

Many of the implementation partners listed in the project document (see table 2) did not actually participate in implementation. Understanding the reason for this is challenging, as project processes were weakly documented. The reason behind the final implementing partner composition was very likely the long time gap between the design, consultation and approval of the project document and the actual start of implementation. The implementing and executing agencies tried to reconvene the institutions that participated in the design process, particularly those with co-finance commitments. Some of the institutions with co-funding commitments participated in one or two of the initial steering committee meetings: Ministry of Agriculture, through the National Directorate of Land and Forest (DNTF) and the Technical Secretariat for Food Security and Nutrition (SETSAN), the Ministry of Public Administration (MAE) through the National Water Directorate (DNA), as well as the non-government organizations International Union for the Conservation of Nature (IUCN), Samaritan's Purse as well as the Red Cross of Mozambique (CVM). However, they did not actually participate in the implementation of this project.

In terms of governance, only one of the governance bodies, the National Steering Committee was actually established. This committee met once a year, i.e. a total of four times including one

in the district of Guijá, which served as participatory forum with representatives from all institutional actors involved, as well as district officials and community representatives.

Outcome scope and components

One of the first things done following the inception workshop in February 2009 was the development of the project results framework. The UNDP country office, with the support of the regional office (Pretoria), and in coordination with the executing agency, procured the services of an international consultant to:

- 1) Prepare a multiannual workplan and detailed budget for the project duration of the project.
- 2) Develop a logical framework deriving from the workplan, with relevant set of indicators, means of verification, risks and assumptions needs to be developed.
- 3) Identify baseline values against which implementation progress could be assessed.

In reconsidering the project design in relation to delivering the objective and outcomes statements within the available budget, choices had to be made about which outputs to keep and which to discard. Outputs such as pisciculture development, facilitation of land access and community mitigation plans were not continued in order to focus a small budget on agricultural and water activities.

Partnership arrangements (with relevant stakeholders involved in the country/region)

The project management unit (PMU) was set-up at the National Directorate for Environmental Management (DNGA) of MICOA headquarters in Maputo.

Notwithstanding their importance in the project design, the Ministry of Agriculture and the National Directorate of Water did not actually participate in the implementation of the project. The project would have benefited from their expertise and experience, particularly in agricultural development and solutions for water supply. Moreover the project missed an opportunity to institutionalize the project benefits through strengthened agricultural extension services and/or standardized models, .e.g. water tanks that could be replicated elsewhere. In fact, the project was supposed to involve the provincial representations of the said institutions. However, likely due to the scarce field presence and low degree of empowerment of the project management unit this engagement was not materialized. However, the district extension services could be strengthened by engaging the Ministry of Agriculture and the National Water Directorate and/ or their provincial representatives.

The actual implementation partners were the district government, particularly the District Services of Economic Activities (SDAE) and the District Services of Planning and Infrastructure (SDPI), as well as the National Meteorological Institute (INAM), the National Institute for Disaster Management (INGC), province of Gaza, the Institute for Social Communication (ICS) and the

Institute for the Promotion of Small and Medium Enterprises (IPEME). These institutions assumed the following roles:

INAM prepared the procurement process for the meteorological station components as part of outcome 2. The required capacitation of local personal had not yet taken place at the time of the evaluation.

SDAE and **SDPI** coordinated field activities and selection of beneficiaries, as well as benefited from capacity development in terms of training and equipment.

INGC organized community disaster preparedness committees and conduct disaster preparedness trainings.

ICS prepared the process of approval of the community radio. At the time of the evaluation the required capacitation of local personal had not yet taken place.

IPEME conducted trainings on food processing and conservation as part of their regular training activities.

Implementation challenges

There were significant divergences between the planned and the actual implementation timeframe. , i.e., there were important delays and phases with little or no implementation. The main causes for these set-backs were weaknesses of the governance structures, remote administration, high staff turn-over and lengthy procurement processes.

Coordination and political leverage capacity of the governance structures

The political leadership necessary to facilitate processes and coordinate partners was not able to effectively mobilize the support of different implementing partners. Thus, implementing partners did not take a pro-active role in implementation and some important partners did not participate at all in the project implementation.

Geographical distance between the project management and the field activities

The implementation of an almost exclusively field project from the capital, Maputo, presented several challenges. The vastness of the district (3,589 km²) and its dispersed population (38 major settlements in 2008)²⁷ would have needed permanent presence at field level to ensure an efficient coordination and interaction with local stakeholders and beneficiaries. Office facilities would have been available at Caniçado, location of the district government. This view has been consistently held by the vast majority of respondents at local and national level.

²⁷Government of the District of Guijá 2008 Plano Estratégico de Desenvolvimento do Distrito de Guijá,

High staff turnover

The staff rotation included three coordinators, two administrative assistants and one field project officer that did not fully overlap. This meant that the project management unit was not fully manned during most of the implementation time (see figure 1, timeline). The project management unit effectively ceased to exist by December 2012 with the resignation of its last team member, the project field officer.

The death in 2011 of the second coordinator, Mr. Samora Vuma must be noted here. This tragic event was health related and other than the terrible human loss it represented it also meant a long hiatus in project implementation, as gathering and organizing project documentation, as well as the recruitment process for a new coordinator took much longer than expected. Temporarily, the coordinator of the UNDP component of the *Joint Programme on Environmental Mainstreaming and Climate Change*, implemented in the district of Chicualacuala was assigned to this post while still in charge for the Joint Programme.

Lengthy procurement processes

The agile implementation of the project was hampered by two administrative bottlenecks. The first was the complications that arose during the procurement process for the meteorological station and community radio components. These complications were due to both technical and government process related reasons. The second bottleneck occurred at the authorization of payments by the implementing agency.

Although the NIM modality foresees the executing agency performing all administrative tasks based on quarterly advance payments, the implementing agency had to intervene at several instances to solve the capacity constraints of the executing agency. In fact, by 2012 the implementing agency completely assumed the administration of the project. However, the implementing agency itself is constrained by lack of sufficient human resources to process all payment requests timely

Finally, project implementation was affected by the regular reappearance of the seasonal streams and muddy dirt roads that make communications and travel extremely challenging. This factor is known for the area. However, it is identified in the project implementation review for 2012 as a constraint to implementation. This fact should have been identified as a risk in the project risk log and consequent mitigation strategy should have been developed, e.g. adjusting the rhythm of implementation to the natural ecological and economic cycles.

Figure 1; Project timeline

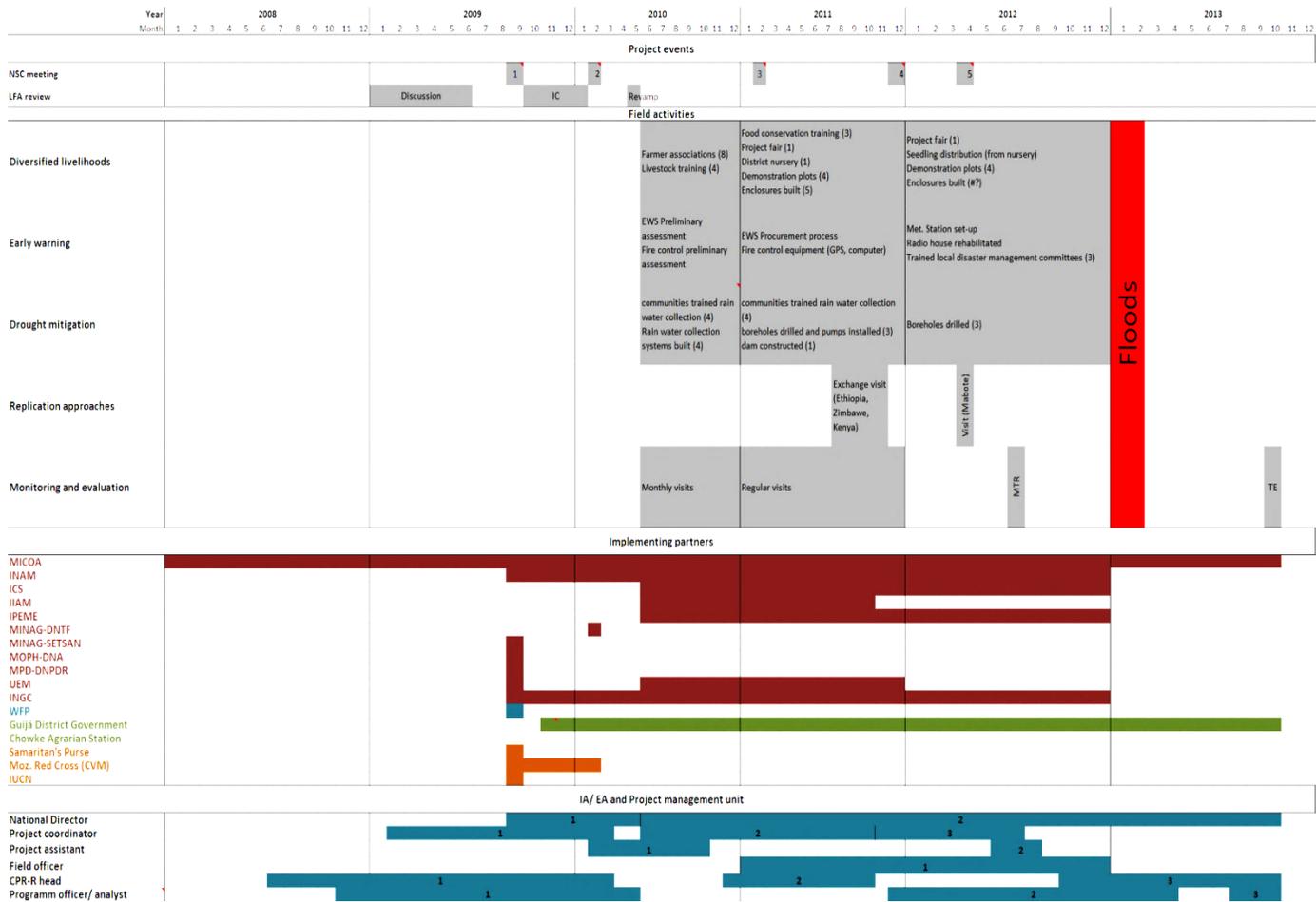


Figure 1 represents the main events, progress towards outcomes and changes in management arrangements. Top row, project events, includes the months of all the national steering committee meetings (NSC meetings), of which third (February 2011) and fifth (April 2012) took place in Guijá. The second row refers to the logical framework revision process, including the internal discussion process (discussion) the engagement of the international consultant (IC) and the actual approval of the modified logframe (Revamp). The next five rows summarize project activities arranged after the outcomes; the 2013 floods are represented by a red vertical bar. Rows 13-30 represent the engagement of the implementing partners, according to project reports, interviews and steering committee minutes; in bourdeaux are government agencies, blue are United Nations System agencies, green are local government and orange are non-governmental organizations. The last rows in blue represent key persons in the project management from project director to UNDP's Crisis Prevention and Recovery + Environment Unit head; numbers represent individuals.

Monitoring and evaluation: design at entry and implementation

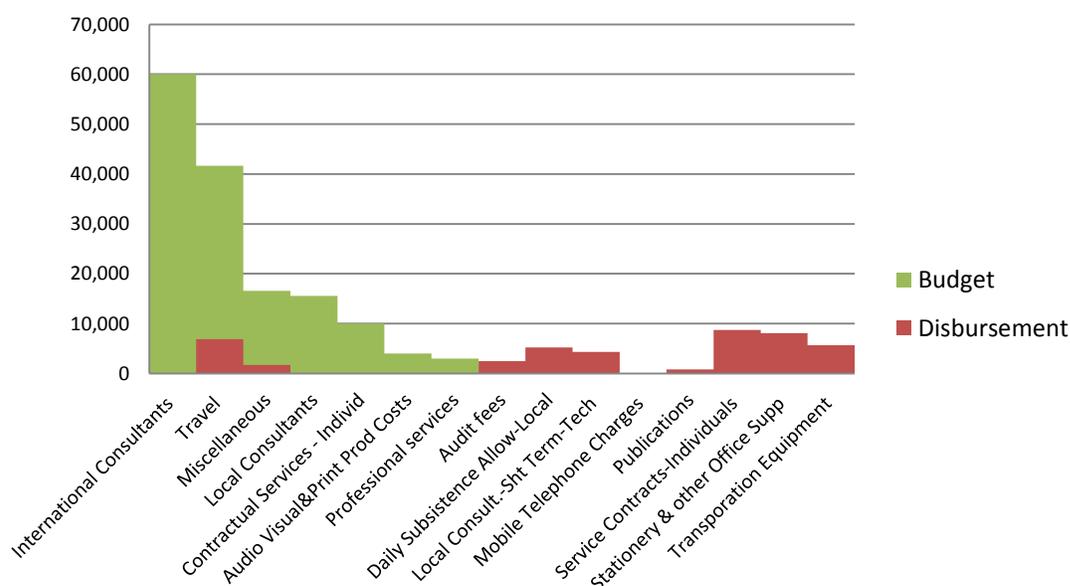
The project document included an array of monitoring and evaluation instruments, including the indicator framework and project annual reports and reviews. This section assesses the design status and the implementation of the said instruments, including provision of financial and human resources. The complete list of monitoring and evaluation instruments follows:

- Impact and performance indicators of the Logic Framework Analysis
- Annual Performance Reports (APR)/Project Implementation Reviews (PIR)
- Mid-term evaluation
- Terminal evaluation

Budget

The budget provided for monitoring and evaluation activities amounted to 150,750 USD, mostly for international consultants and travel. Of this budget only 43,823 USD had been actually disbursed at the time of the terminal evaluation. The disbursement did not yet include the terminal evaluation costs.

Figure 2; M&E budget and disbursement per ATLAS²⁸ category



Indicator framework

The original indicator framework included one impact indicator and 12 outcome (performance) indicators.

²⁸ATLAS is the financial management system used by UNDP

The project objective indicator, *“drought impact on project sites”* complied with SMART (Specific, Measurable, Achievable, Relevant and Time-Bond) criteria and was provided with a baseline: *“average annual drought impact over period 2000-2005: 14,000 people severely affected”*, as well as having specified the sources for the means of verification.

However, the target *“only very poor households affected”* presents an important problem: acknowledging that the poorest communities are more vulnerable is part of the project justification. Therefore the success of the project could not have been measured by accepting that nothing could be done to improve their resilience.

Virtually none of the original 12 outcome indicators responded to SMART standards. For instance, the indicator for the outcomes 1 *“maize yield”* is not specific because:

- Maize yield would respond better to a year with good rains and vice versa than to any project action²⁹ and the expected outcome is a more diversified crop mix, hence a better indicator would have been *“ratio of maize (area or yield) to drought tolerant crops (cassava and sweet potato)”*

Other indicators were not measurable, e.g., outcome 3 indicators such as *“sustainable development”* or *“application of sustainable development strategies”* since these strategies and their parameters³⁰ are not defined (what does sustainable development or sustainable development strategies mean: hectares under defined standards of grazeland management, hectares with defined standards of conservation agriculture?)

Relevance was also an issue for some of the indicators, e.g. outcome 4 indicator *“local awareness of international measures”* as it is not clear how local awareness of “international measures” would show the extent of replication of the project approaches, which was the outcome sought.

The original indicators were modified as a result of a revision process supported by an international expert. The new indicators responded more to SMART criteria, and all the baselines and targets are provided.

However, the new project objective indicator *“Number of communities that adopted adaptation to climate change”* does not constitute a good indicator of impact. The number of communities implementing adaptation strategies would indeed have an impact on their vulnerability but the indicator would need characterization of each adaptation strategy implemented, as well as being accompanied by indicator of changes in adaptive capacity, sensitivity or exposure to climate

²⁹ Nonetheless the indicator could be validated by an impact evaluation that used counterfactuals, i.e. comparing the maize yield of the project area with the yield of a neighboring area, with very similar or identical socio-economic and agro-ecological setting without project intervention; however, it is still a poor indicator for “crop diversification”

³⁰ i.e. parameters such as hectares of land under established criteria of management or number of farmers implementing (defined) conservation agriculture

hazards such as “change of income” or “change in productivity” or a vulnerability index, such as the UNDP Vulnerability and Risk Perception Index³¹.

The baseline also wrongly assumes that local communities have not been adapting to drought: “*no adaptation strategies being implemented*”. Local communities have always subsisted under conditions of high temporal and spatial rain variability and drought cycles. Indigenous adaptation measures include shifting crops, herd movement, using wild food (wild fruits, bush meat) and temporary migration³².

Project reports

Six project reports were produced: three narrative annual reports (2010, 2011 and 2012) and three project implementation form (PIR) for the same years.

Mid-term review

The project did not conduct any formal mid-term review. Instead, a joint monitoring mission that included top UNDP and MICOA officials was conducted at implementation mid-term. The report was not available for this evaluation.

Implementation of the M&E system/ Feedback from M&E activities used for adaptive management

The annual project review and project implementation forms are not very systematic i.e. do not always follow the outcome structure, resulting in double reporting of the same accomplishments and a trend to report what the project intended to achieve rather than what it had actually achieved. The reports include some over-optimistic assertions such as “***Since the project introduced this water component, women and girls in particular have opportunity to do other activities and go to school, since water access is no longer an issue***” that contradicts the field reality transmitted by respondents and observed during the terminal evaluation.

In the project implementation forms there are attempts to quantify the advances of the project against the revamped indicator framework, particularly at indicators of the type “*number of households...*” However, the quantification is not systematically conducted across the indicator framework and it is hampered by the lack of a solid base for the quantification.

Although monitoring missions were undoubtedly conducted regularly by the project coordinator, as well as UNDP and MICOA officials, these seem to have been rather activity oriented and

³¹ Examples of indicators can be seen in the SCCF tracking tool Adaptation Monitoring and Assessment Tool. This tool has been only developed in 2012. For the Vulnerability Perception Index see Crane, Droesch, Kurukulasuriya, Mershon, Moussa, Rankine and Santos, 2008, A Guide to Vulnerability Reduction Assessment, UNDP Working Paper

³² See minutes of the consultation held in Guijá during project design and Midgley, Dejene and Mattick, 2012, Adaptation to Climate Change in Semi-Arid Environments , experience and lessons from Mozambique, FAO, Maputo

unsystematic in terms of the formal monitoring system. Hence, the performance indicators were not operationalized, i.e. scales not developed to analyze and quantify field observations. For instance, for the indicator for outcome 1 “# of local communities that have introduced drought tolerant crops and techniques” the different crops types and surface occupied as well as production and changes should have been accounted for.

There was some degree of adaptive management based on the monitoring visits and interaction with beneficiaries and stakeholders, particularly during the annually held project meeting. However this monitoring feedback and management responses were not properly documented.

Ratings

According to GEF guidelines for conduct of terminal evaluation, the rating of the M&E system must be based solely on the quality of M&E plan implementation. Due to the disagreements between planned and actual implementation of the M&E system and the weak systematization of the procedures for data collection and analysis, the **M&E system will be rated as moderately unsatisfactory.**

Table 3; Original (project design) and modified indicator framework.

Objective/ outcome	Project document			PIR 2013		
	Indicator	Baseline	Target	Indicator	Baseline	Target
Project objective: To contribute to enhancement of food security and the capacity to adapt in agricultural and pastoral systems	Drought impact	Average annual drought impact	Only very poor households affected	Number of communities that adopted adaptation to climate change	0	7 communities implementing adaptation strategies
Outcome 1: Livelihoods strategies and resilience of vulnerable farmers in the selected pilot sites improved	1. Maize yield 2. # of livestock	1. 0,4 tons/hectare 2. 20,000	1. Increase by 20% 2. Increase by 20%	# of local communities that have introduced drought tolerant crops	Marginal use of drought tolerant crops and techniques	7 communities (introduced drought tolerant crops and techniques)
Outcome 2: Enhanced use of early warning systems for agricultural purposes at the selected pilot sites	1. Access to real time met. Info 2. # people using climate information to cope with cc effects	1. 32% of population with radio ownership 2. not provided	70% of population of project area has access 2. 50% uses information	% farmers that use early warning systems in agricultural decision-making	0%	50%

Objective/ outcome	Indicator	Project document		Indicator	PIR 2013	
		Baseline	Target		Baseline	Target
Outcome 3: Drought preparedness and mitigation policies support farmers/pastoralists in coping with drought	1. Sustainable development 2. Land access and land use 3. Water access and management 4. Forestry and wildlife 5. Disaster management	1. not provided 2. not provided 3. not provided 4. not provided 5. not provided	1. 50% of communities apply sustainable development strategies 2. Land access and use increased by 20% 3. 70% has access to water and apply water management 4. 50% of forest and wildlife exploited in a sustainable manner 5. 50% established DMC ³³	# communities with access to drinking water and water for productive uses	Access only in rainy season	7 communities have access to quality drinking and productive water
Outcome 4: Farmers/pastoralist outside the pilot sites replicate successful approaches to cope with drought	1. Local awareness of international lessons 2. Central government awareness of international lessons 3. Existence of technical constraints to implementation	1. 0 2. 0 3.0	1. Not provided 2. Not provided 3. Not provided	# of communities beyond pilot sites that introduced coping strategies tested by the target communities	0	At least three communities introduce coping with drought and CC strategies tested within the project

³³ DCM: Disaster Management Committees

3.2 Project Results

Overall results (attainment of objectives)

The objective of the project was to contribute to the enhancement of food security and the capacity to adapt in agricultural and pastoral systems, i.e., to change the sensitivity and capacity factors affecting the vulnerability³⁴ of local communities in the semi-arid district of Guijá. This section analyzes the extent to which the project objective has been achieved.

Metrics

The objective indicator of “*number of local communities in pilot sites of the project that have adopted drought and adaptation to climate change coping strategies*” and the target of “*7 communities (4.267 households) are implementing strategies to cope with climate change*” is a coverage indicator, not an impact indicator, which does not adequately measure the objective statement which is about enhanced food security and capacity to adapt. Thus although the project has indeed accomplished its objective, we cannot know for sure the project effectiveness (or impact) in adapting people’s livelihoods against climate variability and change.

A vulnerability assessment for the project area was commissioned by the project and concluded in September 2013. The vulnerability assessment was based on a single field visit and adopted a project evaluation methodology based on the UNDP evaluation guidelines. Hence, the vulnerability study overlaps to a great extent with the terminal evaluation report by using terminal evaluation criteria and evaluating the extent of accomplishment of project outcomes, their relevance, sustainability and efficiency. The vulnerability study does not follow any vulnerability analysis framework, although the questionnaires used are based on the Vulnerability and Capacity Assessment of CARE and the study does include an assessment of exposure and a relevance ranking of the measures introduced by the project. In sum the vulnerability assessment does support the conclusions of this evaluation but offers very little inside into the changes in vulnerability or factors underlying vulnerability.

³⁴The parameters of vulnerability for an exposed population, independently of the intensity or frequency of the hazard are sensitivity, i.e. how susceptible is the system/population to be negatively affected by climate change, for instance by decreasing dependency on crops vulnerable to water stress and adaptive capacity, i.e., how capable is the system/ population to adjust to shocks or changes, for instance by raising awareness or providing food reserves or increased water supply. For an in-depth discussion on vulnerability see IPCC, 2012: Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change, UNDP, 2004, Adaptation Policy Framework and UNDP, 2010, Mapping Climate Change Vulnerability and Impact Scenarios

Progress towards achievement of the project objective

The project introduced new dynamics and concepts in the area. Together with other projects implemented in the district of Chicualacuala, this was the first adaptation project in semi-arid regions of Mozambique explicitly addressing climate change adaptation with actions on the field.

There are signs that the project has contributed to reduction of vulnerability in the area of intervention: the increased awareness on climate change issues, particularly adaptation, was evident in the discourse of the top district government officials. Together with the early warning system (meteorological station and community radio), and steps towards improved, more adapted agriculture and livestock management the project Coping with Drought has likely generated the momentum needed for a real change in sensitivity and adaptive capacity. More importantly, the strengthening of the local disaster management committees may have strongly contributed to the absence of human losses during the floods of January 2013.

Based on that premise, the evaluation rates the degree of achievement of the project objective as moderately satisfactory.

Relevance

This section assesses the extent to which the project is aligned with and supports the objectives of the main national and sector policies of Mozambique.

National policies

The Governments Five Year Plan (PQG) 2005-2009 and the poverty reduction strategy paper, Strategic Action Plan for Poverty Reduction (PARPA) 2006-2009, in force during the project's design and inception stages have the following objectives relevant to this project:

1. **Transversal issue, environment, national priorities:** to prevent soil erosion, to promote natural resource management, including fire control, to foster institutional capacity on environmental issues and strengthen prevention and reduction of impacts of natural disasters
2. **Transversal issue, disaster risk reduction, national priorities:** to consolidate a prevention culture and to strengthen means for mitigation and prevention
3. **Economic component, agriculture:** to strengthen veterinary services, and enhance water supply

The current PQG and PARPA 2010-2014 continue to support the objectives mentioned above and introduce the objective of adopting measures to reduce disaster risks and adapt to climate change, including agricultural diversification, and strengthen local risk management committees.

Sector policies

The project is aligned with and supports the objectives of the main agrarian policies:

- **Strategy of the Green Revolution in Mozambique, ERV(2007):** aims to increase the productivity of smallholders through sustainable management of natural resources, improved use of water resources, improved seeds and inputs, veterinary and extension services
- **Strategic Plan for Agrarian Development, PEDSA (2010):** includes objectives on water management, sustainable natural resource use, strengthen capacities, improved information management and in general develop plans, actions and programs for adaptation to climate change
- **Food Production Action Plan, PAPA (2008):** with the objective of increasing production and productivity of cereals, cassava, potato, and oilseeds

The project also supports the objectives of the Master Plan for the Prevention and Mitigation of Natural Disasters, PDPMCN (2005) that, although without specifically mention climate change has the goal of preventing human and material losses due to disasters and includes provisions to establish local risk management committees in all localities.

The project gives response to the National Adaptation Programme of Action (NAPA, 2007) in three of the four adaptation initiatives proposed therein:

- Strengthening early warning systems
- Strengthening capacities of agricultural producers to cope with climate change
- Management of water resources under climate change

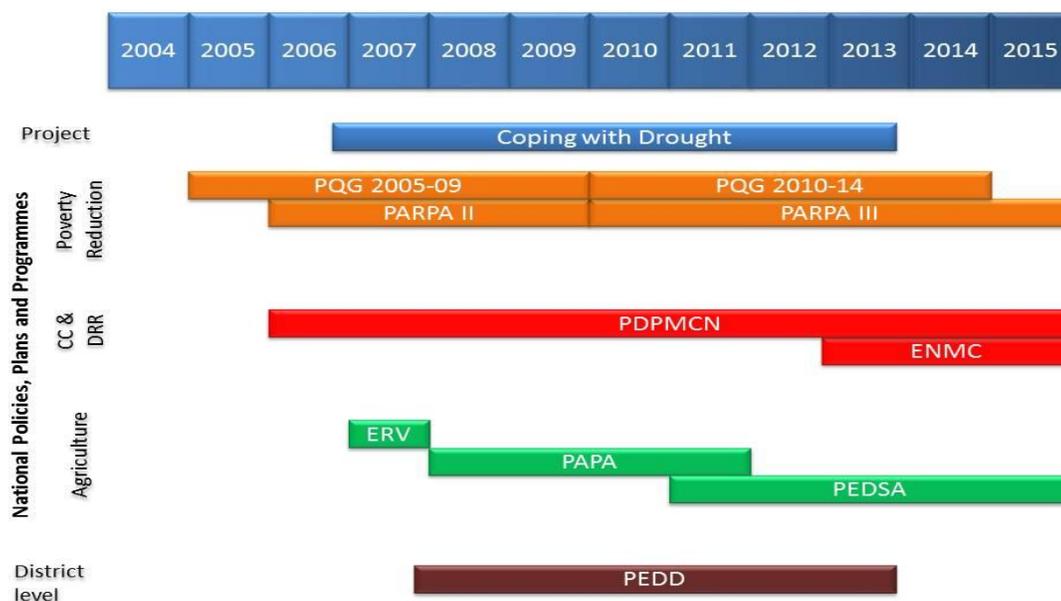
The project supports also the goal and specific objectives of the National Climate Change Strategy, ENMC, approved in 2010.

Local level

The project supports the Strategic Development Plan of the district of Guijá, 2008 (PEDD) that has as first strategic objective to improve income, food security and nutritional status of families through improved agriculture and livestock, as well as to manage natural resources sustainably and create local and regional market linkages. The plan does not specifically mention climate change but the project supports many of its specific objectives for the agricultural and livestock sectors.

Because of its alignment with national and local policies and the local stakeholder's view of the high degree of relevance of the project to their necessities, the evaluation rates the project as relevant.

Figure 3: it illustrates the time frame of the project together with the relevant policies, programs and strategies it supports. NAPA does not appear in this graph because it does not have a defined timeframe but describes urgent adaptation actions needed.



Effectiveness, degree of achievement of results

Detail description of the project achievements:

Outcome 1: *Livelihoods strategies and resilience of vulnerable farmers in the selected pilot sites improved and sustained to cope with drought and climate change*

This outcome was composed of two outputs, one related to diversity and resilience of community food and income sources and the other to productivity of livestock.

Diversification of food and income

Drought tolerant crops such as cassava, sorghum and sweet potato were known but still are marginal crops in terms of cultivated area. The project has made efforts to promote cassava and sweet potato with some degree of success, setting up to 8 demonstration plots. The target set for this component of the output was of 4,267 households (seven localities). Although the project reports 70% or 3,900 households growing cassava and other drought tolerant crops in 2012, the vulnerability assessment of September 2013 could only identify 87 or 2% of the targeted households. This discrepancy may be explained by the fact that most of the plots were destroyed either by the unusual high temperatures at the end of 2012³⁵ or the subsequent heavy

³⁵ From the interviews with farmer beneficiaries and the staff of the agricultural district services

rains and floods that also affected the interior localities of Nalazi³⁶. Although awareness has been raised at both community and district government level on the importance adapting to drought and there has been an increased demand for these and other drought tolerant crops and trees, **the vulnerability of even drought resistant crops such as cassava to the extreme conditions of the districts interior³⁷ will need to inform plans for potential future agricultural developments**, i.e. non-agricultural strategies such as livestock-based livelihoods could be better suited for such conditions.

The trainings in food preservation³⁸ were rated as very positive by all respondents even if trained respondents did not feel able to promote the techniques to other households and needed more capacitation. Preparation of preserves may have a positive impact in food security but did not have the intended income generating effect: in spite of the celebration of two fairs to promote the processed products, the linkage to markets has not yet been realized. The vulnerability assessment of 2013 identified 90 households or 2% of the target population as trained in agroprocessing techniques.

An important achievement was the establishment of a district nursery. All local respondents unanimously identified this as one of the most important accomplishments of the project. The nursery served to supply communities with tree seedlings³⁹. **The nursery was severely damaged with loss of all seedlings during the January 2013 floods.**

The district government had completed repairs and hired back three of the staff funded by the project and added three additional staff **with their own and provincial funds**. However, **the restored nursery has been set up on the same lot and it is therefore still vulnerable to floods.**



Figure 4 a) seedlings from the district nursery b) *M. olifeira* seedlings at the rehabilitated nursery c) cassava plot d) wild fruit pickles e) improved cattle enclosure with treatment corridor//Photo credits: a,c and d: UNDP Mozambique; b and e: JACB

Livestock

All respondents agree on the benefits of the improved livestock enclosures and shelters although these benefits have not been quantified in terms of production or health. More importantly, replication of the enclosures is challenging for the communities, as the models need *simbiri*

³⁶ i.e. not affected by the overflowing Limpopo River

³⁷ From the interviews with farmer beneficiaries and the staff of the agricultural district services

³⁸ Production of wild fruit pickles and jam, production of cassava flakes (rale)

³⁹ *Sclerocaryabirrea* (canhоеiro, marula), *Moringaolifeira* (moringa), *Strychnosmadagascariensis* (macuacua), *Sophorainhambansis* (tinhiri), *Adansoniadigitata* (baobab, imbondeiro), *Pinussp* and *Eucalyptus sp* inter alia.

(Lebombo ironwood, *Androstachys johnsonii*) that all respondents rated as difficult and/or costly to acquired, as the tree does not grow locally in Guijá⁴⁰.

The enclosures include a corridor that would facilitate treatment of the animals, provided the means are available: i.e. success will be dependent on the availability of treatment; animal health is an important issue for the area, as many animals are lost to diseases. Trainings were provided by the veterinary faculty of the Eduardo Mondlane University. However, respondents felt they would need more coaching on the matter and they point out to the lack of access to veterinary products. Also, the vulnerability assessment identified only 55 households or 1.2% of the target population trained in pastoral management.

Outcome 2: Enhanced use of early warning systems for agricultural purposes and disaster preparedness

Early warning system

There is high potential for adaptation benefits, as well as very high expectations from local stakeholders from the early warning system. The high value of an additional meteorological station to the national meteorological network must be noted as well.

This outcome has two components, the first being the acquisition of the equipment necessary to set-up a meteorological station and a radio station, as well as the habilitation of the facilities to host them and the establishment of radio frequency and emission rights and a second component related to the development of local capacities to interpret and transmit the meteorological information and the predictions generated.

Only the physical component of this outcome has been realized. Equipment for the radio and the meteorological station were procured and the meteorological station actually installed and generating data. A house to host the community radio was also rehabilitated.

The meteorological station sustained some damage during the January 2013 floods and it is still pending damage assessment by INAM and repairs to be put back into service. The radio equipment is still in storage pending the finalization of the rehabilitation works and it would need the technical assistance from ICS.

Disaster preparedness

The provincial INGC used project funds to strengthen and equip three local disaster preparedness committees. The committees received INGC's disaster preparedness kits⁴¹ and capacitation. Trainings were also provided to community members. **The effectiveness of this measure was proven during the floods in January 2013 were no casualties were directly**

⁴⁰ Local respondents consistently pointed to the district of Mabalane as only available source of simbiri ironwood

⁴¹ The kits include 2 bicycles, 18 pairs of boots, 18 rain coats, torches, radios (receivers), picks, machetes, ropes, and signal banners among others and are intended to last at least four years.

attributed to the floods as people efficiently fled to pre-designated safe zone, which at least partly, is a direct consequence of the drills and training.

Actions for the development of a district bush fire management plan that would include the early warning system and the disaster management committees were reported under this outcome. Although some preparatory meetings took place and office and field equipment has been acquired by the project for the district government (GPS units, GIS software and computer) the management plans have not yet been developed.



Figure 5 a) building for the community radio b) meteorological station c and d) effects of the Jan.2013 floods//Photo credits; a and b: JACB; c and d: UNDP Mozambique

Outcome 3: Drought mitigation (water scarcity reduced) integrated across sectors and programmes at various levels of society in pilot sites of the project

Water scarcity for human consumption and productive uses (agriculture, livestock) is the main concern of local stakeholders. Activities related to access to water constitute an important part of the time and energy of the local population, particularly of women.

The strategy to increase water supply was to enhance access to groundwater resources and introduce rain water collection as an alternative.

Groundwater constitutes the main source of drinking water for humans and livestock, particularly during the dry season. Most of the wells yield brackish water that is nevertheless used for human consumption. Local stakeholders hold the view that there would be enough provision of water if they could only dig deeper. The project commissioned a hydrological study in the administrative post of Nalazi⁴², of which the report was not available to this evaluation. The study found out that groundwater was brackish and unsuitable for either human or livestock consumption or agriculture. However, pressure exerted by project beneficiaries forced the decision to drill three deep wells to a depth of more than 100 meters; the water turned out to be saline and unsuitable for either human or livestock consumption or agriculture. The last project

⁴² Localities of Nalazi are the most affected by drought

implementation form (2012) reports the drilling of the three additional wells and the installation of solar pumps.⁴³

Rain water collection systems were installed in five community schools⁴⁴. The systems consisted in a collection surface (the school roofs), drain pipes and concrete tanks of an approximate capacity of 52,000 l. Of the four tanks inspected during the field mission, only one was still functional, one not completed, another one damaged and a third turned useless after the shanty (sadly, the school hall) that provided the collection surface collapsed in January 2013. The project reports, last of which is from June 2012 do not mention any failures to complete or damages to the rain water collection tanks. The local respondents interviewed for this evaluation reported that in the case of the two damaged tanks they lack the means to repair the tank or rebuild the structure to support the collection surface respectively. For the incomplete tank the locals could not give any reason, simply stating that the “project did not complete it”.

Under this outcome, 4,267 households were intended to be provided with access to water either from groundwater or rainwater collection. The project report in June 2012 states that 60% of the target population had been granted access to water by the project. However, the vulnerability assessment of September 2013 reduces this figure to only 764 or 17% of the target population. The observations made during the evaluation mission are consistent with the figure of 17% given by the vulnerability assessment.

The example of the one at the school in Majimise, Nalazi, shows the potential of this approach. The tank had still water at the end of the dry season and has constituted the sole source of drinking water for the school during the whole of the season. Although the pipes need repair, it is kept in good condition by the school staff. **There has been at least a successful replication of this technology: a household has constructed a downscaled rain water collection tank at their residence.**

One dam has been reportedly constructed to enhance the water retaining capacities of a naturally occurring seasonal pond. The project strategy included the construction and/ or rehabilitation of two additional dams but this was not implemented to date.

A small vegetable field collectively owned by the community of Lhuvukane (approximately 0.5 Ha.) has been irrigated and it is currently producing vegetables (beans, lettuce and cabbage). This achievement is rather isolated but it shows the potential of irrigation in areas suitable for it, i.e. where water is available.

⁴³ The project reports stated that the hydrological study recommended drilling deeper but this was contradicted by the local respondents interviewed. The paragraph is based on their interviews.

⁴⁴ Nhangwenha, Majimise, Gumbana and Chimbembe(Nalazi) and Tdzindzine (Chivongoene)



Figure 6 a) drilling of a deep well b) traditional well and queue for water c) rain water collection system at school in Nalazi e) pumping system for irrigation in Lhuvukane (Caniçado) at the bank of the Limpopo River//Photo credits: a: UNDP Mozambique; b, c, e JACB

Outcome 4: *Farmers/ pastoralist outside the pilot sites replicate successful approaches to cope with drought*

The project implemented an intended dispersion policy, i.e., project activities were scattered across the district with the objective of catalyzing replication by developing successful demonstrations in the vicinity of all the localities of the district. This would have of course depended on the actual success of the demonstration and the feasibility of replication. Also, the replication strategy would have needed more intensive coaching for local replication and documentation of all activities and outputs to disseminate and use as models

At least one learning tour by stakeholders involved in the project “Coping with Drought” in Zimbabwe has taken place. However, and given the fact that the would-be demonstration sites have been affected by the January 2013 floods, there has not been a systematic learning tour policy.

Information of the project was also uploaded to the UNDP adaptation global knowledge sharing platform Adaptation Learning Mechanism. However, the information on the project refers only to project design.

Table 4. The rating table summarizes the project achievements and the ratings based on effectiveness.

Objective/ Outcomes	Performance indicator	Baseline	End of project target	End of project status	Comments	Rating
To contribute to enhancement of food security and the capacity to adapt in agricultural and pastoral systems in Mozambique, specifically in the Gaza Province, Guijá	# of local communities in pilot sites of the project have adopted drought and adaptation to climate change coping strategies	None of the 13 local communities in pilot sites of Guijá District are adapting their livelihoods to CC and persistent drought impacts.	7 communities (4,262 households) are implementing strategies to cope with drought and climate change	1 or more activities have been implemented in at least 7 communities: District nursery Drought resistant crops Improved enclosures Agro-processing Construction of rain water collection tanks Small scale irrigation Materials for met. station and radio	The new strategies and the awareness raised, particularly at the district government together with the elements to be installed to set-up a early warning system (repair of the meteorological station and installation of the radio) have the potential to reduce vulnerability in the area	MS ⁴⁵
1. Livelihoods strategies and resilience of vulnerable farmers in the selected pilot sites improved and sustained to cope with drought and CC	# of local communities in pilot sites that have introduced drought tolerant crops and agricultural techniques	Marginal use of drought tolerant crops and agricultural techniques	7 communities (4,262 households) have introduced drought tolerant crops and agricultural techniques	8 drought resistant plots four trainings agroprocessing 2Product Fair 1 Training in livestock management 4 Enclosures built	Cassava and sweet potato are still marginal compared with maize and the enclosures would need veterinary services for full potential. Fruit conservation may play a role in food security but market linkage is yet missing	MS

⁴⁵ The overall effectiveness rating is based on the average of the outcome ratings

Objective/ Outcomes	Performance indicator	Baseline	End of project target	End of project status	Comments	Rating
2. Enhanced use of early warning systems for agricultural purposes at the selected pilot sites	% farmers in pilot sites that use early warning systems in their agricultural decision-making	No use of meteorological information	At least 50% of farmers households (3952) are using early warning information into their agricultural practices' decisions	Meteorological station installed, damaged and not yet functional, radio equipment to be installed. Trainings have not yet taken place	This outcome is still achievable if the project supports the restoration of the met station and sets up the radio and the needed capacitation on use of radio and met equipment and info for locals	MS
3. Drought mitigation (water scarcity reduced) integrated across sectors and programmes at various levels of society in pilot sites of the project	number of communities with access to drinking water and water for productive uses	Access only in rainy season	7 communities (4,262 households) have access to quality drinking and productive water	5 communities trained rain water harvest 5 water harvest systems installed but only one of the 5 tanks used. 1 Hydrological survey 3 boreholes drilled and solar pump installed 1 dam constructed 1 irrigation plot set-up	The project has introduced rain water collection that would still need time to be established. Most importantly, the project demonstrated the unfeasibility of boreholes to provide safe drinking water	MU
4. Farmers/pastoralist outside the pilot sites replicate successful approaches to cope with drought	number of communities beyond pilot sites that introduced coping strategies tested by the target communities	None	At least 3 communities out of pilot sites introduce coping with drought and climate change strategies tested within the project.	At least one study tour conducted. No evidence of replication	There is a certain potential for replication if the shortcomings of the project results are at least partially mitigated.	MU

Efficiency

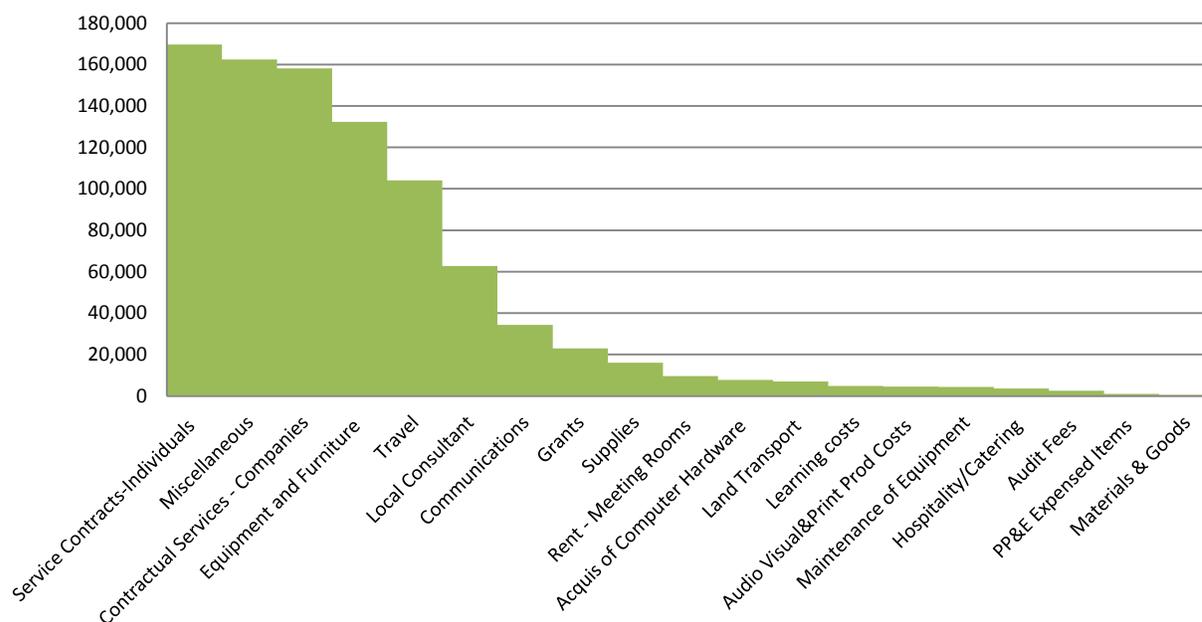
This section will examine the following aspects of efficiency: ratio management/ outputs, financial management, incremental costs and efficient delivery (comparison with similar projects).

Ratio management/ outputs

Other than to significant implementation delays, the remote administration of the project also led to relatively high travel and communication costs that amounted to 14% of the total project budget (figure 6).

In fact, almost half (49%) of the project expenses have been related to project management activities, including salaries and travel⁴⁶ (table 5).

Figure 7; Actual project expenses per ATLAS category (USD). The most important categories are personnel costs, miscellaneous, and contractual services. Travel amounts to over 100,000 USD.



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⁴⁶ This assertion assumes that all expenses accounted for the outcomes Project Management and Monitoring and Evaluation can be ascribed to project management

⁴⁷ ATLAS is the financial management system used by UNDP

5; Management and outcome budget and expenses. The ratio project management/ outcomes assumes that the totality of the budget and expenses for the outcomes 1 to 4 were intended/ actually expended in field activities

Outcome	Budget	Disbursement	Total budget for outcomes 1-4 and 5-6	Expenses outcomes 1-4/ expenses outcomes 5-6	Ratio investment project management/ outcomes
1. Livelihood strategies improved	459,042	145,283	1,555,314	619,317	49%
2. Enhanced Early Warning	523,287	95,100			
3. Drought mitigation	465,986	268,032			
4. Replication of approaches	107,000	110,902			
5. Monitoring and Evaluation	150,750	47,024	479,834	301,088	62%
6. Project Management Unit	329,084	254,065			

Financial supervision

The project started implementation on the basis of advanced payments by the UNDP to MICOA. However, the financial control of project activities was not optimal and therefore reverted to payments per activity administered directly by the UNDP, i.e. a **quasi-direct implementation by UNDP**.

The project financial documentation and accounting was not conducted in a systematic way. **Additionally, Irregularities, namely failure to produce complete documentation and unusually high rates paid for contractual services to enterprises involved in the field activities were found in some procurement processes. An audit is strongly recommended to completely clarify these instances.**

Figures 8 and 9 illustrate the financial management issues by showing the mismatch between budget and actual disbursement, not only in quantity but also the disparity between budgeted and expended budget categories. Also, the remarkable figure expended under miscellaneous serves as an indicator of the lack of optimal financial management.

Figure 8; budget figures from the annual work plans (AWP) against actual expenses per ATLAS code

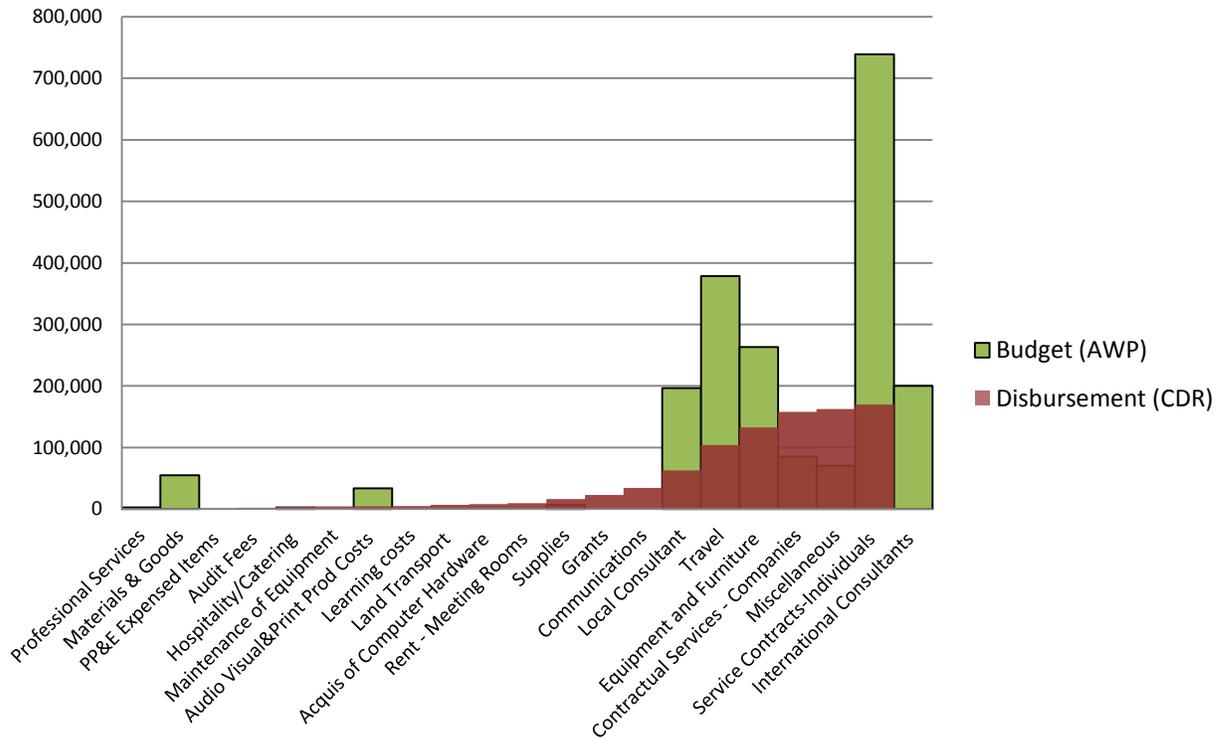
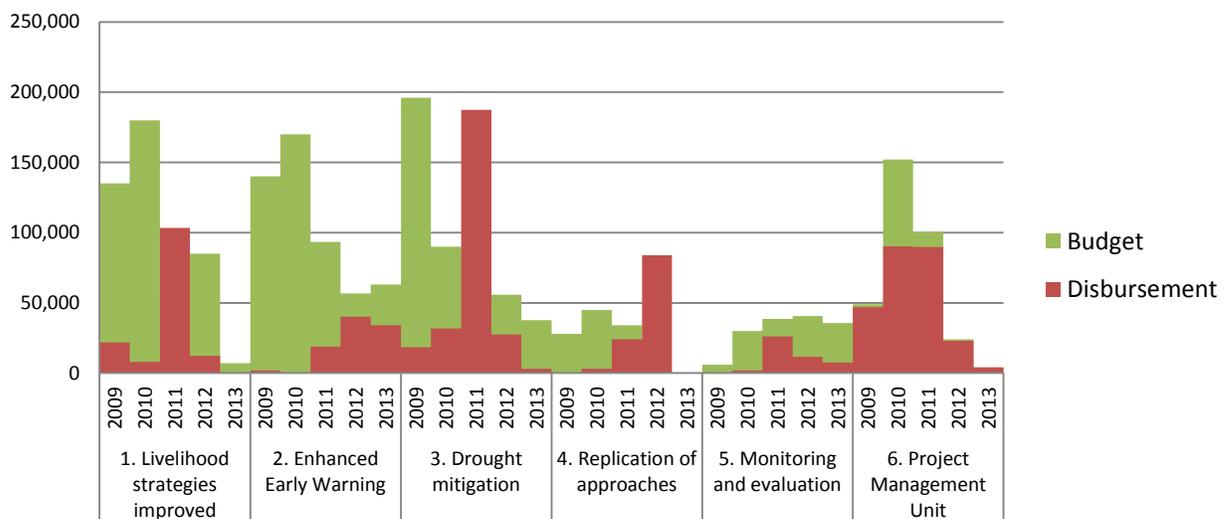


Figure 9 Budget and disbursement per year per outcome



Incremental costs

Incremental adaptation costs are defined as the additional costs incurred for adaptation activities addressing climate change impacts⁴⁸.

The budget of the district of Guijá is not sufficient to cover the cost of the district development objectives expressed in the district strategic development plan: in 2008, the estimated investment needs for the agriculture and livestock objectives⁴⁹ amounted to USD 6,830,000 and 1,407,585 respectively. In 2006 the total government budget for the district amounted to 980,090 USD, of which only 49,582 USD corresponded to agriculture. The project budget is just slightly less than the total district budget for 2006 and the budget for agriculture for the same year amounts only to 5% of the total project budget. Most of the district government expenses are in salaries and other human resources costs, as well as fuel, energy and maintenance of equipment⁵⁰.

In view of the already pressing financial needs of the district to meet its objectives without additional adaptation costs⁵¹, the evaluation concludes that the project complied with the incremental cost criterion.

Co-finance

The project was funded with a grant from the Special Climate Change Fund of 960,000 USD. Co-finance in cash was confirmed from the government (USD 729,840), Samaritans Purse (USD 70,000) and the UNDP (USD 5,000), as well as an in-kind contribution estimated at USD 125,000 from an organization listed in the project document as IPAC of which the evaluation could not find any further reference.

Table 6; co-finance table. (all figures in USD)/ Prop.= Proposed

Type/Source	IA own financing		Government		Other sources		Total co-financing		Total disbursement	
	Prop.	Actual	Prop.	Actual	Prop.	Actual	Prop.	Actual	Prop.	Actual
Grant	5,000	0	729,840	0	70,000	0	804,840	0	960,000	863,600
Equity										
In-kind					125,000		125,000			
Non-grant instruments										
Other types								0		
Total	5,000	0	729,840	0	195,000	0	929,840	0	960,000	863,600

⁴⁸ GEF Evaluation Office, 2012, Evaluation of the Special Climate Change Fund

⁴⁹ to increase agricultural production by 40% and to increase production by at least 50%

⁵⁰ All figures from the 2008 Plano Estratégico de Desenvolvimento do Distrito de Guijá, Guijá District Government, converted to USD using the www.xe.com currency converter 15/10/2013

⁵¹ The strategic plan does not contain any specific adaptation activities

The government contribution was committed by the National Agriculture Directorate of the Ministry of Agriculture (USD 419,600), the Ministry for Coordination of Environmental Action (USD 100,000), the National Directorate of Water (USD 100,000) and the National Meteorological Institute (USD 110,241).

Only 2,668.74 USD from UNDP core funds were disbursed as of October 2013. Other committed co-funding was not documented in any of the sources consulted for this evaluation.

All project staff and consultant costs, as well as travel costs and daily subsistence allowance of government during missions related to project activities were funded from the project budget and are accounted for in the CDRs. However, the executing agency, MICOA did invest extra staff time by the project national director, UNCDD focal point, GEF focal point, and one administrative assistant. The quantification of this investment needs an estimation of the staff time and the salary tables used by MICOA but it is unlikely to reach the committed USD 100,000.

Other government institutions with co-funding commitments either did not participate in the project implementation (MINAG, DNA) or could not honor them since they were not acknowledged by the current direction (INAM).

The contributions of the NGOs cited in the project document also fail to materialize as they did not participate in the project⁵². However, Samaritan's Purse, as well as other NGOs not identified in the project document, such as World Relief and IUCN did conduct activities complementary to the projects, e.g. drilling additional boreholes for water supply.

IA & EA rating

Based on the situation described in the section adaptive management and the financial management issues described above **the evaluation rates the implementing and executing agency performance as moderately satisfactory**

Efficient delivery

There were two comparable interventions in a similar ecological and socio-economic setting in the district of Chicualacuala: the Joint Programme on Environmental Mainstreaming and Adaptation to Climate Change (2008-2012) and the pilot projects of the Africa Adaptation Programme (2009-2013). As the Africa Adaptation Programme interventions were just pilots of a main project aiming to mainstream climate change in national planning processes, an attempt will be made here to compare Coping with Drought with the Joint Programme.

⁵² The evaluator tried, unsuccessfully to schedule an interview with staff from Samaritan's Purse

The Joint Programme⁵³ aimed to mainstream climate change in local and national sector policies and to implement **adaptation actions** with the objective of “*improve the resilience of rural communities*” to be achieved through two outcomes, of similar formulation to outcome 1 and 3 of Coping with Drought: Outcome 4: “*community coping mechanisms to climate change enhanced*” and outcome 5: “*communities livelihood options diversified*”

These adaptation actions consisted in agroforestry, conservation agriculture, forest resource management, enhanced water supply through wells and livestock health management in arid communities, as well as development of small-scale irrigation, surplus production for sale and food processing in riparian communities.

All in all, there were clear similarities between the adaptation component of the JP and Coping with Drought both in terms of objectives, activities and environmental and socio-economic setting.

All JP outputs had at least some degree of success, and in general effectiveness was evaluated as 70%^{54,55}, which is comparable to the moderately satisfactory rating given by this evaluation to the overall project effectiveness of Coping with Drought⁵⁶.

To make a comparison between the JP and Coping with Drought, and given that information on actual expenses by the JP was not available for this evaluation, the following assumptions are made:

- the budget per output of the JP was actually expended in the activities related in the JP final report
- the management costs are included in the JP budget per outcome and they were evenly distributed across all outcomes
- the effectiveness rate calculated by the final evaluation of the JP is equivalent of the effectiveness rate of the terminal evaluation of Coping with Drought

If these assumptions are true, the adaptation costs⁵⁷ (budget) per capita (of target population) would give a measure of the relative efficiency. To account for the difference between the projects area in terms of population number and dispersion, the total cost of the project per capita is divided by the total area of the target district.

⁵³The Joint Programme was funded by the Spanish MDG Fund with USD 7 million and counted with the participation of six UN agencies (FAO, UNDP, UNEP, UN-HABITAT, UNIDO and WFP) and 5 government ministries and agencies (MICOA, MINAG, INGC, INAM and the district government)

⁵⁴ Outcomes 4 and 5, i.e. the “adaptation outcomes”

⁵⁵ D. Eucker, and B. Reichel, 2012, Final Evaluation of Environmental Mainstreaming and Adaptation to Climate Change, MDG Fund

⁵⁶ The overall rating is based on the average of the rating on the 6 pt. scale of the project outcomes. The final score of the project is 3. and $3.5/6=0.6$

⁵⁷ i.e., outcomes 4 and 5 for the JP and outcomes 1 and 3 for Coping with Drought

Table7: comparison between the Joint Programme and Coping with Drought

Joint Programme				Coping with drought		
Outcome	Output	Indicative activities	Budget	Outcome	Indicative activities	Expenses
4. Community coping mechanisms	4.1 Coping mechanisms	Baseline study, small scale irrigation, Animal health training and equipment, Agricultural equipment, Fish farming, Pig keeping, Bee keeping, Agro-processing training	141,202	1. Livelihoods improved	Drought resistant crops, Small scale irrigation, Animal health training, Improved enclosures, Nursery	145,283
	4.2 CB forest management		383,800	3. Drought mitigation	Rainwater systems, Hydrological study, Boreholes	268,032
	4.3 Spatial planning		260,000	5. M&E		43,823
	4.4 Agroforestry	Vegetation survey, Nursery, Afforestation, Land management training	179,090	6. Project mgmt.		254,065
	4.5 Water management	Baseline study, Rainwater systems, Boreholes	938,170			
	4.6 Cons. agriculture		680,231			
	4.7 Biogas		272,059			
5. Communities livelihoods diversified	5.1 Options identification	Baseline study	217,600			
	5.2 Energy source feasibility		555,160			
	5.3 Animal husbandry	Improved enclosures Training	438,135			
	5.4 Meat processing		263,799			
Relevant total	Sum of output 4.1, 4.4, 4.5, 5.1, 5.3		1,824,197	Sum of outcome 1 and 3 plus ((outcome 5+6)/4)*2 (mgmt. costs)		562,569
Pop. #	40,000			66,000		
Area (km ²)	18,155			4,200		
Effectiveness	70%			60%		
Ratio ((cost/pop)/A)	0.0025			0.0020		

Calculated in the manner described above, there is no significant difference between the two projects. It must therefore be concluded, based on the assumption and data limitations that **there were not any significant differences in term of efficiency for both projects approach.**

Rating

Based on the elements of efficiency depicted above: efficiency of management, incremental cost criteria, extent of co-funding, and comparison with similar interventions, **the evaluation rates the project efficiency as moderately satisfactory**

Mainstreaming

Alignment with UNDP's country program document and the United Nations Development Assistance Framework (UNDAF)

The extension of the Country Program Action Plan (CPAP) for 2010-11, relevant for the implementation of this project, has as overall objective to support the Government of Mozambique to achieve the Millennium Development Goals and the national priorities as expressed in the Government's Five Year Plan and the Action Plan for Poverty Reduction, as well as to achieve the objectives of the UNDAF.

In particular, the CPAP 2010-11 aims to achieve the following outcomes, among others:

- *“Local management of risk strengthened and reduction of the risks of disasters systematically integrated in planning”* through i.a. installation of early warning systems
- *“Capacity of the country to deal with climatic changes strengthened ”*through strengthening of adaptive capacity at community level and raising awareness of decision-makers
- *“Drought and desertification issues integrated in the sectors and programmes at various levels of the society in the pilot areas”*, by i.a., develop local capacities to cope with drought impacts.

Coping with Drought was set-up to make a direct contribution to these CPAP outcomes.

Contributions to improved governance, disaster preparedness and gender

Coping with Drought intended to act primarily at community level to strengthen capacities and mitigate sensitivities to climate-related stresses on local livelihoods. To do that, it necessarily had to work closely and with the support of the district government. In this sense, the project has also contributed to develop awareness and to some degree capacities at the local government level that could contribute to a strengthening of the delivery of government services to the district population.

The project contributed directly to strengthening disaster readiness by the support to the organization, training and equipment of local disaster management committees. The conclusion of the early warning system (met. station and radio) will very likely contribute to the overall disaster management and prevention capacities of the district.

Coping with drought did not have specific activities aimed to empower women. Women play an important role in the district rural economy, performing most of the essential provision work (fetching water and firewood, food preparation, tending fields and crops). In spite of their fundamental socio-economic role, women are traditionally dispossessed of decision-making powers. This evaluation did not find any data to make any conclusions on the gender effects of Coping with Drought. However, the promotion of associations and trainings where women participated can help to raise local awareness on gender equity. Also, any improvement in water or fuel supply, as well as agricultural productivity can have positive effects on the living conditions of women and children.

The project was entirely focused on field-based activities with no direct work undertaken on policy development. The lessons learned from implementation could contribute to policy development if learning from the pilots could adequately feed into the strategies and programming in Mozambican government institutions.

Catalytic role⁵⁸

In relation to knowledge transfer, the rain water collection systems and the improved livestock enclosures, production of conserves and pickles and the early warning system can be considered new in the sense that they were not known before at the project site, while cassava and sweet potato were common although of marginal importance and the disaster management committees were already in place, albeit unequipped. The concept of a centralized district nursery that could supply the communities with saplings of useful trees is also an innovative approach⁵⁹.

There is evidence of some, though limited, replication of project activities such as rainwater collection tanks. A better adaptation of the technology introduced to local realities (materials, maintenance costs) and the documentation of successes including setting standards and developing manuals would have fostered the replicability of the project outputs.

At least one international learning tour has taken place and there is potential to use the early warning system, rain water systems, and district nursery as demonstration sites, once

⁵⁸ The catalytic role of a project is defined in the UNDP Guideline for Terminal Evaluation of GEF projects as the degree to which the project has contribute to:

Production of public good: development of new technologies and/or approaches

Demonstration: Steps have been taken to catalyze the public good, through demonstration sites or training

Replication: Activities, demonstrations, and/ or techniques are repeated within or outside the project

Scaling-up: Approaches developed through the project are taken up on a regional/ national scale, becoming widely accepted

⁵⁹ The nursery that was set-up by the project is considered to have strategic importance by the district government

completed. On the other hand, more effort should be made to eliminate barriers to the replication of the improved livestock enclosures and rain water collection systems, i.e., to use locally available wood for enclosures and to eliminate perception of high costs associated with the water tanks.

Capacities were developed in construction of rainwater collection systems, improved cattle enclosures, food conservation and processing and disaster management. However, the technical capacities developed had a low coverage, not reaching more than 2% of the target population and did not meet expectations in terms of developing the ability to transfer the capacities to other communities (training of trainers)The evaluation respondents stated that they would need more coaching to feel confident to transfer the acquired knowledge, particularly on food processing and conservation.

Impact

Short description of the GEF impact evaluation framework

The GEF impact evaluation framework includes the project's theory of change, (project strategy or the results chain), i.e. the logical connection between the projects inputs, activities, outputs and outcomes and contribution to the intended impact and incorporates additional elements to help understand the process leading to the impact: assumptions, drivers of impact and intermediate states. The assumptions refer to significant factors that are expected to contribute to the achievement of the projects impacts but are largely beyond the power of the project to influence; impact drivers refer to factors that are expected to contribute to the achievement of the projects impact and can be affected or influenced by the project; intermediate states are the steps or transitional conditions between the projects outcomes and its impact⁶⁰.

It goes beyond the scope of this consultancy to undertake a full impact analysis, but based on the project logical frame analysis (see project design/formulation section) a brief outcomes-impacts analysis will be undertaken in this section to identify the impact drivers, assumptions and intermediate stages to provide a basis for the impact rating.

Review of the impact chain logic, including logic steps towards outcomes, intermediates and impact

The intended impact of the project was to reduce vulnerability of farmer/ pastoralist populations in the district of Guijá. To achieve this objective, the project set out to attain three changes in the development situation or outcomes⁶¹:

⁶⁰ See, GEF Evaluation Office, 2009, The ROTI Handbook for a detail explanation of the GEF impact evaluation framework

⁶¹ The fourth outcome was dedicated to replication of the projects approaches

1. Improved and sustained livelihood strategies and resilience of vulnerable farmers to cope with drought and climate change
2. Enhanced use of early warning systems for agricultural purposes
3. Drought mitigation integrated across sectors and programmes at various levels of society

Following a description of the impact elements per outcomes, this report includes figures that summarize the assumptions, impact drivers and intermediate stages for the achievement of the project impact per outcome.

Increased productivity

The crops selected by the project have been known and used in the project site for a long time⁶² but are of secondary importance to maize, even as maize is highly sensitive to water stress. Although these facts are known to local communities, the crop composition has not changed in the last 30 years⁶³. The reasons for the reluctance to accept and adopt other crops by local communities must lie in cultural preferences for maize, as well as difficulties in accessing means to plant other crops. Hence, to effectively substitute maize with crops more resilient, i.e., better adapted to the increasing dry conditions of the area, seed and cuttings of cassava, sweet potato and other drought resistant crops should be facilitated, e.g., from a central district nursery together with awareness raising measures on climate change and food security. More investment would be needed over a period of several years to work with the communities on gastronomic preparations and preservation of these crops to make them palatable and acceptable to communities.

Livestock production is probably the best livelihood options for semi-arid areas⁶⁴. However, livestock production suffers from poor animal health management and lack of facilities such as slaughterhouse, refrigerated storage and meat processing equipment. Animal health and hence increased resilience and reduction of head losses to disease can be accomplished by facilitating the replication of improved enclosures that facilitate treatment and hygienic conditions, accompanied by access to veterinary products and the necessary training to administer them.

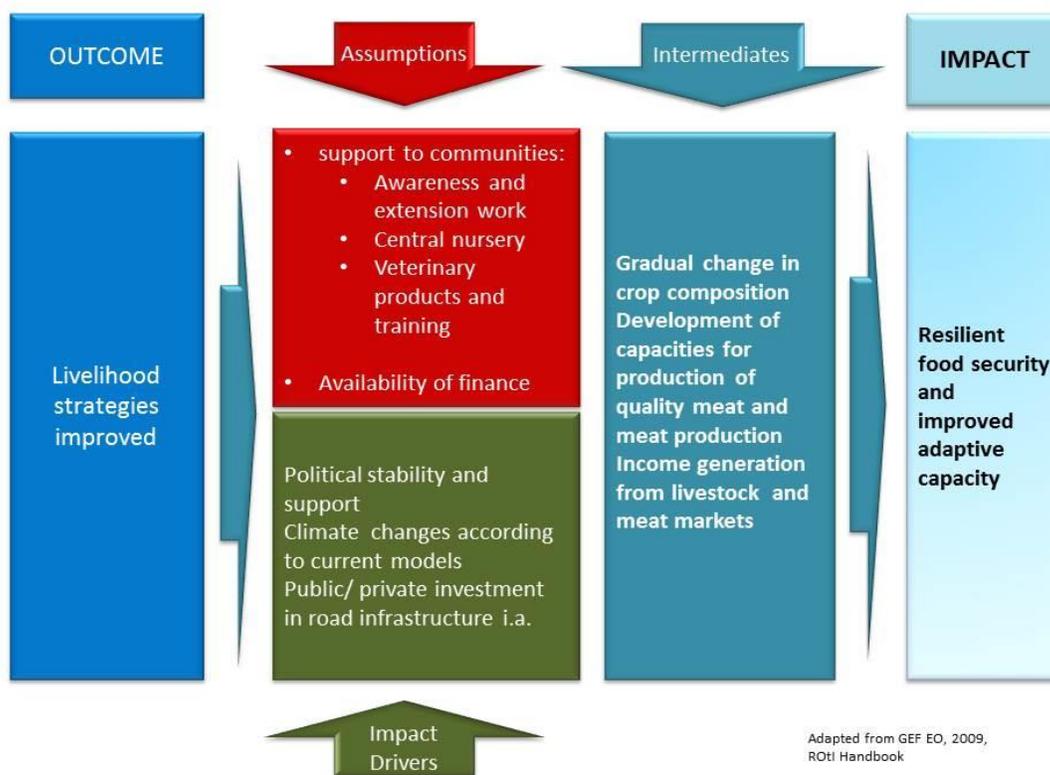
The profitability of the investment in facilities and equipment to transform livestock keeping in a commercial income generating activity would need a more important investment planning, including development of capacities, market information and infrastructure development.

⁶² Timberlake, 1986, Livestock production systems in Chokwe, Southern Mozambique, National Agronomic Research Institute, Maputo

⁶³ Judging from the area description by Timberlake in 1986 and recent reports, such as the Project document and direct observation in the course of the evaluation field mission

⁶⁴ Midgley, Dejene and Mattick, 2012, Adaptation to Climate Change in Semi-Arid Environments , experience and lessons from Mozambique, FAO, Maputo

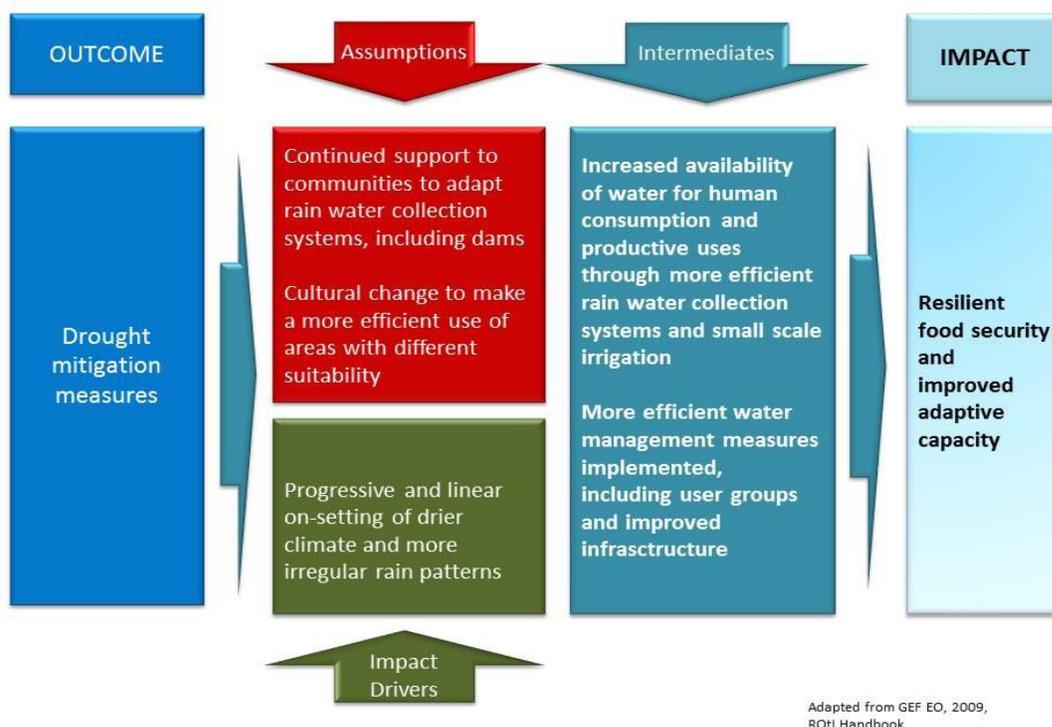
Figure 10a. Theory of change for outcome 1



Meteorological information

The effectiveness of meteorological prediction for optimized agricultural planning would not depend on just one meteorological station. However, as the meteorological network expands, the accuracy and relevance of the predictions for agricultural purposes and disaster risk management would gradually increase. To achieve an impact, this measure would need awareness and capacity development to be able to manage such knowledge, as well as the access and availability of the options needed to adjust to the predicted weather trends, such as seeds, agrochemicals, treatments etc. The same principle applies for disaster risk management, as information on e.g. high probability of heavy rain would need the prior set-up of communication facilities, as well as the organizational capacities to organize evacuations or perform protecting measures, such as emergency dykes etc.

Figure 10b. Theory of change for outcome 2



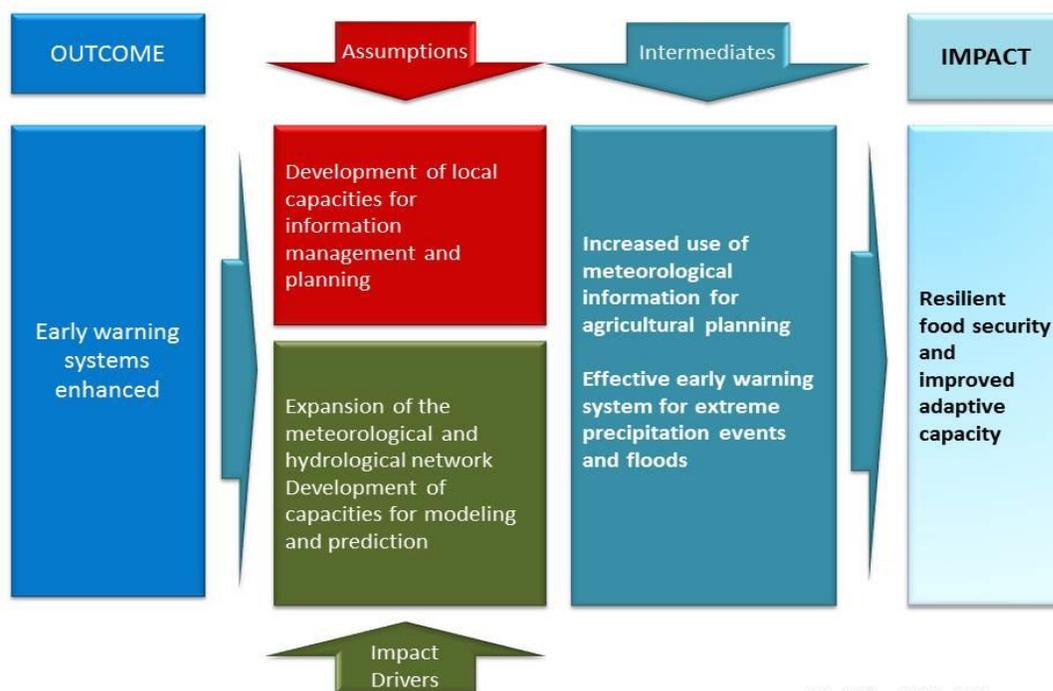
Enhanced water supply

Water scarcity and water stress are the most important limiting factors for human development in the project area. Hence, the achievement of any durable impact must necessarily address these problems. Given the soil salinity and the indications of brackish to saline groundwater⁶⁵, rain water collection on the supply side and improved water efficiency on the demand side are probably the only options for interior areas, i.e., not directly at the Limpopo river banks. For the fertile area adjacent to the Limpopo River, increases in productivity through irrigation and other inputs are possible.

For productive uses, particularly livestock, the best option would be to apply the dam construction policy of the National Directorate of Water (DNA) to enhance and rehabilitate naturally occurring ponds and lakes by improving their water retention capabilities and installation of pumps and construction of taps, water troughs and the like. The latter option would necessitate of a more robust public investment policy and/ or external support.

⁶⁵ Salinity of soils from Midgley, Dejene and Mattick, 2012, Adaptation to climate change in semi-arid environments, experience and lessons from Mozambique, FAO, Maputo and Timberlake, 1986, Livestock production systems in Chokwe, Southern Mozambique, National Agronomic Research Institute, Maputo, groundwater salinity from Fernando, J.C. and Tavares, F. pers. comm. based on the hydrological study conducted in the frame of the project Coping with Drought

Figure 10c. Theory of change for outcome 2



Adapted from GEF EO, 2009, ROTi Handbook

Rating of impact achievement

Comparison of the brief impact analysis above with the project status (see project results sections) shows that the project has indeed contributed to advances towards the intended impact, but that a great deal of more external support and public investment is needed to start transformation towards the desired change, i.e. a more productive and resilient and hence less vulnerable rural population in the district of Guijá

Rating the contribution of this project is challenging, but even assuming the finalization of the incomplete and/ or destroyed structures, and the increased awareness by local officials on climate change and disaster risk reduction this evaluation rates the impact contribution of the project as minimal.

Sustainability

This section evaluates the risks to the sustainability of the project benefits by assessing the likelihood of financial, political, social and environmental risks. The main project benefits, as described in section project results are:

- Increased awareness of local population and specially district officials on the links between climate, disasters and livelihoods, including the knowledge generated by the hydrological study conducted in the administrative post of Nalazi
- The early warning system, if completed and in operation
- Community associations and disaster preparedness committees
- Rain water collection systems
- District nursery, as potential source of trees for agroforestry and drought resistant crops
- Introduction of improved livestock enclosures and treatment corridors
- Pumps for small scale irrigation

Financial sustainability

Financial assistance would be needed to maintain and expand all project benefits. Of particular urgency are the completion of the early warning system and reparation and completion of installed rain water collection system.

For the medium-term (within the next five years) maintenance, consolidation and expansion of the rain water collection system would need additional funds. If these systems demonstrate their usefulness and cost efficiency a replication of downscaled rain water collection tanks among individual households is likely.

It is unlikely that the district government or individual households can dispose of the additional funds necessary to consolidate this benefit. Sources for this purpose could be the international NGOs with presence in the district or funds channeled through the provincial government or directly through the district by international official cooperation assistance.

It is beyond the scope of this evaluation report to discuss the investment programs of international development partners. However, it must be noted that additional funds that could be directed to the district have been recently approved: The Strategic Programme for Climate Resilience for Mozambique, implemented by the African Development Bank and the World Bank that amounts to over 40 million US\$ in grants and 133 million US\$ in loans includes support for mainstreaming climate change in planning and investment instruments, hydro-meteorological services, and sustainable land and water resource management

The rating for financial sustainability unlikely if external aid cannot be directed to support adaptation activities in Guijá, considering that it is unlikely that additional private or public funds will be available for adaptation at district.

Socio-economic sustainability

The commitment of the district government with this project and in general with adaptation to climate change is clear and strong. This project has contributed to raise awareness among key government officials, district administrator and directors of the District Infrastructure and Planning and Economic Activities Services (SDPI and SDAE)⁶⁶. Awareness among the community is also likely to be strong and have been strengthened through the creation of community associations and the strengthening of the disaster readiness committees⁶⁷ and participation in project activities⁶⁸. For instance, the district government has assumed the restoration and staffing of the district nursery on their own funds. It is very likely that this commitment continues in the medium-term (within the next five years).

The rating for socio-economic sustainability is likely, considering the support and awareness of the local government and local communities

Institutional framework and governance risks

Achievement and maintenance of projects benefits would need the commitment of an empowered and capable local government and agencies. For that purpose technical and institutional capacities at the district government could be developed to enable them to mainstream adaptation in their planning framework and participate more actively in governance and manage future external funds for adaptation. Capacity building activities could be framed in the process of mainstreaming climate change into the local policy framework, primarily the District Strategic Development Plan (PEDD).

At national level, the institutional ambience is also supportive of adaptation at district level. The national climate change strategy, the main policy instrument directing is supportive of interventions at district level, particularly actions supported by this project such as:

- Provision of detail meteorological information and district early warning systems
- Strengthen capacities for disaster preparedness at locality level
- Rain water collection systems
- Dissemination of drought resistant crops

The rating for institutional sustainability would be of moderately likely, considering the support offered by the national framework but the need to further develop local capacities.

⁶⁶ Serviços Distritais de Planificação e Infraestrutura and Serviços Distritais de Actividades Económicas. The later

⁶⁷ The district and community disaster management committees are established and capacitated with INGC support in the line of the Master Plan for Disaster Risk Reduction (Plano Director para Prevenção de Mitigação de Calamidades Naturais)

⁶⁸ This statement is based on the interviews conducted (12) among the Project beneficiaries. The sample is not intended to be representative of the 75,000 inhabitants of the district nor of the approximately 21,000 people intended as project beneficiaries.

Environmental sustainability

The interior areas of the district of Guijá are suited mainly to forest and pasture and only marginally for agriculture⁶⁹. Current climatic and soil conditions: high evapotranspiration, poor soil fertility, interannual precipitation variability and the threat of extreme rain events and floods would only be exacerbated in the mid-term future. In this view, there is a risk of maladaptation if vulnerable livelihoods are encouraged based on current conditions.

Considering the moderately likely risk of worsening of the already marginal conditions for agriculture the **environmental sustainability is rated as moderately unlikely**.

Adaptation to floods as well as droughts should mean locating infrastructure such as nurseries safe zones (higher ground) Finding mechanisms that facilitate learning from experience this would improve sustainability of adaptation efforts.

In this context, it is worth considering a switch from support to agriculture in interior areas of semi-arid districts to a support of agriculture only in areas where water is available, with the necessary flood mitigation measures, particularly early warning system. Thus productivity and local food availability could be increased while livestock production in interior areas could be strengthened by enhancing water supply and improving animal health and developing capacities for meat production, as well as supporting the designation of safe zones, evacuation protocols and early warning system.

⁶⁹Maposse, I.C., Ribeiro, N.S., Cambule, A.H., Siteo, A.A. and Chiconela, T.F., 2010. Soils, land use and suitability and pasture biomass in Chicualacuala

4. Conclusions, Recommendations and Lessons learned

Conclusions

Project design, monitoring and evaluation

The project design was coherent, with a strong vertical logic between outputs, outcomes and intended impact. The project's four outcomes were correctly stated as mid-term development changes that would logically lead to a significant contribution to the intended impact: *reduction of vulnerability of the target population*. The outputs of the logical framework were also well formulated and were coherent and logically connected to their outcomes.

The assumptions and risks included in the project document were weakly analyzed and formulated and the mitigation strategies never developed or implemented. In fact, the project was affected by two of the risks listed in the risk log, "occurrence of floods" and "financial delays" for which the mitigation strategies were not sufficiently developed or not feasible.

The original indicator framework did not respond to SMART criteria and had to be modified prior to project implementation, choosing more robust indicators that included well formulated targets and baselines. The reviewed indicator framework did not include any measure of vulnerability and impact, consisting only in coverage type indicators. The targets were set based on the number of households of seven selected communities within the district of Guijá (4,267). The targets were too ambitious for this project.

The monitoring and evaluation system was not systematically applied. The main causes were the lack of operationalization of the original indicators, both in terms of feasibility of quantitative measurement or lack of baseline, as well as in lack of definition of roles and responsibilities for the collection and analysis of the information.

Implementing and executing agency execution

The management arrangements included a large number of state and non-government institutions and agencies that were largely not consulted and hence did not participate in the project implementation. Only two consultation workshops (one at national and one at local level) are documented for 2005, four years prior to implementation.

Out of the two project governance structures foreseen in the project document only the National Steering Committee (NSC) was actually set-up. This committee functioned well during project implementation and met twice at the project site allowing direct participation by all stakeholders, including beneficiaries. However, the national steering committee was not able to promptly respond to management issues and challenges.

Hence, the PMU found it difficult to mobilize and coordinate other implementing partners at the pace needed. Implementing partners perceived their role as rendering services to the project rather than the project supporting their institutional objectives, thus not giving the needed priority to project activities.

The PMU team could not be completed at any time during the project implementation and its function was hampered by high staff turn-over due to lengthy recruitment processes and poor competitiveness of the compensation packages for the project management unit positions (coordinator, administrative assistant and field officer) compared by those offered by private companies and international NGOs. Additionally, the normally Maputo-based capable labor pool for this kind of positions (particularly project coordinator) would need a supplementary motivation to be located at or near the project sites during the full extent of project implementation.

The capacities and mandate of the executing agency were not consistent with the requirements of implementation of activities on the field. The executing agency, as a coordinating institution, does not have and it was not intended to have executive powers and conduct field activities but rather to provide support through coordination with other agencies and ministries and technical backstopping in their area of expertise.

The capacity of the implementing agency to adequately support project implementation was hampered by the absence of key team elements (unit head, program officer, M&E officer, additional administrative officer) at different stages of the project implementation. Support for project implementation gained momentum and quality as these key positions were filled in. Currently, the implementing agency counts with a full team and additional support in monitoring and evaluation and foreseeable reinforcement at the administrative level.

Outcomes

Overall quality of project outcomes

Weak metrics (objective indicator)⁷⁰ and absence of a vulnerability baseline makes it difficult to provide a quantification or estimation of the degree to which the project objective has been achieved or is likely to be achieved. However, there has been a certain degree of progress towards the project objective in the newly created awareness of the district government on climate change, as well as high potential adaptation benefits in terms of reduced sensitivity of the agricultural and livestock sectors and increase adaptive capacity if the water supply and

⁷⁰ The indicator for the project objective was reduced from “number of drought affected households” a good indicator of the impact to “number of communities adopting coping measures” that could only serve as outcome indicator, as it does not express degree of reduction of vulnerability

livestock activities and the early warning system are completed. However, the project did not achieve an effective and sustainable increase of agricultural or livestock productivity or water supply.

Relevance

The project was relevant to the needs of the local population and for the development objectives of the government of the district of Guijá, as expressed in its programming framework and by the districts officials during the evaluation mission.

The project supported the objectives of the main national policies and programs such as the Government Five Year Plan and the Action Plan for Poverty Reduction, as well as key agricultural development policies, the disaster risk reduction planning framework and the climate change strategy as expressed in the National Adaptation Plan of Action and later in the National Climate Change Strategy.

The project also was well within the programmatic framework of the Special Climate Change Fund, UNDP's Country Program Action Plan and United Nations Development Assistance Framework.

Effectiveness

Most of the projects outputs were delivered although they did fall far beyond the target to provide project benefits to a total of seven communities in Guijá or 4,267 households. The project did facilitate cultivation of drought resilient crops, established a central district nursery and provided trainings on food conservation techniques (output 1.1), constructed improved livestock enclosures (output 1.2) and installed rainwater collection systems (output 3.3), as well as strengthened and equipped local disaster management committees (output 3.1). However, the central nursery and most of the drought resistant plots were vulnerable to the same climatic factors they were set to mitigate, droughts and floods: the nursery was flooded and most of the plots did not survived the intense drought of late 2012 and subsequent flooding in January 2013.

The intended improvement in animal health management expected from the improved enclosures was severely limited by the lack of access by local communities to veterinary products and assistance. Moreover, the replication of the improved enclosures will not take place unless a local alternative to the ironwood used in their construction is found.

The agroprocessing trainings were well received but respondents do not feel confident yet to act as trainers for other community members as expected. Also, the expected income generation

through marketing of processed food did not materialize as the market linkage was not established.

The project demonstrated the unsuitability of groundwater resources in the district's interior (Nalazi administrative post) for human and animal consumption, limiting the options to enhance water supply to rain water collection.

The important outputs 2.1, set-up and function of a meteorological station and 2.2, community radio to convey meteorological information could not be completed at the time of the terminal evaluation. Successful conclusion of these outputs is critical to deliver adaptation benefits. The installation of the early warning system should take the vulnerability of its components to floods into consideration.

Efficiency

The project complied with the additional cost of adaptation criteria. The district government has calculated its financial needs to meet its regular (without adaptation costs) development targets for agriculture and livestock to be eight times its current annual budget.

There were not any significant differences in terms of efficiency with another project with similar approach and setting in spite of differences in implementation approach (national vs. direct implementation). This would need more exploration but it may mean that the said difference is more theoretical than practical, i.e., the implementation modality was equivalent in both cases.

The project management unit was dislocated from the project activities by being based in Maputo, 300 km away from the project sites. This caused a relatively important amount of investment in travel and administration (49% of the total disbursement) that could have been done more efficiently from a field office based at the district capital.

Project implementation was affected by the regular reappearance of the seasonal streams and muddy dirt roads that make communications and travel extremely challenging. Although this factor is known for the area it was identified in the project implementation review for 2012 as a constraint to implementation. This fact should have been identified as a risk in the project risk log and consequent mitigation strategy should have been developed, e.g. adjusting the rhythm of implementation to the natural ecological and economic cycles.

There were significant differences between the planned budget and the actual expenses both in terms of amount and budget line. These differences were due partly to weakness in management and financial control capabilities by the project governance structures, including executing and implementing agencies.

Only a small part of the planned co-finance of the project actually materialized; some of the proposed project partners with co-finance commitments did not participate in the project implementation mostly due to the gap between the co-funding commitment and the start of project implementation. However, and since some degree of coordination with non-governmental development actors took place at field level, their financial contribution of their efforts to the common objective of reducing vulnerability could be calculated, once the corresponding data is available.

Sustainability

The adaptation measures brought about by the project have the support of the local population and the district government. Also, the district government is already taking action on their own means, related to the outcomes of this project and to other adaptation concerns, to reduce vulnerability of the districts population, e.g. by rebuilding the district nursery and preparing temporary relocation to safe areas in the rainy season. However, the project interventions and outputs will need further financial assistance to be able to deliver the intended adaptation benefits. Mainstreaming of climate change into the districts planning instruments could catalyze funding and efficient investment in climate resilience.

The vulnerability of the project outputs to climatic factors and the constraints to significantly increase water supply considering the lack of available groundwater resources and the variability of rain patterns makes necessary to consider the mid-term environmental sustainability of agricultural interventions in dry marginal areas and the relocation of infrastructure to safe zones:

- Considering current soil and water supply conditions and likely climate scenarios for mid-century the sustainability of agricultural development in drought prone areas is not likely. With some external support, a more climate resilience economy based on livestock could be developed.
- Although the district government has commenced to draft plans for temporary translocation of government services to safe zones (outside the reach of flood water) this is not the case for the infrastructure build with project support: community radio house, meteorological station and central nursery.

Impact

The project did not count with a solid impact framework: assumptions, i.e. factors beyond the influence of the project and drivers of impact or the factors and intermediate stages to achieve impact were not properly identified.

Also, the project did not attempt to conduct a baseline vulnerability assessment against which to measure the changes at the end of implementation. A vulnerability assessment commission in September 2013 did not analyze the parameters of vulnerability but the project accomplishments thus overlapping significantly with the terminal evaluation.

Recommendations

Project follow up

The project still counts with approximately 10% of the total funds that should be invested in some urgent actions to strengthen the effectiveness and sustainability of the results. It is likely that the remaining funds would not be sufficient to cover all the follow-up actions listed here. Therefore, it is recommended that the implementing agency, in coordination with the executing agency and the local stakeholders identify other sources of funding. Projects such as the Pilot Programme for Climate Resilience, the One UN Fund and other multilateral and bilateral interventions, ideally with the support of government funds (agriculture, water) could be sources for the additional funds needed.

The early warning system components should be completed and made functional, including providing training for the district services staff on operation and basic maintenance. Moreover, the existing structures should be ideally relocated to a safe zone to avoid being damaged again by floods. The same applies to the district central nursery. The relocation of the early warning system components and central district nursery should be conducted in agreement and collaboration with the existing relocation plans of the district government.

The unfinished and damaged rainwater collection systems should be completed, documenting costs involved in construction and regular maintenance. A strategy to fund maintenance and repairs should be developed together with the district government, as well as other institutions, such as the Ministry of Education (tanks are located at schools) or the National Water Directorate. Moreover, a manual should be developed to facilitate replication including downscaled modalities, optimal size of collection surface, alternative materials and expected replenishment based on projected rainfall. The latter could be linked to the meteorological information provided by the early warning system.

Alternative local wood should be identified to enable the maintenance and replication of the improved cattle enclosures in partnership with local communities and the Faculty of Veterinary of the UEM, which developed the original concept. To ensure actual improvement in animal health, needs for capacity development and support through extension services should be determined and providers of veterinary products identified. For this purpose, partnerships should be sought with the Ministry of Agriculture, particularly through its provincial delegation.

A strategy to coach the associations trained in agroprocessing should be developed that includes a new round of trainings, focusing on food conservation for food security and the development of capacities at district level to enable the effective coaching of the communities. A future intervention could focus on the

development of capacities and establishment of partnerships to generate a market linkage for locally processed produce.

Investment on agriculture should focus on the potential for irrigation at suitable areas along the river bank, avoiding maladaptation by insisting on agriculture in very marginal areas. This would need firstly the expansion of the irrigated areas through a second pump (within the timeframe of the project) and then a lengthier and iterative process of shifting to a livestock based economy in areas not suitable for agricultural development.

For future programming

Project design, monitoring and evaluation

The quality of the risk and assumptions must be reviewed by the implementing agency, the executing agency and the GEF to ensure that the risks and assumptions are plausible and correctly formulated and that the risks mitigation strategies are adequately developed and feasible within the projects context.

The indicator framework should be reviewed by the stakeholders, particularly the implementing agency to ensure that they respond to SMART standards. The newly developed Adaptation Monitoring Tool should guide the indicator framework of future adaptation interventions.

Even if it counts with robust and SMART indicators, the indicator framework, would not produce the information needed for efficient adaptive management if the indicators are not made operational, i.e. quantitative scales developed to ensure their measurability⁷¹, proper information sources and collection responsibilities and frequencies, as well as analysis methodology of monitoring data identified.

The background information, problem and institutional analysis, management arrangements and capacity and mandate analysis of the implementing partners must be updated prior to project implementation, particularly if more than one year has elapsed between project approval and formation of the governing bodies.

⁷¹For instance, should the indicator be “extent of adoption of drought resistant crops by farmers” the drought resistant crops should be clearly identified and ranked (i.e. given a score in function of their yield and/or drought resistant or nutrition quality) and a quantifiable parameters should be identified, such as number of hectares, yield, proportion of the crop mix etc. For qualitative indicators, such as “engagement of local authorities in adaptation” a quantitative scale could be develop assigning scores and weights to the indicators components, assuring that the “quality” elements are contained, such as “district authorities participate in the projects meetings” -1 points to “districts authorities design and allocate budget for adaptation measures introduced by the project” -5 points.

IA and EA execution

The project management arrangements should be based in a more solid and participative analysis of the institutional stakeholders, i.e. their mandates and capacities should be properly taken into consideration. Thus, the implementing agency must facilitate an exhaustive consultation at mid and high level (technical and political officials) and update the capacity assessments of potential implementing partners, particularly in terms of capacity to administer and manage funds and coordinate field actions.

Mid-level governance structures should have been set-up for effective project management: for instance, a project technical management committee that would meet on a monthly basis with presence of the district and provincial services, as well as representatives from the implementing and executing agencies. In that way, synergies would have been created between the proximity to field realities, capacity and mandate of local (district and provincial) institutions and the coordinating, technical knowledge, administrative support and political leverage of the executing and implementing agencies.

The terms of reference and contract conditions of the project management unit team should reflect the labor market realities and project demands entirely. An adequate compensation package should be included to attract and motivate appropriate personnel with the required capacities and expertise. This also means that, if sufficient funds are not provided to permit an efficient installation of manpower, i.e. the ratio personnel costs to activity/ product costs would be too high, the whole project approach should be rethought by e.g. using a more community-based approach that needs less administrative or technical inputs.

Outcomes

Effectiveness

The vulnerability of the project outputs to climate factors should be carefully analyzed including all plausible hazards. Failing to do this would mean investing in maladaptation. In the case of this project, structures and plots were set in flood prone areas assuming flooding would not occur. Reconstruction or rehabilitation in the same location will guarantee the loss of the investment eventually in the absence of mitigating measures.

In order to maximize effectiveness, the sequencing, local feasibility and replicability, as well as capacities and administrative needs in terms of resources and procurements of adaptation actions need to be carefully researched and planned, providing for flexibility to adjust the programmed measures to changing field realities, included or not in the project risk log. For instance:

- Activities that necessarily involve two components, such as the required training to operate a community radio or to manage and interpret meteorological and predictions cannot be dislocated, i.e. must be implemented in the given timeframe.
- Local capabilities and incentives for replication must be assessed and not assumed; for instance, local availability of Lebombo ironwood for improved enclosures, feasibility of maintenance and downscaling rain water collection tanks with local resources and/ or the existence of appropriate incentives, and the availability of affordable sources of veterinary supplies
- Limiting factors such as the availability and access to veterinary products or the assistance needs of local producers must be taken into consideration to maximize the effectiveness of investments in improved animal health
- Technology with proven results in similar settings should be replicated, e.g. the seasonal streams, ponds and lakes of the area offer the potentiality for improved use through enhancement works (dams) and construction of appropriate facilities for human and livestock use as done by the National Directorate of Water (DNA) in other semi-arid areas such as Chicualacuala, Gaza province⁷².

The project should be clear about the objective of an activity; i.e. if the goal of a training on food processing is to enhance capacities in food conservation and to encourage individual households to build-up food reserves for a certain time range, expectations should not be raised about income generating through sale of the products generated with the newly acquired activity unless the project has worked out a market linkage that involves both market demand (local business, restaurants, stores, consumers) and supply (storage facilities, transport, road infrastructure), as well as capacities to sustain a commercial operation (cash flow plan, accounting etc.). Setting up and maintaining a commercial operation, as expected from communities with their newly acquired skills to prepare fruit jams and pickles cannot be achieved by one-off trainings and would need coaching by a resource person close to the communities.

Efficiency

The NIM modality of implementation is intended to strengthen the capacities of the executing agency, including organizational and individual capacities, as well as leadership. To maximize the potential benefits of the NIM implementation modality, the project governance should have been exerted at the district and/ or provincial level, ideally with the project management unit immersed within the district government to:

⁷² Cabo A., 2013, Terminal Evaluation Report, Africa Adaptation Programme

- a) Enable a more efficient implementation responding to local circumstances (economic and environmental cycles⁷³) and demands (project site location, local needs etc.)
- b) Enable a transfer of capacity in terms of technical capacities, leadership, and institutional arrangements and procedures to the institution (district government) that would warrant the sustainability of results

The implementing agency should try to avoid directly assuming procurement or recruitment processes and rather concentrate in develop the capacities of the executing agency and implementing partners to efficiently manage the project processes within their own administrative and procedural framework . A more proactive and intense coaching of the executing agency could be combined with monitoring missions and possibly audits to shed light on unclear processes and to support the establishment of accountable and transparent procurement processes within government procedures should be applied. To be able to adequately support the project and the implementing partners the implementing agency should ensure the necessary capacities in terms of human resources.

Sustainability

The switch from agriculture promotion in unsuitable areas, in favor of a livestock economy together with enhancement of productivity in areas with appropriate soil characteristics and water supply should be considered in the mid-term due to climate change. This would involve careful planning and consideration, particularly in terms of cultural adequacy and resistance⁷⁴, as well as taking a multidisciplinary approach giving special attention to margin conditions or assumptions/ impact drivers necessary for the development of a viable production, e.g. market linkages, storage facilities and road infrastructure.

The flood-prone nature of the area cannot be ignored in future interventions and adequate measures have to be designed to allow to for this factor to prevent maladaptation

Climate change should be mainstreamed into the district planning instruments, i.e. the districts strategic development plan to help better understand the potential impacts of climate change and variability and quantify the incremental financial needs. This would need the involvement of the appropriate institutions to support the mainstreaming process i.e. the Ministry of Planning and Development and would facilitate the alignment of future funds with the district development and adaptation priorities

⁷³This means that issues such as impracticability of access to communities during the rainy season, political activities, migration cycles, market days, institutional schedules should be taken into consideration to respond in an agile and flexible way to them.

⁷⁴Several authors and respondents cite the obstinacy in which local farmers plant maize in spite of consecutive bad yields or the resistance to dispose of cattle

Impact

The project design should include a robust impact framework that includes solid assumptions and identifies drivers of change⁷⁵ and it is understood and agreed upon by all stakeholders, particularly local stakeholders and beneficiaries. Such a framework would account for multiple factors and drivers affecting the project intervention area and, combined with a necessary vulnerability assessment that would be conducted ex and post ante, it would give local stakeholders and implementors critical information on factors of success and failure of adaptation interventions.

Regardless of the metrics and indicators chosen to determine vulnerability and the contribution of the project to its reduction, an indicator (or set of indicators) for the project objective would have needed a baseline, provided by a vulnerability study or survey against which to measure the vulnerability at project end or at a later time point. This vulnerability study could have been done in a participatory manner, using methodologies such as the ones described in UNDP's Vulnerability Reduction Assessment (2008), CARE's Vulnerability and Capacity Assessment (2009) or the CRISTAL screening tool (2007) to assess exposure (number of people, livestock, parcels affected by different climate and non-climatic hazards), sensitivity (rain fed crop area, access to water, animal health, drought related losses) and adaptive capacity (income, education level, health indicators, level of awareness)

Lessons learned

Project design, monitoring and evaluation

Field realities should always determine the course of action and the mid-term changes (outcomes) necessary to achieve the objectives of the project, as well as the right indicators and realistic targets to measure the achievement of results. The factors needed for the environment and socio-economic set-up to be taken into consideration into the project results are:

- Research; The situational analysis included in the project document may not be updated or have enough detail to reflect important field realities such as environmental and economic cycles and rhythms, availability and prices of materials and human resources and changes in assumptions and risks. Therefore, engaging a local center of excellence such as a regional agricultural research center or a local⁷⁶ academic institution and/ or maintaining an adequate monitoring system with robust indicators would be important to keep track of changes.

⁷⁵ Refer to the impact section in the report for an explanation of terms such as drivers of change

- Participation; much of the knowledge needed to overcome barriers to adaptation is contained within the local populations and their formal and informal institutions. Providing access to the project governance bodies and empower the people to participate, specially marginalized groups such as women in a patriarchal set-up⁷⁷ would allow the project to respond sustainably to human development needs.

Project management teams need to be coached and be provided with sufficient understanding of results based management and the importance and use of monitoring and evaluation instruments. Project teams that fail to interiorize the aforementioned concept and tools are commonly frustrated by the perceived imbalance between the workload needed to conduct project actions and the absence of results as measured by the indicators that can be reported of the project annual reports and implementation reviews. Consequently, the indicator framework is not perceived as an useful management tool but rather as a burdensome and time-consuming requirement imposed by the “donor/ implementing agency”.

Weak monitoring processes hurt not only the ability to measure change from a project intervention but also the opportunity for communities and policy makers to learn from experience. Thus the policy impact is much wider.

IA & EA execution

Mandate and capacities, particularly organizational capacities of the executing agencies and implementing partners should be analyzed in an open and participatory manner to ensure that:

- The executing agency has the leadership and the mandate needed for the demands of the intervention
- The executing agency has the capacities in terms of management arrangements, accountability and transparency, human and financial resources to manage the project funds
- The project objectives are aligned and support the work plans and strategic objectives of the implementing partners
- Partnerships in project implementation are essential to be able to draw in the necessary experience and expertise from different sectors. The expertise and experience of the relevant agriculture and water sectors institutions, Ministry of Agriculture and National Water Directorate should have been recruited for a more successful implementation of the project

⁷⁷ With due consideration to cultural adequacy to avoid conflict or right out rejection by the local communities

Success in implementation is determined to a great extent by the capacity to lead of key people involved in the project structure, such as the national director, the head official and project officer of the implementing agency and the project coordinator. The qualities needed for an effective leadership are different for these three crucial positions but they should include at least political weight and/ or empowerment⁷⁸, identification with the project goals at personal and professional level and continuity (or likelihood of continuity) for the duration of project implementation.

Mid-level or local project governance bodies or steering committees composed by technical representatives of the project implementation partners are necessary to support and give direction to the project management teams. The members of such technical committee should have a robust understanding of both the technical, scientific and operational complexities of the project, have the capacity to meet at least monthly or on short notice to respond to ordinary and urgent project management matters but also possess the access and the political leverage to higher levels of decision making both at the implementing agency and the national implementing partners.

Outcomes

The sequencing and capacity and administrative needs of a given activity should be carefully planned and considered with active involvement and ownership by local actors. For instance, activities that aim to provide capacities for income generating activities by marketing processed products should evaluate the actual or potential demand for the product and the necessary investments in terms of promotion, transport and storage, as well as the investment needed to generate the capacities for the demanded volume and quality standards. Creating the necessary capacities and establishing the market linkage may exceed the implementation timeframe of the project and care should be taken to avoid raise expectation of additional income. Active involvement and ownership of project interventions by the beneficiaries would also guarantee the appropriateness of measures and the availability of means to replicate or to operate installed infrastructure, e.g. availability of local materials to construct improved enclosures and veterinary products to actually implement learned animal health techniques.

Sustainability

The environmental sustainability needs to be a determining criterion to decide whether an intervention should be continued. In the case of semi-arid zones without adequate or cost-

⁷⁸Here, empowerment means the incentives, including financial and capacity development incentives, as well as the institutional support needed to carry on the implementation of the project.

efficiently available groundwater resources and variable and unreliable precipitation that would allow a significant enhancement of supply through rainwater collection, water demanding economic activities such as agriculture cannot succeed. Alternatives must be sought together with local stakeholders to adequately address cultural issues such as traditional ways of life, gender roles and food preferences. The enabling conditions for such a radical switch must be identified and analyzed. For instance, if livestock is the only viable economic alternative through commercialization of meat or dairy products sufficient sustained investment should be available to create or improve the necessary road, processing and storage infrastructure, as well as the strategy to sufficiently fund the development of needed capacities. Therefore there is a need to better frame adaptation interventions within the “regular” development strategies. Other alternatives to be considered for such areas could be wildlife or forest reserves.

Political support by national or local government institutions alone would not guarantee sustainability if there are financial and/ or legal constraints. Therefore, the sustainability strategy of a project must be directed by choosing durable formal or informal institutions that have (or at least have a good chance) financial stability or access to funds to assume the benefits of the project. Such institutions should be highly regarded by the population, i.e. not being perceived as biased or corrupt but able to deliver important services to the community. For the case of adaptation projects, local disaster management committees can be a good entry point to mainstream and obtain durable adaptation benefits, if these bodies integrate the adaptation dimension, i.e. the likelihood of changes in the intensity and frequency of climate hazards to their disaster preparedness objectives.

Climate variability will be as much a feature of climate change as a trend towards drier conditions. Future efforts will need to look at how farmer-level adaptation strategies can be adjusted to prevent losses associated with floods as well as droughts, supported by weather forecast information. Similarly, planners and communities should be helped to assimilate learning of what works and what doesn't into new development investments so that these are effectively adapted and that scarce resources are efficiently used. The project experience shows that efforts to design and plan replacement investments following flood damages to crops, seedlings nursery and met equipment is following the same pathways, thus vulnerability to climate change will remain unchanged.

Locally appropriate technologies are needed for sustainability. The experience of the project on the construction of water storage using imported technologies, versus using local technologies of deepening natural occurring ponds and lakes), as well as the materials used for the livestock enclosures which are not locally available, highlight the importance of consulting communities about the measures that they need and best design and materials to use.

Adaptation is not a linear process. For some actions cultural change at the deeper assumptions level is needed and this takes time and money. For example, persuading communities that ground water was unsuitable for consumption took drilling various boreholes. Changing

preferences for maize with drought resistant crop will take various years of support a process of participatory monitoring of results in order to promote learning from experience.

5. Annexes

1. ToR
2. Itinerary
3. List of stakeholders/ persons interviewed
4. List of documents reviewed
5. Evaluation Question Matrix
6. LFA
7. Evaluation Consultant Agreement Form