Tracking Adaptation and Measuring Development in Mozambique

Luis Artur, Irene Karani, Melq Gomes, Sérgio Maló, Saíde Anlaué

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Front cover photo: Women harvesting their rice crop in Mozambique.
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Acronyms

ACCRA	Africa Climate Change Resilience Alliance
ADPP	People to People Aid
CGC	Centre for Knowledge on Climate Change
CONDES	National Council for Sustainable Development
CVCA	climate vulnerability and capacity assessment
DNFT	National Forestry and Land Directorate
ENAMMC	National Strategy for Adaptation and Mitigation of Climate Change
FUNAB	National Environmental Fund
GIIMC	Inter-Institutional Group on Climate Change
INE	National Statistics Institute
INGC	National Institute for Disaster Management
LAP	local adaptation plans
M&E	monitoring and evaluation
MCT	Ministry of Science and Technology
MICOA	Ministry for the Coordination of Environmental Affairs
MPD	Ministry for Planning and Development
NGO	non-governmental organisation
PAF	Performance Assessment Framework
PAP	Programme Aid Partner
PARP	Poverty Reduction Action Plan
PIB	Gross Domestic Product (GDP)
PPCR	Pilot Programme for Climate Resilience
PQG	Mozambique's national five-year plan
SCIMOZ	Save the Children International Mozambique
TAMD	tracking adaptation and measuring development
UEM	Eduardo Mondlane University
UMC	Climate Change Unit
UNDP	United Nations Development Programme
UNU	United Nations University

Executive summary

Tracking adaptation and measuring development (TAMD) is a twin-track framework that evaluates adaptation success. Track 1 assesses how widely and how well countries or institutions manage climate risks, while Track 2 measures the success of adaptation interventions in reducing climate vulnerability and in keeping development on course. This twin-track approach means that TAMD can be used to assess whether climate change adaptation leads to effective development, and how development interventions can boost communities' capacity to adaptation to climate change.

Importantly, TAMD offers the flexibility to generate bespoke frameworks for individual countries that can be tailored to specific contexts and applied at different scales. The application in Mozambique has focused on developing an ex-ante planning system for local adaptation using a TAMD-style approach. The team have also used the TAMD principles to propose adaptation-relevant indicators to track changes in adaptation and development performance at national level.

This report compiles the results of the TAMD feasibility testing phase in Mozambique, where TAMD contributed to the development of a national monitoring and evaluation (M&E) system on climate change, which is currently undergoing a process of development and approval. We used TAMD to develop seven impact indicators and 42 outcome or result indicators on adaptation. The national government is currently consulting on the set of indicators for the national M&E system. Six of the seven TAMD-developed indicators are similar to the government-proposed impact indicators, while 23 of the government's 36 proposed outcome indicators are similar to those developed with TAMD. This suggests that the TAMD approach is more or less aligned with the national government's vision of national-level adaptation indicators.

At local level, TAMD has pioneered a methodology for the production of local adaptation plans (LAPs). The process was based on literature reviews, workshops, focus group discussions and fieldwork at district and community levels to collect first-hand information through climate vulnerability and capacity assessment (CVCA), theory of change and institutional scorecards – novel methods not used before in Mozambique.

Stakeholder engagement in the feasibility study has been high. TAMD Mozambique works with the Ministry for the Coordination of Environmental Affairs (MICOA) – the lead national institution on climate change – as its key government partner. MICOA sees utility in the long-term use of the TAMD framework and is helping promote the TAMD approach – ministry staff co-organised and participated in TAMD trainings, workshops and field work, and their representatives attended the global TAMD workshop in Meru, Kenya.

Other TAMD partners include the Africa Climate Change Resilience Alliance (ACCRA) consortium in Mozambique, the World Bank, UNDP, DANIDA, district authorities and local communities. One example of this buy-in is the matrices the TAMD Mozambique team designed to support the production of theory of change diagrams. This theory of change was used in national-level discussions of the M&E system and is also used in every district's LAP.

To address the issue of attribution, the team used narratives around the theories of change and research outputs from the districts implementing LAPs. Wherever possible, the it also plans to undertake a quasi-experimental analysis to compare local-level results between LAP and non-LAP districts. The issues of climate contextualisation and shifting baselines remain challenges in the application of TAMD within Mozambique, where data is either non-existent, inaccessible or of sub-standard quality. There is a need to do further work to see how these challenges can be addressed in the longer term, particularly when coming to evaluate retrospectively how the LAP processes have built resilience.

Regarding sustainability, the research team's approach was to empower and build the capacity of government in this area. The feasibility testing exercise was for one year. Although not long enough to guarantee full sustainability, it helped to establish the LAP process in Mozambique, which will be replicated across the country, having found acceptability among stakeholders. This will include possible further development and implementation by different agencies and projects, such as ACCRA members, PASA II[1] and USAID's Coastal City Adaptation Project.

Empirical findings show that in national-level climate risk management (Track 1), integration of climate change within planning is still weak, as is the development of institutions that would allow this to happen. Furthermore, findings show that climate change coordination mechanisms still need to improve and that the production, dissemination and use of climate change knowledge are still very limited. To measure adaptation and development performance, the team identified multiple potential indicators within the national systems that could measure Track 2 performance, and proposed a set of impact and outcome indicators for the national system.

At local level, the findings suggest that there is limited integration of climate change into planning. Districts are struggling to plan for a longer, uncertain future and to gain the financial means to implement climate-related interventions. However, they have good awareness of the issues and some districts show high levels of participation. For measuring adaptation and development performance (Track 2 indicators), the research identified district-level indicators to track both the inputs into building resilience in the district and outcome and impact indicators to check and assess the theory of change. We compiled baselines for these indicators from current datasets; these will be collected on a regular basis to track changes over time.

1 A DANIDA project to support government on environmental and development initiatives.

1 Testing the feasibility of TAMD in Mozambique

1.1 Country background

> *Vulnerability is expected to increase over the next two decades as climate change impacts reduce people's livelihood assets and impinge on food production, thus undermining Mozambique's overarching goal of reducing extreme poverty (INGC –National Institute for Disaster Management – 2009: 36).*

Mozambique is highly vulnerable to the impacts of climate change. Over the past 50 years, average temperatures in Mozambique have increased by 1.1–1.6°C, with temperatures expected to increase by up to 6oC by the end of the century if global CO2 emissions levels remain on track (INGC, 2009). Rising temperatures in Mozambique have led to a number of changes in environmental patterns – including unpredictable and reduced rainfall; longer periods of drought; delayed onset and early finish of the rainy season; an increase in the number of hot days and nights; and a reduction in the number of cold days and nights. Alongside these changes, the frequency and intensity of hazards such as cyclones, floods and droughts has, and will continue, to increase (INGC, 2009). The combination of more frequent hazards with already high levels of poverty has the potential to make Mozambique even more vulnerable to shocks under future warming trends unless adaptation efforts increase.

In November 2012, the Mozambique government approved a national strategy for adaptation and mitigation of climate change – the ENAMMC. This strategy defined a

leading role for the Ministry for the Coordination of Environmental Affairs (MICOA) and created a consultative body with participation of key government ministries, departments and administrations – the Inter-Institutional Group on Climate Change (GIIMC) – and an operational body – the Climate Change Unit (UMC) – to establish and then run a climate change adaptation M&E system.

The ENAMMC also proposes the establishment of a Centre of Knowledge on Climate Change (CGC) within the Ministry of Science and Technology (MCT), to gather, manage and disseminate scientific knowledge on climate change and feed the policy and intervention planning process. MICOA will be responsible for the overall coordination of climate change interventions, and the UMC will therefore be hosted at the National Council for Sustainable Development (CONDES) secretariat.

The UMC is tasked with:

- coordinating climate change interventions
- supporting inter-institutional linkages
- preparing annual intervention plans related to the ENAMMC
- monitoring the ENAMMC
- providing technical advice on climate change projects and programmes, funded through multilateral sources and donors.

UMC will get technical support from the GIIMC (which includes staff from the Ministry for Planning and Development or MPD, INGC and other), and the INGC's disaster management and technical councils (CCGC and CTGC).

MICOA's National Environment Fund (FUNAB) will manage multilateral climate change funding, allocate it to different implementing institutions. (Artur and Tellam 2012:14)

In 2013, national stakeholders convened with IIED and partners to discuss the potential of using TAMD to develop an approach that could improve adaptation M&E in Mozambique. Save the Children and the African Climate Change Resilience Alliance were chosen as the country partners in Mozambique for the feasibility study.

1.2 Introduction to TAMD

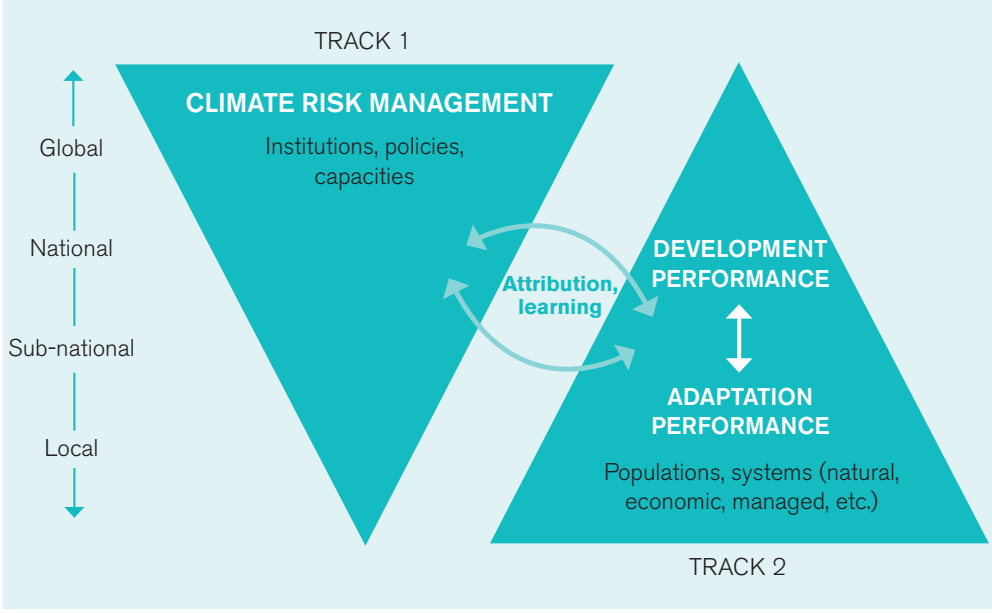
As climate effects increasingly challenge development progress, governments and development partners have been investing in climate change adaptation. There have been efforts to scale up adaptation responses in a number of countries, across a variety of scales – national climate change policies and plans, sectoral strategies, sub-national planning systems, local institutional mainstreaming and programme and project-based interventions.

As investment in adaptation has increased, so has the need for evaluation frameworks that can determine the effectiveness of interventions. TAMD is a twin-track framework to evaluate adaptation success. Track 1 assesses how widely and how well countries or institutions manage climate risks, while Track 2 measures the success of adaptation interventions in reducing climate vulnerability and keeping development on course. This twin-track approach means that TAMD can be used to assess whether climate change adaptation leads to effective development, and how development interventions can boost communities' capacity to adapt to climate change.

Importantly, TAMD offers the flexibility to generate bespoke frameworks for individual countries that can be tailored to specific contexts and applied at different scales. TAMD can evaluate an intervention's outputs, its short-term outcomes and its longer-term impacts, within and across the two tracks, and at scales ranging from multiple countries to individual villages. Thus, it can explore how adaptation and/or adaptation-relevant interventions contribute to better climate risk management while also helping keep development outcomes on course in the face of climate change.

The application in Mozambique has focused on developing an ex-ante planning system for local adaptation using a TAMD-style approach. The team also used the TAMD principles to propose relevant indicators at national level to track changes in adaptation and development performance.

Figure 1: Overview of the TAMD Framework



1.3 Applying TAMD in Mozambique

In 2013, IIED and partners convened a workshop in Mozambique to ascertain if there was interest in, and scope for, testing TAMD in the country. Following this meeting, there was some initial scoping of relevant national indicators that could track adaptation and development performance. This led to a more concentrated focus at the local level, recognising that any national indicators or tracking systems must be grounded in strong local adaptation planning systems and data.

TAMD was implemented in Mozambique in various stages. The first (appraisal) stage, implemented by IIED, resulted in the report: *The monitoring and evaluation of climate change adaptation in Mozambique: A review of national systems*, by Luis Artur from UEM and Ian Tellam from Adaptify.

The second (feasibility) phase was developed in partnership with Save the Children International in Mozambique. This phase capitalised on existing capacity and available resources in the country, and was coordinated by the Africa Climate Change Resilience Alliance (ACCRA), which provided a strong base for project implementation and linkages with existing government activities.

National level

At first, the team used TAMD to analyse existing indicators, identified those that were relevant to adaptation and proposing them for consideration in the national climate change M&E system being developed for the ENAMMC. MICOA's UMC is leading the process to finalise this system, which is ongoing with provincial-level stakeholder consultations to validate indicators.

We identified national development and vulnerability reduction indicators through a literature review,[2] workshops and focus group discussions. The latter two provided the indicators and the logical criteria for shortlisting them, which included:

- measurability and easy data access;
- selection across sectors (each sector presented in the national strategy on climate change should have its own set of key performance indicators); and
- link with national development indicators.

2 For indicator development, TAMD reviewed national polices and plans – including the five-year government plan, the poverty reduction strategic paper), the annual socio-economic plan), the performance assessment framework – and sectoral strategies. TAMD also reviewed the result frameworks of projects supporting climate change adaptation: the World Bank Development Policy Operations, the Pilot Programme for Climate Resilience (PPCR), the ENAMMC, and the national report on the progress of implementing the Hyogo Framework for Action.

We identified seven national sets of indicators that might have climate-relevant indicators and proposed these to the UMC (see Annex A for more details).

Through this work, the research team recognised the need to ensure that local-level data feeding into a national system on climate change adaptation was meaningful and relevant to each local context and climate hazard in Mozambique. The team therefore continued to apply TAMD in local adaptation planning at the district level.

Local level

At local level, we piloted the TAMD framework alongside the development of local adaptation plans (LAPs) – recommended in ENAMMC for strengthening local resilience at district and community levels. Based on ENAMMC guidelines, and in close consultation with government partners, the research team selected a pilot district for implementing the TAMD framework within LAP guidelines, to develop and test both TAMD tracks – looking at climate risk management and measuring adaptation and development performance.

We selected Guijá district because of its relatively higher vulnerability to climate risks. Save the Children also has a long and well-established relationship with the district authorities here. We used the pilot experience in Guijá to develop and validate methodological guidelines for the application of TAMD within the LAPs at district level.

The consultation process began with discussions on how to develop LAPs, since there were no existing guidelines or prior experience. Our first meeting to discuss this was a two-day workshop with all stakeholders in Bilene district, Gaza province, on 21 and 22 February 2014, where we proposed a methodology to develop LAPs which embeds tools from CARE International's community vulnerability and capacity analysis (CVCA) and the TAMD framework's theory of change and other key concepts such as the twin tracks.

The Guijá LAP was then developed with a range of stakeholders and approved by district authorities in June 2014. Several other districts are now using a TAMD-style approach to M&E, with guidance from MICOA technical staff. The research team has trained national government and non-governmental staff on the methodology. The government has already applied TAMD methodology to local adaptation planning in several districts and intends to targeting a total of 24 with the approach this year.

The TAMD framework was reshaped to suit national and local needs in Mozambique. The result is an innovative and novel tool in Mozambique as well as globally.

1.4 Stakeholder engagement

Applying the TAMD methodology in Mozambique involved close collaboration with a number of different stakeholders – including ministries, local government institutions, development partners, non-governmental organisations (NGOs), national universities and local communities. A brief overview of the main actors involved in the implementation of TAMD in Mozambique are listed below. See Annex B for a detailed table of their roles.

MICOA: The lead institution on climate change in Mozambique, MICOA provided government endorsement for TAMD as a useful planning tool in the country, and has been interested in using the TAMD approach for its M&E system. TAMD Mozambique's decision to strengthen MICOA's capacity to implement ENAMMC was well received by the government, who encouraged other actors to join with the TAMD work.

MPD: As the key actor for integrating climate change into national planning and budgeting systems, a closer link with MPD is essential, if TAMD is to be a valid planning and M&E tool. The TAMD team has encouraged MICOA to consider involving MPD in TAMD Mozambique consultations, training and fieldwork.

The Guijá administration/permanent secretary: Under the leadership of the permanent secretary, Guijá administration has emerged as a key actor in the local-level piloting of TAMD. We are using the Guijá experience to scale up the LAP process.

NGOs: (World Vision, CARE, Oxfam): All members of ACCRA, these organisations have shown interest in TAMD and LAPs since their inception, and members of their staff have been involved in the process.

UNDP Mozambique: Involved in developing LAPs and very active in discussions on how to use TAMD at local levels, UNDP Mozambique also funded a training programme led by the TAMD team on how to conduct a LAP process. The programme targeted technical staff from the National Centre for Sustainable Development (MICOA's technical branch for coastal, urban and natural resource management).

DANIDA: DANIDA is funding climate change interventions through MICOA; DANIDA staff have been heavily involved in TAMD and LAPs discussions.

Eduardo Mondlane University (UEM): Through its Faculty of Agronomy and Forestry Engineering, UEM has become a member of the ACCRA consortium in Mozambique and is providing technical back-up for the consortium's expansion of LAPs and the TAMD framework.

Local communities: Have emerged as key actors in the implementation of TAMD approach at district and community levels, identifying output, outcome and impact indicators at community level through discussions on the TAMD theory of change. Having found the approach participatory and instructive communities have subsequently invited government officers to apply it to their general development planning process.

1.5 Developing TAMD as part of local adaptation plans

The research team has produced a unique and innovative methodology for LAP design that incorporates TAMD into the M&E and builds on work done by ACCRA and others. The steps to apply TAMD are integrated into the 10-step methodology for LAPs, outlined below.[3] As discussed above, the TAMD approach to M&E was first piloted in Guijá district and consequently integrated into other districts as part of the LAP process. This report focuses on the results from Guijá District. The methodological approach that was used to pilot the theory of change is illustrated in Figure 2.

Step 1: Preparation. The methodology starts by asking actors to be well prepared – logistically, technically, financially and in possession of a literature review about the site and wide consultation to start the process.

Step 2: Assessing climate vulnerability and developing the theory of change at district headquarters. Once initial preparations are in place, the national and provincial teams go to the district, where they spend two days intensively gathering data on climate change and adaptation using the CVCA tools from CARE guidelines and the theory of change and institutional scorecards from the TAMD framework developed for Mozambique. This puts M&E in to the beginning of the planning process.

Step 3: Assessing climate vulnerability and developing the theory change in localities. The district selects two of the most vulnerable communities; the team spends an additional two days in each, gathering first-hand information on climate change impacts and adaptation options. Communities develop their own theory of change and propose adaptation interventions to feed it.

Step 4: Harmonising community and district theories of change. After gathering data at community and district levels, the team wraps up all the information and undertakes a harmonisation of the community and district theories of change at district level with all relevant stakeholders.

Step 5. Developing the first draft of the plan. Once harmonisation is complete, the technical team starts to compile the initial draft of the LAP. This process takes about a month.

Step 6: Revising and finalising the plan. The revision process produces the final draft of the LAP.

Step 7: Submitting the plan for approval. Once the final draft is ready, the LAP is submitted to the district council for approval.

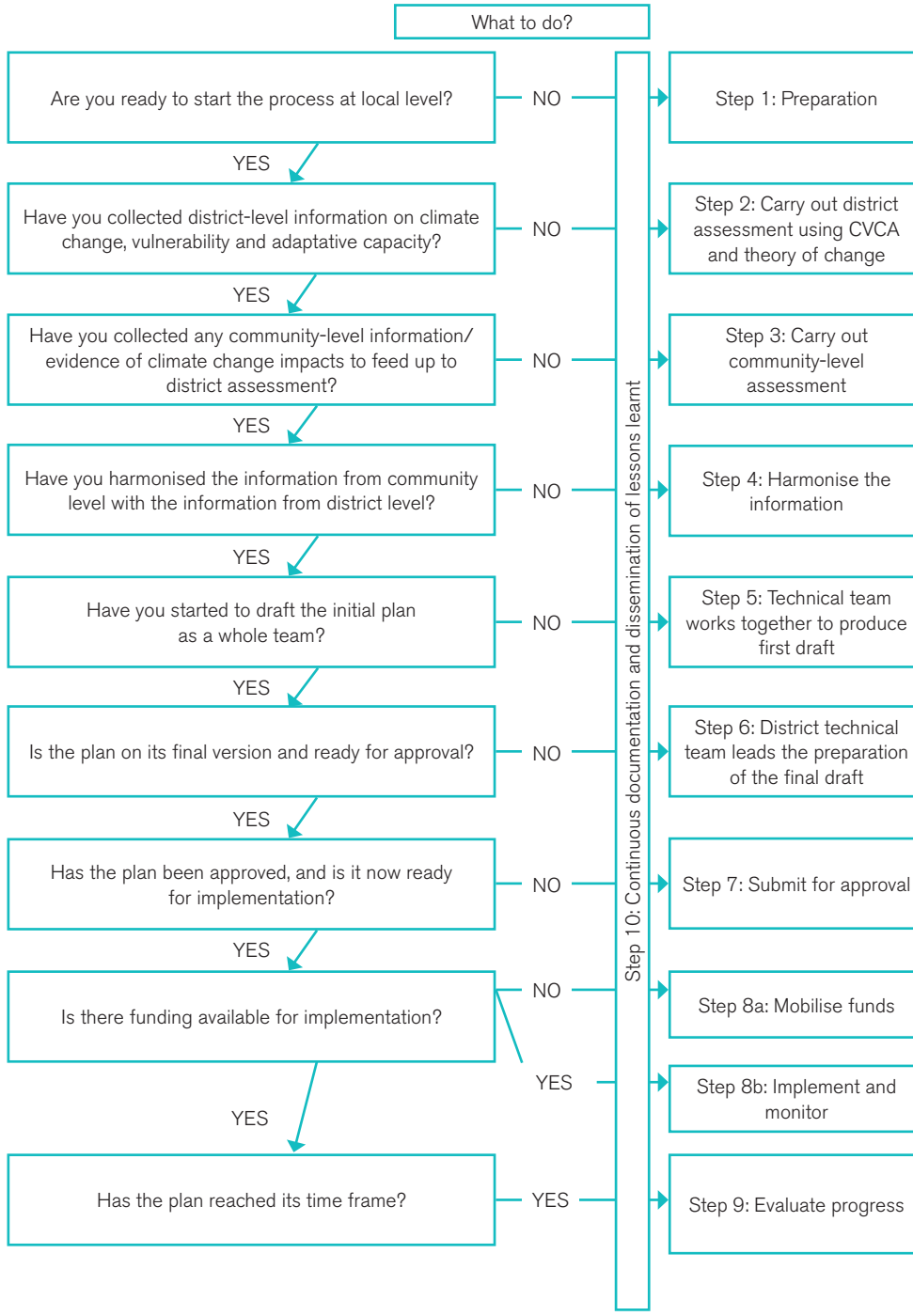
Step 8: Implementation and monitoring.

Step 9: Monitoring and evaluation.

Step 10: Learning and dissemination. This is the continuous documentation and dissemination of best practices.

3 For more detail on the methodological guidelines for LAP preparation, see MICOA, 2014.

Figure 2 Implementing the 10 steps of the LAP



Source: MICOA (2014)

Integrating TAMD concepts into the LAPs

Steps 2 and 3 – assessing climate vulnerability and developing the theory of change at district and local levels – are the crucial steps where the TAMD approach is used in planning. These are then revisited in Steps 8, 9, 10 for ex-post evaluation. During Steps 2 and 3, the teams use five CVCA tools to develop an understanding of adaptation and development performance in the area (Track 2 in the TAMD framework) and of resilience to the local hazards. These are:

- vulnerability matrix
- historical profile
- seasonal calendar
- Venn diagram
- resource and risk mapping.

A vulnerability matrix gives the team information on the area's main hazards and their impacts, people's responses, their limitations and further proposed interventions for adaptation.

Figure 3: Initial vulnerability matrix components

Livelihood activity	Major risks			Current adaptation practices	Limitations of current practices	Proposed adaptation interventions
	drought	floods	deforest-ation			
agriculture						
livestock						
fishing						

Source: MICOA (2014)

Once the matrix is complete, the team organises a new matrix to start discussion of the theory of change and M&E system. The new matrix has the following components:

Figure 4: Second vulnerability matrix to discuss theory of change and M&E systems

Livelihood activity	Proposed interventions	Product of the intervention (change 1)	Result of the intervention (change 2)	Impact of the intervention (change 3)	Indicators of change
agriculture	irrigation scheme	more water for agriculture	increased production and marketing	increased income and wellbeing	brick houses, no need for food aid, food prices, marriages, etc

Source: MICOA (2014)

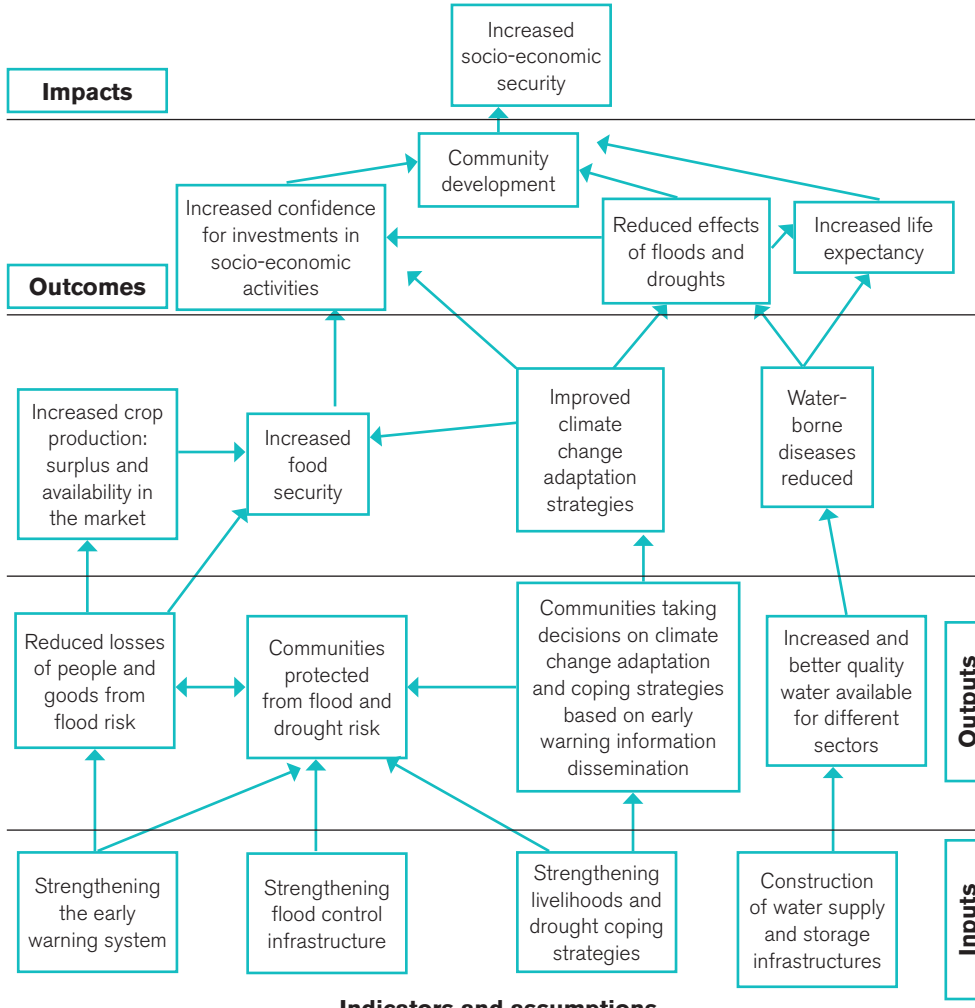
Once the second matrix is complete and the linkages have been established, the team constructs the theory of change diagrams. To facilitate discussions on theory of change with the communities, these revolve around the various changes that emerge from a specific intervention and/or climate hazard and do not use technical M&E language. The technical team then analyse these discussions and group the changes mentioned by communities into a sequenced logic and diagram to show how outputs lead to desired outcomes and impact.

Theories of change and indicator development

In Guijá, the theories of change were developed at community level. Following agreement on key interventions, the team asked participants in plenary to present interventions, outputs, outcomes and impacts as well as indicators for each level. The district-level theory of change was then harmonised with community inputs.

In Guijá district, three groups were guided to develop a theory of change each, based on strengthening: flood control infrastructure (dykes and river banks); livelihoods and coping strategies; and the early warning system. The three strands were then put together to develop the overall theory of change for the district. Figure 5 shows the draft theory of change for Guijá, which was consequently revised in consultation with a wider group of stakeholders. The following figures shows the Guija district theory of change as a result of the pilot phase (figure 5) This was then revised in consultation with district stakeholders and after incorporating community views as described in step 4 a new theory of change was put in place (Figure 6).

Figure 5: First draft theory of change for Guijá district



Indicators and assumptions

Impact indicators
% crop yield increase
% unemployment rate
% literacy rate
% disease occurrence
% water supply coverage
% increase in improved houses

Assumption
Improved certified seeds are available
Extension services on improved production technologies are available
Financial resources for education and health are available
There is support in the improvement of infrastructures e.g. electricity and water supply

Outcome indicators:
Number of disease cases per year
Quantity and availability of crops produced locally in the market (according to SIMA for crops)
Number of investors in the district
Number of households affected by floods and drought per event
Hours taken to fetch water

Assumptions
Enabling environment will foster local partnerships, facilitating the financing of climate change adaptation and development projects
There is research and dissemination of climate change technologies at a wider scale
Financing agreements that seek to address climate change adaptation and development are honoured

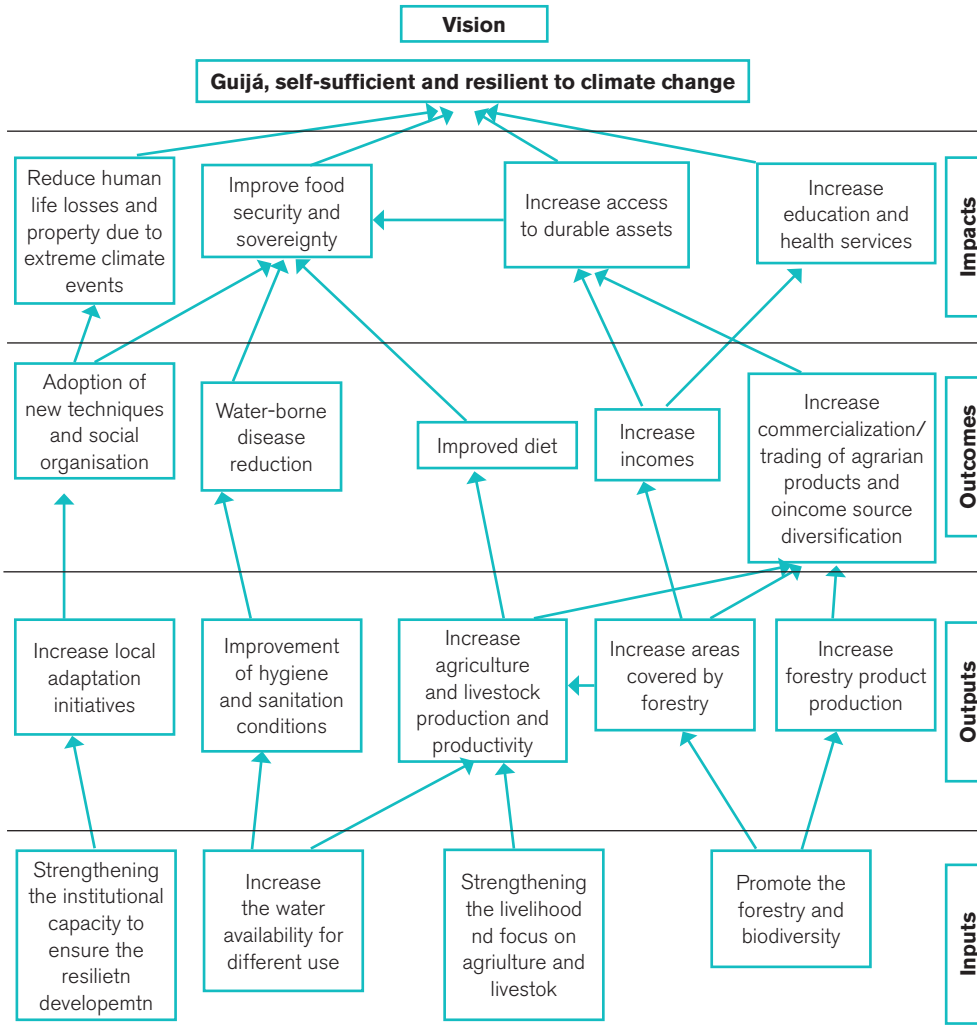
Output indicators
Amount of water available per person per household
Number of households adopting climate change coping strategies due to drought risk
Number of households affected by flood risk

Assumptions
There will be more investments on small dams, boreholes and rain water harvesting structures
The communities are aware of climate change

The M&E approach is now being applied to every LAP developed in Mozambique. Since its pilot in Guijá, the approach has been replicated in another 6 districts. Figure 6 shows the revised theory of change from Guija district.

Following the CVCA and theory of change process, the team identified Track 2 indicators for adaptation and development performance in consultation with district staff. It is planned these will be monitored The local adaptation plan guides the district technical staff to follow the existing processes to monitor the work around adaptation and informs the national framework by strong linkages to district development plans.

Figure 6: Revised theory of change from Guija district



Scorecards

During these early steps, key stakeholder also assess capacity for climate risk management at the district level. Track 1 indicators were produced using a scorecard matrix developed by the TAMD project and contextualised for Mozambique. This matrix was used in a focus group discussion with the district technical team and other civil society representatives. The scorecard looked at issues of finance, integration, planning under uncertainty, use of climate information, participation, awareness and coordination.

Lessons learnt

- TAMD has the advantage of being a flexible approach that can be contextualised to suit the needs of each country's realities, priorities and institutional settings.
- TAMD has assisted in the production of LAPs is Mozambique, and is expanding this through ACCRA. But government funding for the LAPs is limited and Mozambique is not yet accessing adaptation funds. Hence, any further work needs to consider how the information generated from TAMD can be used both to demonstrate effectiveness and to support accessing new sources of finance.
- Besides TAMD, other M&E approaches are evolving rapidly in Mozambique. It is important that these competing approaches complement one another and do not duplicate efforts.
- The methodologies presented above appeared to be quite easy to apply; the team had no problems with local and district technical staff. The vulnerability matrix linked nicely with the theory of change matrix and people understood and saw the connections. Because participants found it hard to draw a theory of change without visualising it in a matrix format, the team designed a theory of change matrix to make it more accessible. This proved to be a good and easy way of applying theory of change.
- Scorecards in the original TAMD format had to be adjusted to the local context and the language simplified.
- LAPs are evolving very rapidly in Mozambique, but the national capacity to deliver on quality is limited. There is therefore a need for quality assurance to ensure the systems developed are robust and of high quality. Given the intensity of support through the TAMD initiative, we need to consider how this support can be given more sustainably.
- National leaderships, commitments and agendas may shift as a result, jeopardising the current momentum. It is important, therefore, that changes are mainstreamed into government systems and do not rely on individuals.

Challenges

- *Limited involvement of the private sector on the issue of climate change*:
  The private sector influences production models and outcomes that have a bearing on the issue of local resilience. As such, they should be encouraged to make informed decisions that account for climate change and to become involved in LAPs where it is relevant for them to do so.
- *Multitude of actors, institutions and indicators for M&E:*
  As outlined in the research report, Mozambique's climate change planning, monitoring and evaluation systems encompass a multiplicity of actors at different levels who all use different tools and indicators. There is a need to harmonise indicators for climate change, to lessen the burden of data collection and thus ensure effective tracking of the most important points.

2

Addressing the challenges of adaptation M&E

Evaluating adaptation interventions can be a difficult process. TAMD's Working Paper No. 1 (Brooks et al., 2011) identifies the following four common challenges in conducting M&E of adaptation:

- long timescales associated with climate change and adaptation
- attributing outcomes of adaptation to specific actions, interventions, or policies
- shifting baseline conditions of climate change over time, which can make it difficult to interpret adaptation results
- contextualising adaptation outcomes within the wider socio-economic and political processes that may impact adaptation interventions and thereby alter the results.

It is vital these challenges are understood and incorporated into evaluation frameworks to ensure these are robust. In this chapter, we outline each of these challenges in greater detail, and explain how the TAMD project addressed them within the Mozambican context. It is important to note that piloting TAMD in Mozambique has taken place alongside the LAPs – a new process for building community resilience at the local level that will henceforth incorporate TAMD to monitor future adaptation interventions. As such, efforts to address these challenges are currently being planned into future evaluations, and have yet to yield concrete results.

2.1 Long timescales

The first core challenge is the long timescales associated with climate change and adaptation. Measuring the success of adaptation is difficult because the pathway to resilience is long: it may take many years before an individual, household, community, business, etc. can be considered resilient. This is particularly true of adaptation initiatives intended to address longer-term changes in climate that will take years or decades to unfold. The long timescales required to measure resilience are complicated by the shorter timescales imposed by the cyclical nature of project and programmatic funding (usually one to five years). These initiatives – whether funded through the national planning process or by external donors – often require measurable results over short timescales that do not complement the incremental nature of building adaptation in the longer term.

In Mozambique, this challenge is being addressed in two ways. At the national level, TAMD has helped develop indicators for wellbeing and resilience, which will inform the M&E system of the government's national strategy on climate change. Beginning in 2014, the National Statistics Institute (INE) began collecting data on disaster risk reduction and adaptation, which can serve as a baseline for the climate change M&E system. They will continue collecting data over a long timescale to use in the launch of the M&E system in 2025. With this data, policymakers will be able to analyse national adaptation outcomes over long timescales.

The use of TAMD is also encouraging the collection of long-term district-level climate data. For the first time in the history of Mozambique, districts are being equipped through TAMD with their own M&E systems that they can use to measure progress in achieving their long-term vision. The process has only just begun, with the launch of LAPs in 7 districts in total. Although it will be several years before results are generated, embedding this long-term vision in the LAP process means that local-level adaptation efforts in Mozambique can be measured over the long term.

2.2 Attribution

The second challenge in monitoring and evaluating adaptation is the issue of attribution. Adaptation policies, programmes and projects do not occur in a vacuum, but within a broader context of socio-economic, political and environmental change that can influence development and adaptation outcomes. As such, it can be difficult to attribute the impacts and outcomes of a given adaptation intervention. This is an important challenge for evaluations, because policymakers need a strong understanding of attribution to judge the effectiveness of their intervention, and to learn lessons on how to improve interventions in the future.

The TAMD work in Mozambique is using two main methods to address this challenge at the local level. First, we are highlighting the attribution of development and adaptation outcomes by creating narratives and theories of change. As part of the LAP process, each district is required to develop a theory of change to support its plan, which outlines a pathway to resilient outcomes for specific interventions. At future evaluative stages, evaluators could interrogate the individual steps of a theory of change to determine linkages between project inputs and outputs, and changes in resilience (outcomes and impacts) that have been observed as a result of the project.

In the future, attribution could be addressed through a quasi-experimental approach that would compare districts implementing LAPs to those without LAPs. This approach could pair districts with similar climate vulnerability and a similar range of adaptive capacity, and assess whether the LAP-implementing district will have greater development and adaptation outcomes than the district without a LAP. A key challenge in implementing this approach is the difficulty in collecting district-level baseline data to compare LAP and non-LAP districts. In many districts, data collection and reporting systems are quite weak, and existing data is not fit for purpose. Data collection systems need to be strengthened at the sub-national and local levels if attribution is to be accurately measured using this type of methodology.

2.3 Shifting baselines

With climate change already impacting peoples' lives across the world, adaptation will take place within a shifting climatic and environmental context that will expose vulnerable communities to greater climate-related hazards and risks. This poses a challenge for evaluation, as it has the potential to act as a confounding factor in the assessment of development and adaptation interventions. For instance, an adaptation intervention aiming to improve the productivity of smallholder farmers (thereby improving their asset base and contributing to resilience) may yield no overall increases in crop yields, which would appear to show that adaptation efforts are not succeeding. However, if the project was implemented during a period that coincided with an increase in intensity of droughts, then the fact that productivity has not declined would actually indicate success in building resilient food systems. This example shows that if the adaptation intervention is not contextualised within changes in baseline environmental conditions and events, M&E assessments could misinterpret the effectiveness of these interventions. Shifting baselines therefore need to be incorporated into evaluations, both in the design of evaluative tools (forward-looking, or ex-ante) and the analysis of data from specific interventions (ex-post).

Since TAMD is being used as a forward-looking tool aligned with LAPs in Mozambique, shifting baselines have not yet been an issue, but this could be addressed in an ex-post evaluation of LAP interventions. The next step for the TAMD Mozambique team will be to identify suitable data and/or methodologies to collect data on the shifting nature of climate vulnerability in the country. At national level, there is room to strengthen UMC's capacity to collect data on climate risks and hazards, which could then be measured against the baseline data collected at district level during the development of LAPs. A more labour-intense process, but one which would generate stronger results at the local level, would be to conduct district-level follow-up participatory analysis to map the changes in climate impacts over time.

2.4 Normalisation and contextualisation

Similar to the challenges posed by shifting environmental baselines, normalisation and contextualisation pose the fourth main challenge in conducting M&E of adaptation. Climate risks and hazards are not the only factors that can shift over the course of a development or adaptation intervention. Other shocks and changes – for example, changes in government or economic conditions – can also take place. In a globalised world, these shocks – whether they occur at international, national, sub-national, community or household level – may all impact adaptation interventions. It is therefore essential that assessments of adaptation interventions consider contextual factors that may impact the outcomes. Data can then be 'normalised' with respect to changes in the baseline conditions, so the amount that external shocks contribute to a change in resilience can be removed from the measure of resilience and the attribution of adaptation outcomes can be linked explicitly to the intervention in question.

In Mozambique, normalisation and contextualisation are primarily envisioned as tools that could be used in an ex-post evaluation of adaptation interventions under the LAPs over the long term. As we discussed in Chapter 1, the baseline vulnerability data from which these evaluations will be measured has already been collected through a range of CVCA tools. There may be a need for additional capacity-building support as international best practice emerges on how to normalise data in the context of these broader changes.

3

Assessing the potential to scale-up TAMD

The purpose of piloting the TAMD framework in Mozambique was to determine whether TAMD could be adapted to national circumstances in a way that supports long-term adaptation planning. Given that climate change impacts are projected to increase in the years ahead, and that developing adaptive capacity is a long-term process, it is essential that TAMD is mainstreamed and embedded in local adaptation planning beyond the short-term timescale of the TAMD Mozambique project. This chapter focuses on four critical success factors – sustainability, replicability, stakeholder acceptance and cost effectiveness – to determine the extent to which TAMD has been institutionalised in Mozambique.

3.1 Sustainability

To address the issue of sustainability, TAMD Mozambique worked with stakeholders at national and local levels to ensure that TAMD is embedded within existing planning structures. At national level, TAMD Mozambique supported the government to operationalise the M&E component of its national climate change strategy. We worked with MICOA, conducting several training sessions and focus group discussions to explain and discuss the TAMD approach. With this engagement, we anticipate that the TAMD approach will be integrated into the overall national M&E system in the long term. At local level, we have ensured the sustainability of TAMD by aligning the approach within the new LAPs. These will be incorporated into district development plans, and use TAMD to measure the progress of their overall implementation.

Despite the progress that has been achieved in mainstreaming TAMD into national and local planning processes, work still needs to be done to ensure that it is fully institutionalised in Mozambique. TAMD is still a new concept here; M&E experts and staff in national and local institutions need to be trained to use (and improve) the approach. Mozambique is still in the early stages of developing its national climate change policy response, – the national climate change M&E system has not been finalised, and the first LAPs are still being developed – and it will take some time to determine whether TAMD has been fully integrated into its planning systems. We hope that early efforts to replicate the LAPs will ensure the longer-term sustainability of TAMD in years to come.

3.2 Replicability

TAMD was originally piloted in Guijá district, alongside the development of its LAPs. The methodology has subsequently been replicated in another 6 districts, and the government has targeted 24 districts in 2014. The reasons for the success in scaling-up LAPs and the use of TAMD to monitor them include:

- LAPs encourage the participation of all relevant stakeholders in the planning process, reinforcing good governance, transparency and ownership.
- LAPs follow a participatory process in designing M&E systems. Most existing projects and plans do not take M&E seriously and are developed without input from local people.
- The LAP process is integrated closely into the district development plans: they are not stand-alone or additional planning tools, but rather a process that supports and enables climate-compatible development.
- Contrary to many plans that are entirely dependent on donations, LAPs are expected to be financed through government budgets. Although limited national financial capacity means that donors are also encouraged to participate, LAPs are integrated into annual financial plans, which should be funded by government when monies become available.
- LAPs promote continual learning: once fieldwork is complete, stakeholders are encouraged to reflect on the process and discuss changes required for improving results in the future. This is then adjusted over time as repeated evaluations are undertaken. Thus, the methodology becomes a tool-box, which may be adjusted depending on context and available facilitation skills.

3.3 Stakeholder acceptance

TAMD received encouraging feedback from stakeholders – who all agree that adaptation can only be measured within the context of development progress. Stakeholders therefore supported the overall approach of the TAMD framework. However, it was highlighted that a one-year feasibility phase is insufficient to reach the broader group of stakeholders that could ensure TAMD is mainstreamed into the LAP process. Moving forward, it would be useful for the TAMD Mozambique team to remain engaged with the institutionalisation of TAMD in order to:

- provide additional inputs to the development of the national climate change M&E system, which is yet to be approved;
- bring on board other actors who were not targeted during the feasibility phase, such as the private sector and a broader group of NGOs;
- follow the implementation of LAPs;
- clarify and collect additional data for the attribution exercise when LAPs are due to be reviewed; and
- plan exchange visits with other countries such as Kenya, to learn how they do things first hand.

3.4 Cost effectiveness

Based on the partnership developed between IIED and Save the Children Mozambique (SCIMOZ) and building upon ACCRA's existing activities, TAMD implementation in Mozambique was aligned with the 'value for money' principles pursued by DFID. The principles of value for money endeavour to maximise the impact of every pound spent to improve poor people's lives based on economy, efficiency and effectiveness while considering issues around equity. A detailed study of the costs and benefits of implementing a TAMD-style approach has been done for a county in Kenya and the findings of that study would also be relevant to Mozambique, which has a similar approach to local planning (see Barrett, 2014).

4

Results from the TAMD feasibility study

4.1 National-level assessments

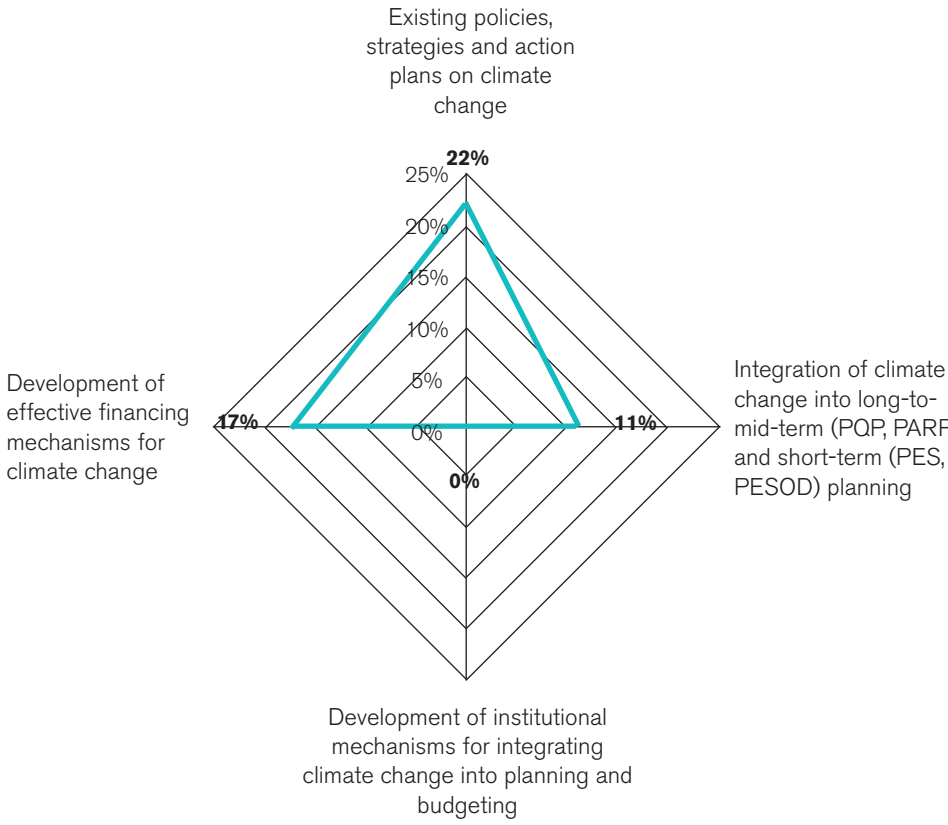
This chapter presents results from national-level scoping to identify Mozambique's current climate risk management capacity and relevant indicators to assess current adaptation and development performance in the national system. Figures 7–9 show the results from UMC's scorecards exercise, which followed three themes:

- integration of climate change in national planning;
- coordination mechanisms for climate change interventions; and
- climate change knowledge management.

Integration

Results on integration into national planning show that that the development of institutional mechanisms that would allow for the integration of climate change in planning and budgeting is still weak (0 per cent). This means that integration of climate change into planning tools such as PQG, PARP, PES and PESOD is also weak, at 11 per cent. However, there has been some progress on developing policies and strategies on climate change (22 per cent).

Figure 7: Scorecard results: integrating climate change into national planning

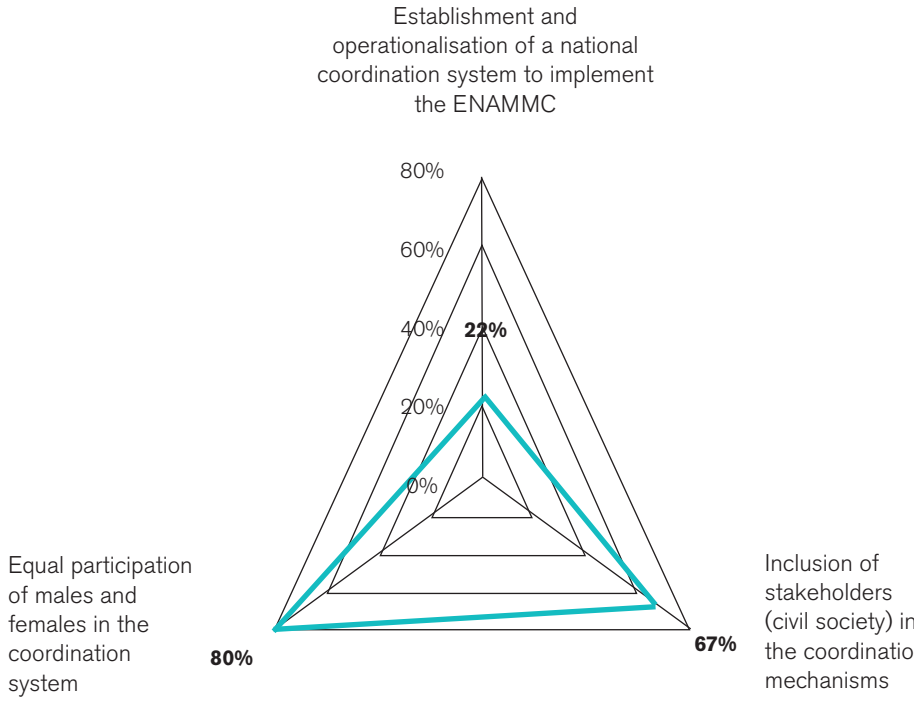


Source: UMC (2014)

Coordination mechanisms

Results on coordination mechanisms show that, while participation from different stakeholders is high and gender balance is good, there is still much work to do in establishing and operationalising a system to implement the ENAMMC.

Figure 8: Scorecard results on coordination mechanisms

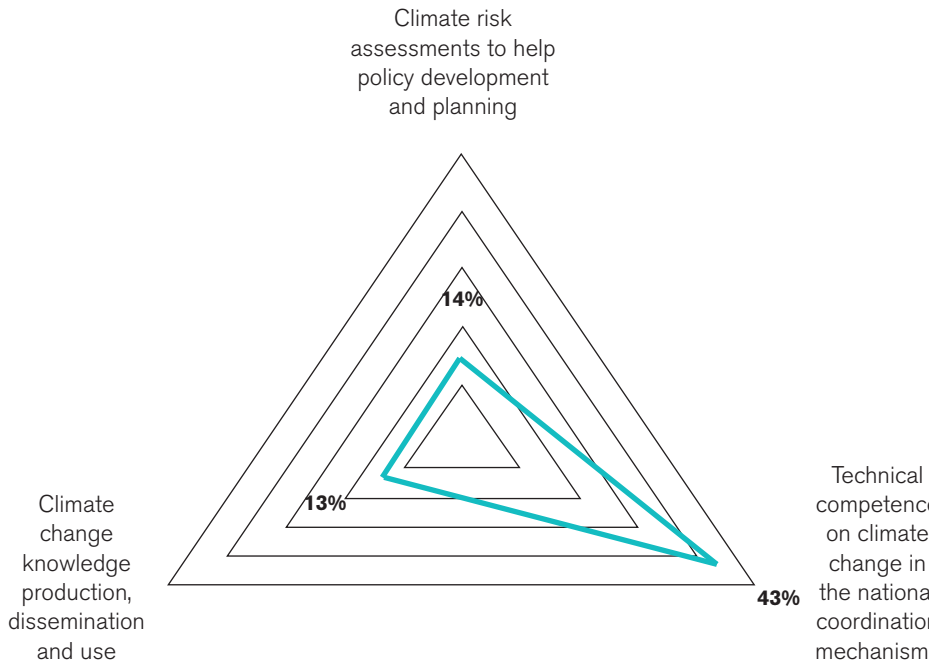


Source: UMC (2014)

Knowledge management

Results on knowledge management suggest that climate risk assessments are limited (14 per cent) and the production and dissemination of climate change knowledge is weak overall (13 per cent). However, we found that technical competence in the current coordination mechanism is considerably high (43 per cent).

Figure 9: Scorecard results on knowledge management



Source: UMC (2014)

The second national-level exercise involved assessing all the relevant national indicator sets for climate-relevant indicators for the ENAMMC. Table 1 summarises the proposed impact indicators – the letters in brackets indicate similarities in both sets of indicator. For a full table of proposed indicators and those under development by the UMC, see Annex B. These were presented to the UMC and included for consideration in the national system

Table 1: Relevant national indicators to assess the impact of the ENAMMC

Level	TAMD results	UMC results (in progress)
Impact indicators	1. Number of people affected by extreme climate events (A) 2. Number of infrastructures damaged and other losses caused by extreme climate events (B) 3. Poverty incidence rate 4. Total available biomass (volume in m3) (DNFT/ forest inventory in the context of REDD+) (D) 5. Total number of institutions implementing climate change adaptation and mitigation actions (E) 6. Total of resources allocated to climate change (F) 7. Level of use of clean technologies (C)	1. Percentage of vulnerable climate change households (A) 2. Annual loss and damage due to extreme climate events: affected population (deaths, injuries and displaced people); economic damage to infrastructure; economic loss of crops and cattle (B) 3. Percentage of population with access to electricity produced through renewable energy sources (C) 4. CO2 emitted per unit – PIB (D) 5. Integration of climate change in the national planning process (E) 6. Level of climate change response coordination 7. Institutional capacity building and management of knowledge for climate change response 8. Number of districts with local adaptation and operational plans 9. Proportion of annual budget allocated to climate change (per sector; budget and extra-budget) (F)

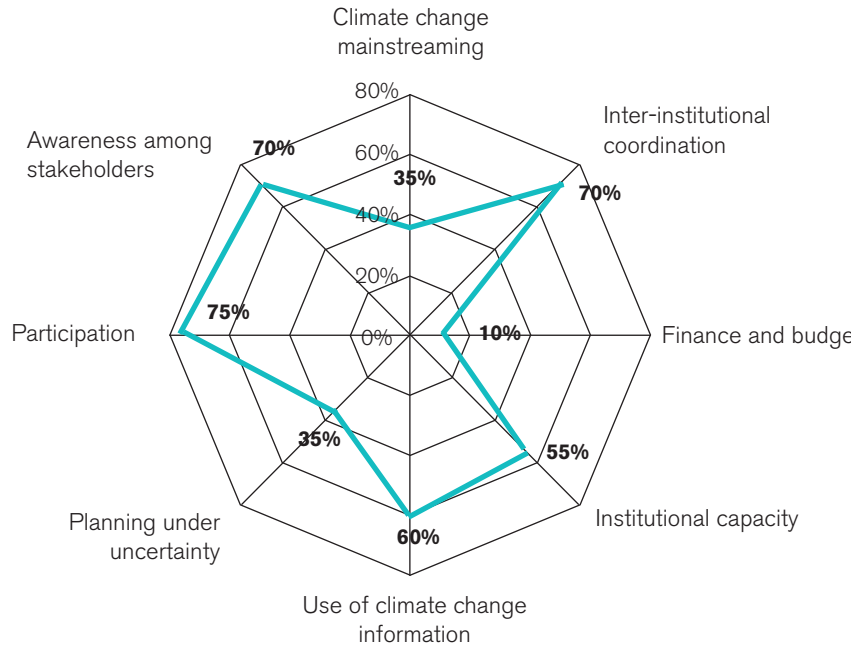
4.2 District-level results

TAMD was applied at district level through the LAP process. Results were generated through institutional scorecards and indicators identified for tracking adaptation and development performance at district level using a theory of change and CVCA methodologies. The baseline data for these indicators was compiled and is shown in Table 2.

Climate risk management (Track 1)

The scorecards were adapted for Mozambique and used at the district level. The following results are from Guijá District and show finance, climate change mainstreaming and planning under uncertainty to be the key limitations. However, there is also high awareness among stakeholders and good participation; capacity and use of climate information are both fairly strong.

Figure 10: Scorecard results from Guijá district (Track 1 indicators)



Source: Governo de Guijá (2014)

Adaptation and development performance (Track 2)

As TAMD was applied ex-ante in Mozambique to support the development of the LAPs and their M&E, there are not yet any results that show changes in resilience/adaptation over time. Table 2 shows the baselines set for Guijá district when the framework and LAP were being developed.

We used a situation analysis and other inputs, to identify theories of change and indicators for Guijá as the TAMD pilot. When developing the theories of change, three groups were tasked to identify changes that would occur at output, outcome and impact levels as a result of a particular adaptation action.

Group one worked on strengthening flood control infrastructure. They identified the ultimate impact as increased socio-economic stability for communities. They identified flood control infrastructure would protect communities from floods and inundations, which may lead to reduced asset losses and lives, increasing people's confidence in socio-economic investments and therefore also increasing investment. This would lead to overall community development.

Group two worked on strengthening early warning systems for droughts and floods. They defined the ultimate impact as ensured socio-economic stability for the community. They identified the first change as increased information dissemination about early warning systems and this would influence communities' decision-making processes on coping strategies and adaptation actions – for example, enabling people to move to safer areas in case of floods, to adopt drought-tolerant crops and seeds, or create food stocks to deal with food scarcity. This would allow communities to live positively with extreme climate events, recognising that they will occur but being prepared for them when they do.

Group three worked with strengthening livelihoods and coping strategies. They identified increased production, productivity and life expectancy as the ultimate impacts. They identified a first change as an increase in food production, which would increase the surplus and availability of local products in the market. This would promote overall community development, leading to increased productivity in different sectors and improving life expectancy.

During the plenary discussion, participants noticed that more emphasis was given to flood control infrastructure while there was no action to address water availability and access as a result of drought. As such, they identified an additional category of input for climate risk reduction: the construction of water supply and storage infrastructure, including small dams, rainwater harvesting systems and boreholes. These will increase water availability, reducing time spent fetching water and the incidence of water-borne diseases. In turn, this will increase life expectancy and give people more time for other productive activities, ultimately increasing productivity across all sectors.

We revised the district's draft theory of change following these initial discussions and came up with four strategic objectives: strengthening institutional capacity, strengthening agriculture and livestock, increasing water availability and promoting forestry and biodiversity (see Table2). These were all identified as important areas for adaptation interventions through the LAP process.

We consequently developed the indicators and baselines with stakeholders to measure the district's inputs and strategic objectives (see Table 3), and finally we looked at outputs, outcomes and the impacts of their theory of change.

The data will be regularly tracked through government monitoring systems using existing available data at local level (inputs/outputs) and at central level (outcome/impact).

Table 2: Indicators and baseline data for identified strategic objectives in Guijá's theory of change

Indicator	Baseline data and reference year
Strategic objective 1: strengthen institutional capacity	
1. Number of technicians trained in new technologies in the framework of climate change	2 (2011)
2. Number of vehicles and motorbikes purchased for LAP	0 (2013)
3. Number of agricultural shops, management systems and/or veterinarian networks established	1 (2013)
4. Number of inter-institutional groups on climate change established	0 (2013)
5. Number of physical planning technicians hired	0 (2013)
6. Number of local disaster risk management committees strengthened	0 (2013)
7. Number of technicians trained in project design and climate change	1 (2013)
Strategic objective 2: strengthen agriculture and livestock	
1.1. Quantity of drought-tolerant crops produced (cassava, peanuts, sorghum, sweet potatoes, pineapple)	cassava: 20,660t peanuts: 609t sorghum: 0t sweet potatoes: 15,038.2t pineapple: 0 (2013)
1.2. Hectares covered by conservation farming	No information
2. Number of existing agricultural shops	1 (2013)
3.1. Number of existing dipping tanks 3.2. Number of functional dipping tanks	5 (2013) 0 (2013)
4.1. Number of existing farmers' associations 4.2. Number of functional farmers' associations	16 (2013) 9 (2013)
5. Number of existing stocks	73,207 cattle 4,067 pigs 75.09 small ruminants (2013)
6. Number of existing veterinarians	5 (2013)
7. Number of existing farmers trained in new techniques	0 (2013)
8. Tonnes of fodder crops produced	0 (2013)

Indicator	Baseline data and reference year
Strategic objective 3: increase water availability	
1. Number of existing water reservoirs	44 (2013)
2. Number of training sessions organised for rainwater harvesting and storage	0
3.1. Number of existing boreholes 3.2. Number of operational boreholes	158 (2013) 147 (2013)
4. Number of model cisterns	5 in Gumbane, Dzindzine, Chimbembe, Nhanguenha and Madjimisse (2012)
5.1. Irrigation area exploited 5.2. Number of small water systems	2,670ha (2013) 5 (2013)
6. Number of small water supply systems (with solar panels)	1 (2012)
7.1. Number of existing water committees 7.2. Number of operational water committees	147 (2013) 136 (2013)
Strategic objective 4: promote forestry and biodiversity	
1.1. Number of existing forest resource management committees 1.2. Number of functional forest resource management committees	5 (2013) 5 (2013)
2. Number of leaders trained in forest resource management	19 (2012)
3. Number of improved ovens used by charcoal producers	0 (2013)
4. Number of sensitisation sessions conducted in the communities on forest resource management	18 (2013)
5. Number of plant nurseries (indigenous and fruit species) established	1 (2013)
6. Hectares of delimited forest areas per locality	3 (2011)
7. Number of hives established per locality	0 (2013)
8. Hectares planted with rapid growing species per locality	0 (2013)
9. Number of households producing charcoal briquettes with charcoal waste	0 (2013)

Table 3 indicates indicators and baselines for the overall district theory of change. These help stakeholders understand how the district is moving towards resilience and development in the core strategic areas identified. This data should be collected on a regular basis.

Table 3: Overall theory of change, with indicators and baseline, for Guijá district

Indicator		Baseline data and reference year
1. Output level		
1.1.	Average quantity (litres) of water per household/day in Nalazi and in Caniçado	No information
1.2.	Average time (hours) spent to fetch water in Nalazi and Caniçado(back and forth)	No information
1.3.	Quantity of honey produced in the district	0 (2013)
1.4.a.	Number of forest fires per year (reference year)	2 (2013) 11 (2012)
1.4.b.	Burned area (hectares) per year (reference year)	No information
1.5.	Quantity (hectares) reforested per year (reference year)	No information
1.6.	Quantity (hectares) reforested per year (reference year)	No information
1.7.	Number of stocks assisted by veterinarian agents per year (reference year)	No information
1.8.	Number of stocks with access to fodder crops during dry season	0 (2013)
1.9.	Average time (hours) spent by stocks to drink water in Mafada, Mbalawala and Nalazi	No information
1.10.	Number of households undertaking irrigation agriculture	1,780 (2013)
1.11.	Number of households assisted by extension workers	3,544
1.12.	Number of farmers using: a. Conservation farming b. Improved seeds c. Manure and fertilisers d. Pesticides e. Animal traction	 65 (2013) 5,930 (2013) 650 (2013) 650 (2013) 11.280 (2013)

Indicator		Baseline data and reference year
1.13.	Average time (days) of receipt of information before the floods (reference year)	No information
2. Outcome level		
2.1.	Number of cases of water borne diseases reported per year	cholera, 0 dysentery 673 diarrhoea 9,618 (2013)
2.2.	Number of cases of malnutrition reported per year	238 (2012) 506 (2013)
2.3.	Food security in the district (months of food security ensured through self production) per year and per administrative post	3 months at the most critical administrative post in Nalazi
2.4.	Number of investors (reference year)	11 (2013)
2.5.	Number of shops (reference year)	31 shops 385 stands (2013)
2.6.	Income (tonne per hectare) of cereals (maize and rice)	0.9 maize (2013)
2.7.a.	Number and quantity of plant species in local forests	No information
2.7.b.	Number and quantity of livestock species in local forests	No information
2.8.	Average income (MTN) per month, per family	1,400 MTN
2.9.	People assisted by the national health system	190,842 (76,337 men; 114,505 women) (2013)
2.10.	Number of households with access to safe drinking water	9,621 (2007)
2.11.	% of improved houses in the district	Conventional houses (0.7%) 54.7% (mixed) (2007)
2.12.	% of households with durable goods	radio (46%) TV (9%) computer (0.2%) bicycle (31%) no goods (44.4%) (2007)

Indicator	Baseline data and reference year
3. Impact level	
3.1. Number or % of households affected by floods and drought (reference year)	9,340 floods (2013) 1,180 drought (2013)
3.2. Number or % of households in need of food aid (reference year)	150 families (2013) 250 families (2012)
3.3. Illiteracy rate	38.6% (25.5% men; 47.4% women) (2007)
3.4. Child mortality rate	107/1,000 (2007)
3.5. Life expectancy in the district (years)	44 (2007)
3.6. Incidence of poverty	0.39 in Mubangoene 0.63 in Nalazi (2010)

Source: Governo de Guijá (2014)

4.3 Linkages between Track 1 and Track 2

In Mozambique it is still too early to link Track 1 and Track 2 indicators. The national strategy on climate change has just been approved and the M&E system and LAPs are under construction. There is no clear funding of interventions either at local or national level resulting from the national strategy. The research team in Mozambique will assist students from UEM in the development of their master thesis looking at links between Tracks 1 and 2. During the feasibility testing, it was impossible to gather data on climate change interventions and link these to particular policies and strategies. This was not only due to the lack of adequate data but also because the TAMD Mozambique approach was not following interventions but designing interventions that will be followed in the future (ex-ante application at the local level).

At the national level, the team has helped develop the basis for linking Tracks 1 and 2, either through the theory of change or with scorecard exercises, which are now being mainstreamed at national and local levels.

5 Conclusions

This report presented the findings from the TAMD feasibility testing in Mozambique. It has shown how the core concepts of a TAMD approach to adaptation M&E have been incorporated into LAPs to assess climate risk management, use theories of change at district level and identify resilience and wellbeing indicators to track the effectiveness of building resilience at district level. There has been good engagement with a range of stakeholders, and the TAMD work here has proven to be partially sustainable and replicable. This is particularly demonstrated by the adoption of the LAP guidelines and the scaling up to 24 districts.

Based on the findings of the feasibility study it can be concluded that:

- TAMD has informed national and local processes on climate change in Mozambique, developing indicators that are now part of the national M&E system on climate change and supported the production of LAPs.
- The TAMD local-level approach at is being replicated at national level: the TAMD team has successfully handed over the process to the national authorities.
- The TAMD team was able to bring on board different stakeholders; the linkage with ACCRA has allowed continuity and appropriation of the approach beyond Save the Children.
- TAMD is widely appreciated and appears to respond well to international demands for climate-compatible development. TAMD has provided a means to an approach to measure this type of development.

The process in Mozambique needs further development and support, particularly in the following areas:

- Producing baselines at national and local levels.
- Capacity building on the TAMD framework and LAP development at national and international levels. The year-long timescale was too short to mainstream these processes.
- Continual support for those able to deliver TAMD, including the time and resources required.
- Translating key documentation on TAMD and LAPs into Portuguese, for existing local partners and to train new partners – especially those from civil society and the private sector.
- More inter-country learning, to learn from the experiences of other countries.

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Annexes

Annex I. National development indicators and relevance to adaptation for ENAMMC

The process identified a number of different types of national indicator, including:

- 8 impact and 39 outcome/result indicators for the Poverty Reduction Action Plan (PARP);
- 78 result indicators for the national five-year plan (PQG);
- 35 outcome/result indicators, derived mainly from PARP and PQG, agreed by donors and government (PAF/PAP) ;
- 7 impact and 44 outcome/result indicators derived from the initial TAMD exercise for the climate change M&E system – the UMC consequently revised this and there are now 9 impact, 36 adaptation outcome/result and 21 mitigation outcome/result indicators;
- PPCR indicators;
- Hyogo framework progress indicators; and
- sectoral performance indicators (numbers vary from sector to sector).

Table A1 presents the set of national-level indicators from TAMD and the UMC. Similarities across the two sets of indicators are tagged with same letter.

Table: TAMD and UMC national-level indicators, highlighting similarities in both sets

TAMD results	UMC results (in progress)
Impact indicators	
1. Number of people affected by extreme climate events (A)	1. Percentage of climate change-vulnerable households (A)
2. Number of infrastructures damaged and other losses due to extreme climate events (B)	2. Annual loss and damage due to extreme climate events: affected population (deaths, injuries and displaced people), economic damage to infrastructure, economic loss of crops and cattle (B)
3. Poverty incidence rate	3. Percentage of population with access to electricity produced through renewable energy sources (C)
4. Total available biomass (Volume, m3) (DNFT/ forest inventory in the context of REDD+) (D)	4. CO2 emitted per unit – PIB (D)
5. Total number of institutions implementing climate change adaptation and mitigation actions (E)	5. Integration of climate change in the national planning process (E)
6. Total resources allocated to climate change (F)	6. Level of climate change response coordination
7. Level of use of clean technologies (C)	7. Institutional capacity building and management of knowledge for climate change response
	8. Number of districts with local adaptation and operational plans
	9. Proportion of annual budget allocated to climate change (per sector; budget and extra-budget) (F)
Outcome indicators	
1. Access rate of hydro-meteorological information (A)	1. Percentage of districts with functional early warning system for extreme events (A)
2. Percentage of vulnerable population informed about the occurrence of disasters on a timely basis (A)	2. Medium period of time for linkage between the dissemination of early warning/alert and the occurrence of an extreme event (A)
3. Percentage of population in safe areas in the districts	3. Number of districts and municipalities under high risk which have (i) trained and equipped local disaster risk management committees operating in disaster response, including related climate situations and (ii) disaster risk management issues of climate origin integrated in their district development plans (B)

TAMD results	UMC results (in progress)
Outcome indicators (cont.)	
4. Percentage of districts provided with human, financial and material resources to respond to climate risks (B)	4. Number of equipped and operational CERUM in arid and semi-arid areas
5. Proportion of areas with sustainable water and soil management	5. Number of established water-sharing agreements
6. Hectometres of water retention capacity per capita in shared international river basins	6. Number of districts with mapping of water resources, including underground
7. Hectometres of water-fitting capacity in dams during flood peaks	7. Percentage of households living in arid and semi-arid areas with access to safe drinking water per year (C)
8. Percentage of population using sanitation services, taking risk reduction and climate change adaptation into account	8. Storage capacity per capita (D)
9. Percentage of households with access to water (including harvesting and storage systems) in arid and semi-arid areas (C)	9. Percentage of cultivated farming area in terms of irrigation (food crops) (E)
10. Hectometres of water retention capacity per capita built with infrastructure and operational, taking into account natural disaster vulnerability and climate change (D)	10. Percentage of farming production lost due to drought or floods
11. Coverage rate of operational farming irrigation systems (E)	11. Percentage of post-harvesting loss of the main cereals
12. Percentage of farming and cattle-raising producers using new varieties and technological packages adapted to climate variation	12. Percentage of cultivated farming areas using conservation farming methods
13. Percentage of communities with demarked and certified land	13. Percentage increase in productivity in areas using conservation farming methods
14. Productivity (tonnes per hectare) of maize and rice crops	14. Growth rate of cattle herds
15. Productivity (tonnes per hectare) in the mapping areas which are considered to be highly prone to extreme events	15. Number of stocks lost to floods and/or drought, per species (cattle, small ruminants)
16. Percentage of fishermen supported through control measures and management of fishery activities to access clean technologies and so ensure renewal and maintenance of stocks	16. Percentage of mangrove deforested area (hectares per year) (T)
17. Tonnes of fish catches including pisciculture tanks (M)	17. Loss and damage in aquaculture due to floods and drought

TAMD results	UMC results (in progress)
18. Available quantity of fishery resources taking into account climate change (M)	18. Stocks of fishery resources (M)
19. Percentage of fishermen using good practices to regenerate mangrove and other fish protection, reproduction and feeding areas	19. Total area of marine conservation (ha)
20. Percentage of population under food insecurity and chronic malnutrition, taking into account the vulnerability to climate risks (O)	20. Water coral reefs surface in good (healthy) condition (hectares)
21. Child undernourishment rate (N)	21. Prevalence rate of children with low weight and growth rate (under five years) in areas that are vulnerable to climate change (N)
22. Percentage of households covered by the Social Action programme directly from government, NGOs and other humanitarian stakeholders	22. Number of people in food insecurity condition (O)
23. Rate of malaria incidence	23. Number of households covered by the Productive Social Action Programme in districts identified by INE as being vulnerable to climate change
24. Rate of incidence of water-borne diseases (cholera, diarrhoea, bilharziasis)	24. Incidence rate of malaria in extreme climate change event-vulnerable districts
25. Number of Red List terrestrial species categorised as endangered and critically endangered (IUCN Red List) (H)	25. Incidence rate of water-borne diseases (cholera, diarrhoea) in extreme climate change event-vulnerable districts
26. Number of seizings in the context of CITES (MICOA)	26. Number of Red List terrestrial and marine species categorised as endangered or critically endangered (IUCN Red List) (H)
27. Number of endangered and critically endangered species among marine fauna, including marine mammals (IUCN)	27. Biodiversity conservation areas (percentage of areas) with management plans integrating climate change under implementation (L)
28. Number of (re)introduced livestock species	28. Forest concession area (hectares) managed by communities
29. Percentage of declared conservation areas (L)	29. Percentage of works of art built, restored or improved, which comply with revised design standards, taking into account climate resilience
30. Area (hectares) and number of management plans designed and approved in conservation and biodiversity protection areas, taking into account climate change (L)	30. Kilometres of road with trees in urban neighbourhoods

TAMD results	UMC results (in progress)
31. Percentage of forest coverage per category (P)	31. Kilometres of road with low-cost rainwater drainage systems
32. Volume (M3 biomass) (P)	32. Percentage of key investments (road and rail system, schools/public buildings, tourism) that are climatically robust, complying with construction standards and spatial planning (I)
33. Forest area (hectares) owned by public and private sectors	33. Loss and damage of infrastructure (road and rail system, schools/public buildings, tourism undertakings) due to extreme climate events (K)
34. Percentage of cities and municipalities with urban climate change adaptation plans under implementation	34. Percentage of roads built or rehabilitated using climate change-resilient building codes
35. Percentage of key investments which are resilient to climate change (without any considerable damage after extreme climate events) (I)	35. Percentage of forest area annually affected by wildfire hotspots
36. Percentage of loss and damage covered by insurance	36. Annual percentage of deforestation (P)
37. Percentage of OT plans under implementation in tourist and coastal areas	
38. Percentage of human settlements in coastal areas which are resilient to climate change	
39. Total area (hectares) of mangrove per province in coastal areas (T)	
40. Protected area (hectares) in sites, RAMSAR (MICOA/WWF)	
41. Percentage of loss and damage of infrastructures built in coastal and tourist areas (K)	
42. Percentage of loss and damage of infrastructure built in coastal area covered by insurance.	

Annex II. Roles of key stakeholders

Table: Summary of key roles in TAMD, by stakeholder

Actor	Role in defining the evaluation context	Role in selecting pilot district (Guijá).	Role in selecting indicators	Role in collecting data
MICOA	Highly involved. MICOA is the lead institution and TAMD is working under the umbrella of the Climate Change Adaptation and Mitigation National Strategy. MICOA agreed to use TAMD to develop national-level adaptation indicators and LAPs at local level.	Highly involved. MICOA has a set of priority districts for LAP development. TAMD is using this priority list. However, Guijá district selection was based on SCIMOZ development programme, in agreement with MICOA.	Highly involved at national level. MICOA was highly involved in discussions around the indicators. MICOA convened national and regional workshops for indicator selection, with support from ACCRA.	Highly involved at district and local levels. MICOA district staff (represented by SDPI) are highly involved in data collection. At national level: data collection for database is still to be developed, following approval of the set of indicators.
MPD	MPD staff attended meetings to define the evaluation context.	MPD participated in discussions in Bilene[5] and subsequent meetings regarding LAPs.	MPD staff attended meetings organised to discuss national indicators.	MPD involvement is limited at district level and as yet non-existent at national level.
Guijá district administration	Highly involved. Provided political and technical support.	Highly involved in the selection of Guijá as the pilot district for LAP testing at district level.	Highly involved. All key technical staff were involved in selecting key indicators at district level.	Highly involved in collecting data for LAP indicators.

4 The Bilene meeting was set among key actors to reflect on the exercise around LAP development and methodology, including the M&E component; this meeting was organised by Save the Children over a weekend in Bilene town.

Actor	Role in defining the evaluation context	Role in selecting pilot district (Guijá).	Role in selecting indicators	Role in collecting data
SCIMOZ	Highly involved. SCIMOZ is leading TAMD in Mozambique and was present at every debate for defining the evaluation context.	Highly involved. SCIMOZ recommended Guijá based on their long-term relationships within the area through their development programme.	SCIMOZ staff at the district level were involved in discussions around indicators in Guijá district.	Limited involvement. The onus to gather data was on government staff.
World Vision	Minimally involved. Supportive as part of the ACCRA steering committee.	Minimally involved. Supportive as part of the ACCRA steering committee.	Involved at national level. World Vision staff attended national meetings to discuss indicators. At district level, staff were involved in discussions around indicators in Guijá district.	Limited involvement. Data was gathered by government staff.
CARE	Limited involvement. Supportive as part of the ACCRA steering committee.	Limited involvement. Supportive as part of the ACCRA steering committee.	Involved at national level. CARE staff attended national meetings to discuss indicators. No involvement at district level.	Not involved.
OXFAM	Limited involvement. Supportive as part of the ACCRA steering committee.	Limited involvement. Supportive as part of the ACCRA steering committee.	Involved at national level. Oxfam staff attended national meetings to discuss indicators. No involvement at district level.	Not involved.
UNDP	Highly involved. Staff from UNDP participated in every debate for defining the evaluation context.	Not involved.	Involved at national level. UNDP staff attended national meetings to discuss indicators.	Not Involved.

Actor	Role in defining the evaluation context	Role in selecting pilot district (Guijá).	Role in selecting indicators	Role in collecting data
DANIDA	Highly involved. DANIDA staff supporting MICOA on climate change participated in every debate for defining the evaluation context	Not involved.	Involved at national level. DANIDA representative participated in national meetings to discuss indicators.	Not involved.
UEM	Highly involved. UEM staff participated in every debate for defining the evaluation context.	Not involved.	Involved at national level. UEM staff attended national meetings to discuss indicators. UEM staff were also present at discussions around indicators in Guijá district.	Highly involved. Provided technical advice on additional data sources not available at district level.
Local communities	Not involved.	Limited involvement.	Highly involved in selecting local and district indicators and developing the theory of change.	No data has been collected at community level yet.

Knowledge Products

Research Report

December 2014

Climate change

Keywords:
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Tracking adaptation and measuring development (TAMD) is a twin-track framework that evaluates adaptation effectiveness. TAMD offers the flexibility to generate bespoke frameworks for individual countries that can be tailored to specific contexts and applied at different scales. The application in Mozambique has focused on developing an ex-ante planning system for local adaptation plans (LAPs) using a TAMD-style approach. This has incorporated institutional scorecards at the district level, theories of change and identifying indicators on adaptation and development performance. This approach was piloted in Guija District and is now being scaled up to other districts. The team have also used the TAMD principles to propose adaptation-relevant indicators to track changes in adaptation and development performance at national level.

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