

MAINSTREAMING ENVIRONMENT AND CLIMATE CHANGE ADAPTATION IN THE IMPLEMENTATION OF NATIONAL POLICIES AND DEVELOPMENT PLANS PROJECT

TERMINAL PROJECT EVALUATION FINAL REPORT



Landscape in Karatu District.



Pigeon peas planted between maize rows as climate change adaptation strategy, Karatu.

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LIST OF ACRONYMS

Big Results Initiative	BRN
Climate Change	CC
Conference of Parties	COPs
Civil Society Organizations	CSOs
District Environmental Management Officer	DEMO
Department for International Development	DFID
Developing as One	DaO
Environmental Impact Assessment	EIA
Environment & climate change	E&CC
Environment Management Unit	EMU
European Union	EU
Greenhouse Gas	GhG
Green Climate Fund	GCF
Government of Tanzania	GoT
International Institute for Environment and Development	IIED
Implementing Partner	IP
Least Developed Countries	LDC
Low Emission Capacity Building	LECB
Local Government Authorities	LGAs
Ministry of Agriculture, Livestock & Fisheries	MALF
Ministries, Departments and Agencies	MDAs
Ministry of Finance and Planning	MoFP
Ministry of Natural Resources & Tourism	MNRT
Monitoring & Evaluation	M&E
National Strategy for Growth and Reduction of Poverty	MKUKUTA-II

Nationally Appropriate Mitigation Activities	NAMAs
Natioanal Adaptation Program of Action	NAPA
National Adaptation Plan	NAP
National Climate Change Strategy	NCCS
National Climate Change Steering Committee	NCCSC
National Climate Change Technical Committee	NCCTC
National Designated Authority	NDA
National Environment Trust Fund	NETF
National Implementing Entity	NIE
National Environmental Management Council	NEMC
Non-Governmental Organizations	NGOs
President's Office – Planning Committee	PO-PC
Project Steering Committee	PSC
Result-oriented Annual Reports	ROAR
Strategic Results Framework	SRF
Tanzania Environmental Friendly Association	TEFA
Tanzania Meteorological Agency	TMA
Terminal Project Evaluation	TPE
Terms of Reference	ToR
Theory of Change	TOC
United Nations Development Assistance Plan	UNDAP
United Nations Development Programme	UNDP
United Republic of Tanzania and Zanzibar	Tanzania
Vice-President's Office	VPO
Vice-President's Office – Division of Environment	VPO-DOE
Zanzibar Climate Change Strategy	ZCCS

Executive Summary

The *Mainstreaming environment and climate change adaptation in the implementation of national policies and development plans* (Mainstreaming Project) was implemented in partnership with key three implementing partners: Vice-President's Office (VPO), Ministry of Finance (MoF) and National Environment Management Council (NEMC). The project was initially five years (July 2011 – June 2015) and then extended to June 2016. The project sought to strengthen Tanzania's national capacity for climate change adaptation by working towards five specific outputs relevant at the national and local government levels. The project was well-timed and highly relevant to national priorities because it commenced while the Government of Tanzania (GoT) was working on creating the National Climate Change Strategy (NCCS) (2012).

This terminal project evaluation followed the UNDP guidelines for project evaluation considering the relevance, efficiency, effectiveness and sustainability of the Mainstreaming Project. The evaluators developed a theory of change that focused on the governance outcomes of the Mainstreaming Project, which had project activities at the national and local levels of government and across sectors. Both quantitative and qualitative data was evaluated which involved literature review, semi-structured interviews, three focus groups, and two site visits to the Siha and Karatu districts.

The Mainstreaming Project was ambitious both in concept and design to engage with the objective of building capacity in environment and climate change from the national to local levels of government across sectors, including developing a national climate financing mechanism (NCFM). The project experienced financial constraints with approximately only 80% of the original budget funding realized. Despite this real practical constraint that limited some activities, overall the Mainstreaming Project operated efficiently and effectively and achieved the majority of targeted outputs. The project made good provision for human rights, particularly through work at the district level, and also for gender inclusion; notably, some of the key individuals in leadership roles in the project were women.

While capacity building as an output is difficult to quantify, this evaluation qualitatively identifies the occurrence of the outcomes of increased level of knowledge about environment and climate change and demonstrated commitment and capacity by the GoT in engaging sectors to design appropriate climate change adaptations. Crucially, the governance of environment and climate change has been mainstreamed throughout GoT institutions. In addition, some appropriate new initiatives for enhanced climate change governance have emerged from the Mainstreaming Project, such as the new Climate Finance Focal Point role at MoF, and also the ongoing work towards creating the NCFM. Officials from the national to local levels of government are engaged with climate change adaptation and can discursively explain the challenges presented by climate change and possible adaptation strategies. The Mainstreaming Project has shown a convincing degree of change and crucially the foundation it created has ongoing sustainability in the outcome of capacity building in climate change mainstreaming throughout the GoT. Overall the Mainstreaming Project was a very good investment by the UNDP, aligned with UNDAF outcomes, that has furthered capacity for climate change governance within Tanzania and will have lasting positive effects into the future.

1. INTRODUCTION

The Mainstreaming Project was designed to support environment and climate mainstreaming within Tanzania from the national level of government, across government sectors, down to the district level to build capacity in climate change knowledge, institutions, policy and response strategies. The project is an initiative of UNDP in partnership with the Government of Tanzania (GoT) with the implementation the responsibility of the Vice-President's Office (VPO), Ministry of Finance (MoF) and National Environment Management Council (NEMC). The programme was initially five years (July 2011 – June 2015) and then extended to June 2016.

1.1 Purpose and Scope of the Mainstreaming Project

This project is situated in the context of the UNDAF for Tanzania, which notably is one of seven countries piloting the Developing as One (DaO) reform. Through the DaO the UN seeks to develop working strategies with the GoT that achieve greater impact on the ground by harmonizing business practices across UN agencies and being more results oriented. Excluding the one year no-cost project extension this project occurred within the UNDAF from 2011-2015.

The UNDAF target outputs are: 1) national capacity and strategies for climate change adaptation are in place; 2) national capacity to adopt and implement mitigation strategies for a low carbon and resource efficient development path are enhanced; and, 3) national and local levels have enhanced capacity to coordinate, enforce and monitor environment and natural resources. The UNDAF outcomes are: 1) key Ministries, Departments and Agencies (MDAs) and Local Government Authorities (LGAs) integrate climate change adaptation and mitigation in their strategies and plans; and, 2) relevant MDAs, LGAs and non-state actors improve enforcement of environment laws and regulations for the protection of ecosystems, biodiversity and monitor environment and natural resources.

As described in the Mainstreaming Project Prodoc:

The project aims to support the Government of Tanzania in strengthening the foundation for addressing climate change challenges. The project will support environment and climate mainstreaming in [the National Strategy for Growth and the Reduction of Poverty] MKUKUTA-II to provide opportunity for conducting risk screening for climate resilience in National economic growth ambitions. The project will be achieved through provision of a set of integrated support services, including the assessment of climate change impacts and developing realistic response strategies, strengthening institutional structure for climate change governance and preparing the enabling environment for accessing resources to finance solutions and making sound low carbon and climate resilient investment decisions. The project will also focus on strengthening the coordination of climate change initiatives in Tanzania with stronger involvement of relevant Ministries Departments and Agencies. The aim is to balance, on the one hand, the need for sustained high level political attention on environment and climate change challenges, with the need for sound technical input and efficient coordination to build Tanzania's domestic resilience to climate change. The project

forms part of the implementation of UNDAP (2011-2015) agreement that was recently signed between UN agencies and the Government of Tanzania (June 2010). (Mainstreaming Project, 2011).

The project aims to strengthen Tanzania's national capacity for climate change adaptation by working towards five specific outputs:

1. Contributing to the mainstreaming of environment and climate change adaptation in MKUKUTA-II implementation;
2. Reviewing the National Adaptation Programme of Action (NAPA) as part of the process for the development of the National Climate Change Strategy (NCCS) and the Nationally Appropriate Mitigation Activities (NAMAs);
3. Strengthening the institutional frameworks for climate change governance;
4. Creating an enabling environment and preparedness for enhancing Tanzania's opportunities in accessing international climate change adaptation funding; and,
5. Increasing awareness among the general public and MDAs on climate change impacts and adaptation options.

Outputs 1 – 3 are led by the VPO office. Output 4 is led by the MoF. Output 5 is led by NEMC. Table 1 presents the intended outputs and the targets by the end of the project.

Table 1. Mainstreaming Environment and Climate Change Adaptation in the Implementation of National Policies and Plans: Multi-Year Results and Resources Framework as presented in Annex 1 of Project Document	
Output and Responsible Party	Target by End of Project
Output 1: Environment and climate change adaptation mainstreamed in National development planning processes as part of MKUKUTA-II <i>Lead implementing partner: VPO</i>	1.1 Increased frequency of meetings for NCCSC & NCCTC to at least once per quarter
	1.2 Stronger involvement of PO-PC and MoF in planning the implementation of climate change initiatives
	1.3 VPO providing guidance to MDAs on integration and implementation of E&CC in sector plans
	1.4 Articulation of climate change vulnerabilities for achieving MKUKUTA-II goals for Agriculture, Forest and Livestock sectors
	1.5 At least 4 climate change resilient initiatives that address risk vulnerability and climate change impacts in Agriculture, Forest and Livestock sectors demonstrated at LGAs level through this support
Output 2: Review NAPA as part of the process for the development of the National Climate Change Strategy and development of NAMAs <i>Lead implementing partner: VPO</i>	2.1 Reviewed NAPA 2.2 National climate change response strategy developed 2.3 Policy makers and members of the public aware of potential impacts of climate change to the economic sector increased and willing to take action

	2.4 Improved availability of climate data on economic costs for impacts and needed adaptation efforts
	2.5 Government capacity enhanced and taking up opportunities to access international climate change financing
	2.6 Tanzania NAMAs developed
	2.7 Adaptation initiatives at LGAs levels as part of implementation of National Climate Change Response Strategy
Output 3: Strengthened institutional framework for improved climate change governance <i>Lead implementing partner: VPO</i>	3.1 High level officials from relevant MDAs have learned from example taken by other LDCs on institutional reforms for climate change governance
	3.2 Launching of a process for reforming Tanzania institutional framework for climate change governance
	3.3 Funding is available for effective preparations and participation of more Tanzanians in international meetings and Conference of Parties (COPs) for relevant bilateral and multilateral agreements
	3.4 Improved coordination of climate change initiatives across MDAs
	3.5 Stronger involvement of MoF and PO-PC in planning and implementation of CC initiatives
Output 4: National Climate Financing Mechanism developed to support Tanzania to collect, coordinate, blend and account for climate finance <i>Lead implementing partner: MoF</i>	4.1 National Climate Fund developed and effectively functioning 4.2 National Climate Fund governance structure and reporting mechanisms in place
	4.3 Lessons on the political and technical processes for Tanzania in establishment of National Climate financing mechanism
	4.4 Necessary capacity in place as the foundation for establishment and operationalization of National Climate Fund
	4.5 Strategy for ensuring that Tanzania gets a 'fair share' of international climate financing in place
	4.6 Climate change resource mobilization and capitalization demonstrated through the National Climate Change Fund

Output 5: Improved level of information availability and awareness on climate change impacts, adaptation strategies, environmental laws and regulation among the general public and rural communities <i>Lead implementing partner: NEMC</i>	5.1 Number of videos on climate witness, documentaries, policy briefs, posters, fact sheets with key climate change facts on Tanzania produced in both English and Kiswahili 5.2 At least two major research undertaken and shared among MDAs capturing evidence of social and economic costs for E&CC impacts
	5.3 Quantitative information on climate-development links documented
	5.4 Magistrates, NGOs and the private sector trained in environmental laws, regulations and enforcement methods
	5.5 Development of by-laws governing implementation of climate change adaptation strategies that respect human rights for selected sites

1.2 Budget of the Mainstreaming Project

The project was jointly funded by the UNDP, the European Union (EU), Department for International Development (DFID) and One UN Fund. The project was implemented by the Government of Tanzania (GoT) implementing partners, specifically the VPO-DOE, MoF, and NEMC, as part of the UNDP activities in accordance with the UN business plan and the GoT's norms and procedures for nationally implemented plans.

The original project document identified the total resources required was \$4.9 million USD. At the time the project document was signed the total allocated resources to the project was \$2.82 million USD, which consisted of \$2 million USD from One UN Fund and \$820,000 USD from UNDP Core Funds, leaving \$2.08 million to be mobilized after the inception of the project. By the end of the project approximately only 80% of the originally budgeted funds were raised.

2. DETAILS OF EVALUATION PROCESS

In this section the evaluation process itself is explained. This Terminal Project Evaluation (TPE) is inclusive of the project duration, including the one-year no-cost extension (2011-2016). The evaluation was conducted from August – September 2016. The purpose and the methodology are presented.

2.1 Purpose and Scope of the Evaluation

The overall purpose is to evaluate the outcomes and degree of change of the project in response to the original purpose of the project. This evaluation considers the degree

of change of the project and how it contributes towards substantive capacity building in the GoT for strengthening the foundation for addressing climate change challenges. The evaluation considers the relevance, efficiency, effectiveness and sustainability of the project, identifying and evaluating the outcomes in relation to the intended project outputs as stated in the Strategic Results Framework (SRF). It further assesses the contribution of the project to the UNDP outcomes and the overall environmental policies, human rights and gender equality. Firstly, the evaluation ascertains the status of the outcomes and then examines factors affecting the outcomes. Then the evaluation assesses the contribution of the UNDP and its partnership strategy during the project. The findings are followed by lessons learned and recommendations and conclusions.

2.2 Methodology

The methodology is designed to evaluate relevant quantitative and qualitative data and includes extensive literature review, semi-structured interviews, two field site visits and three focus groups. Quantitative and qualitative information from multiple sources was triangulated in the analysis to produce findings, lessons learned and recommendations.

2.2.1 Literature Review

The collection and review of documents began in August and continued throughout September. UNDP provided many project documents; additional project documents were supplied by NEMC, VPO-DOE, Ministry of Agriculture, Livestock & Fisheries (MALF) and MoF. The documents were systematically reviewed and provide quantitative and qualitative data about the project. In addition to the project specific documents, a wider range of documents about Tanzania and adaptation financing was reviewed to provide contextual information. A complete list of documents reviewed appears in Annex 1.

2.2.2 Semi-structured interviews

Semi-structured interviews were conducted with key actors from stakeholder groups engaged in the project (see Annex 2). These interviews occurred September 5 – 26 and included UNDP and individuals from the three lead agencies: VPO-DOE, NEMC and MoF and the Project Coordinator. In addition, individuals from sectors were interviewed to provide qualitative information about their participation in the project including from Divisions of the MALF; Ministry of Natural Resources & Tourism (MNRT); and the Ministry of Energy and Minerals. Interviews were deliberately semi-structured to allow meaningful exploration of productive lines of enquiry emergent during the interviews. In the instance of the MALF a small group of three people from the Environmental Unit met at the same time so this became more of a focus group discussion with information added to the conversation by various participants.

2.2.3 Field site visits and focus groups

A central component of the Mainstreaming Project was capacity building at the LGA district level. As a result Dr Mary Dengler and Mrs Blandina Cheche from NEMC conducted field site visits to two districts: Siha (in the Kilimanjaro region) on September 15th and Karatu (near Arusha) on September 16th. These two districts were selected for various reasons. Both Karatu and Siha were among the earliest districts where NEMC had conducted their LGA capacity building work that included the District Environmental Officers (DEMOs) as well as sector representatives at the district level. In both these districts NEMC had done a follow-up monitoring and evaluation exercise to evaluate the outcomes of their capacity building work so in addition to observations and data gathered during the site visits a monitoring and evaluation document was reviewed which was beneficial for triangulation of findings. In each district a focus group was conducted with the current DEMO and sector representatives. In Siha a new DEMO was in place since the NEMC capacity building and in Karatu the same DEMO who had participated in the NEMC capacity building was still in office. The focus groups offered an informative, productive and efficient mechanism to gather information about the degree of change related to NEMC led capacity building in the LGAs.

2.2.4 Theory of Change and Matrix of Evaluation

The evaluation included a ‘theory of change’ (TOC) approach towards determining casual links between the interventions that UNDP Tanzania has supported and observed progress in mainstreaming climate change into national policies. Before beginning fieldwork the consultants developed a TOC model (see Annex 3) that offers a tool for conceptualizing the evaluation of the Mainstreaming Project. The Mainstreaming Project occurred at different levels of government and included multiple sectors. The cross-cutting nature of climate change issues and the project design of the Mainstreaming Project led to the identification of core outcome being evaluated as *good governance*.

The concept of good governance incorporates both the institutions and actors engaged in both the specific Mainstreaming Project and the wider governance of climate change within the GoT, which also had ongoing parallel projects, like the development of the National Climate Change Strategy (2012) that the Mainstreaming Project supported through capacity building activities. The project explicitly seeks to build capacity of institutions and individual actors so that climate change is mainstreamed within lead government institutions like the VPO-DOE, NEMC and MoF and then across sectors. The Mainstreaming Project is intended both to enhance the capacity of the GoT to participate in the international institutions where climate change governance is furthered, such as the annual COP meetings, build capacity within sectors at the national level, and further build E&CC capacity at the LGAs. The TOC as presented offers a conceptual evaluative lens that can be applied to different levels of governance (international, national, local) and across different sectors. It illustrates the relevance, effectiveness, efficiency and sustainability as evaluation criteria that can be deployed to consider the governance of climate change mainstreaming at different scales of government and sectors as well as to the partnership strategy and engagement with the wider public.

The TOC identifies three overarching thematic questions:

- 1) was the original purpose of the project achieved?;
- 2) what were the strengths and weaknesses of the governance processes?; and,
- 3) what recommendations does the evaluation provide about possible adjustments in future interventions?

Through the TOC these questions incorporate a series of sub-questions that are used to evaluate the project outcomes. These sub-questions are presented in a matrix of evaluation in Annex 4 and provide samples of questions asked to stakeholder groups in semi-structured interviews and focus groups as well as used by the consultants when reviewing documentation. The evaluation uses the TOC and matrix of evaluation as a method for conceptualizing and gathering information to evaluate the outcomes by the five outputs as initially identified in the Project Document.

3. FINDINGS OF THE EVALUATION

The evaluation findings are presented by the five outputs specifically; and further, includes sections that present findings on the relevance, effectiveness, efficiency, sustainability, human rights and gender, degree of change and partnership strategy.

3.1 Project Concept and Relevance

“The world is changing. There is no question that climate change is having an impact and we need to build capacity to be ready for those changes.” (Actor 1).

As noted above, building capacity in E&CC adaptations is a necessary activity to be prepared for the current and future challenges presented by climate change. The project concept of mainstreaming E&CC notably includes many sectors from the national to the LGA level of government. The reach of the project across government levels and sectors is an ambitious project design, but also one of the strengths making the project highly relevant as it appropriately reflects the cross-cutting nature of climate change and the need to mobilize resources across scales. The project is highly relevant to both the GoT priorities and key UNDP outputs and outcomes so very well-aligned with Tanzania’s development situation and needs.

The project occurred at the right time, following initial mobilization for climate change adaptation in Tanzania. NAPA (2006) made several recommendations about climate change impacts and priority interventions across sectors. MKUKUTA-II (2011-2015) directly links poverty reduction and economic growth with addressing climate change; hence, it clearly delineates climate change as a development concern. Thirdly, the timing immediately followed the publication of the Economics of Climate Change in Tanzania (2011), which showed the vulnerability of Tanzania to the impacts of climate change¹. It also demonstrated the real economic effects of climate change in Tanzania; by that time annual climate related events, such as droughts and floods amounted to 1% of the GDP and with a projection of reduction of GDP by up to 2% by 2030 under a business as usual scenario. Fourthly, the

¹ Project financed by DFID.

Quicksan Study (2009) conducted an overview study to look at the vulnerability of the country to climate change and make a recommendation for immediate interventions to address impacts of climate change. At the same time, there was mobilization for the NCCS development process and this Mainstreaming Project was essential in finalizing the NCCS and its publication and the official launch and initial dissemination. So the Mainstreaming Project was well-conceived and well-timed to propel forward a growing level of activity about climate change adaptations in Tanzania.

This project focused on adaptation rather than mitigation, which was approached separately under the Low Emission Capacity Building (LECB) project. For Tanzania the focus on adaptation is appropriate because it is a LDC with the primary livelihood activity of agriculture, which experiences significant pressures due to climate change including change in rainfall patterns, drought, and increase of pests and diseases. Tanzania further has substantial natural resources that are impacted by climate change, including wildlife, and its substantial number of National Parks and Conservation Areas, some of which are also recognized as UNESCO World Heritage Sites and attract income that benefits the local economies of rural areas through international tourism. “Most of Tanzania’s tourist attractions depend on nature – and landscape and wildlife depend on the climate. If things are too hot and dry it will affect the number of tourists and shake the economy of the country as a whole” (Actor 2).

3.2 Delivery of Outputs and Contribution to the Stated Objectives

The delivery of the five outputs with three separate lead agencies enabled the building of capacity at the national level across sectors (Outputs 1-3), LGA level (Output 5) and the initiation of building financial capacity for E&CC (Output 4). The building of financial capacity is an important component of the project because the funding stream for climate change initiatives is of course necessary for implementation of projects. The evaluation of the outputs is summarized in Table 2. The Table includes a rating of the five outputs and identifies the stated targets by the end of the project. The table then rates the outcomes and provides summary comments that explain the ratings. Achievements of outputs, outcomes and findings are discussed in a separate section for each output.

Table 2. Evaluation of Targets as Identified in the Multi-Year Results and Resources Framework as presented in Annex 1 of Project Document

Output and Responsible Party	Rating	Target by End of Project	Rating	Summary Comments
Output 1: Environment and climate change adaptation mainstreamed in National development planning processes as part of MKUKUTA-II <i>Lead implementing partner: VPO</i>	Achieved	1.1 Increased frequency of meetings for NCCSC & NCCTC to at least once per quarter	Positive change	1.1.1 There was an increase during the project and both NCCSC & NCCTC met quarterly during project. 1.1.2 Sometimes attendees varied. 1.1.3 Institutions continue to exist and meet as needed in advance of international and national meetings.
		1.2 Stronger involvement of PO-PC and MoF in planning the implementation of climate change initiatives	Positive change	1.2.1 Increased communication with VPO and MoF 1.2.2 Some increased involvement of PO-PC
		1.3 VPO providing guidance to MDAs on integration and implementation of E&CC in sector plans	Positive change	1.3.1 This achieved in other sectors under VPO leadership 1.3.2 Sector plans created 1.3.3 Some sectors have stronger plans than others, for example MALF and Ministry of Water and Irrigation
		1.4 Articulation of climate change vulnerabilities for achieving MKUKUTA-II goals for Agriculture, Forest and Livestock sectors	Positive change	1.4.1 These are articulated in National Climate Change Strategy and sector plans. 1.4.2 VPO-DOE published "An in-depth assessment of climate change vulnerabilities within agriculture, forest and livestock sectors" (Dec 2013).

		1.5 At least 4 climate change resilient initiatives that address risk vulnerability and climate change impacts in Agriculture, Forest and Livestock sectors demonstrated at LGAs level through this support	Positive change	1.5.1 Three pilot initiatives were completed in partnership with local NGOs; two in Dodoma and one in Mwanza. 1.5.2 A fourth pilot initiative was developed for Singida for food security in these sectors but funding was not available to implement. 1.5.3 The projects were scaled down and implemented through the UNDP small grants program 1.5.4 The projects were funded towards the end of project.
Output 2: Review NAPA as part of the process for the development of the National Climate Change Strategy and development of NAMAs <i>Lead implementing partner: VPO</i>	Achieved	2.1 Reviewed NAPA	Positive change	2.1.1 NAPAs were reviewed. 2.1.2 At the guidance of the PSC, NAPAs were reviewed to inform development of the NCCS (2012) development of sector specific plans and NAPs.
		2.2 National climate change response strategy developed	Positive change	2.2.1 The National Climate Change Strategy was completed in 2012.
		2.3 Policy makers and members of the public aware of potential impacts of climate change to the economic sector increased and willing to take action	Positive change	2.3.1 Policy makers had capacity building through the NAPA review and development of NCCS. 2.3.2 Public made more aware through work by NEMC.
		2.4 Improved availability of climate data on economic costs for impacts and needed adaptation efforts	Positive change	2.4.1 Some improvements to climate data through TMA. 2.4.2 More data available on economic costs of impacts through the DFID funded Study on the Economics of Climate Change in Tanzania (2011). 2.4.3 More data on adaptation efforts.

		2.5 Government capacity enhanced and taking up opportunities to access international climate change financing	Positive change	2.5.1 The government capacity has been enhanced as an outcome but the output of accessing international climate change financing was not fully achieved. 2.5.2 External factors, such as a complex accreditation process, impeded progress
		2.6 Tanzania NAMAs developed	Positive change	2.6.1 These were developed under the LECB. 2.6.2 Three NAMAs concepts were developed under the LECB window covering Transport and Energy sectors
		2.7 Adaptation initiatives at LGAs levels as part of implementation of National Climate Change Response Strategy	Positive change	2.7.1 Some adaptation initiatives identified 2.7.2 Adaptation strategies and action plans developed in 33 districts and identified specific adaptation initiatives, such as in Karatu and Siha districts 2.7.3 Progress constrained by funding limiting the number of districts that could be visited 2.7.4 Implementation of initiatives in districts limited by funding availability
Output 3: Strengthened institutional framework for improved climate change governance <i>Lead implementing partner: VPO</i>	Partially achieved	3.1 High level officials from relevant MDAs have learned from example taken by other LDCs on institutional reforms for climate change governance	Positive change	3.1.1 Visited Ethiopia for the national climate change financing mechanism (NCFM) and Thailand to learn about institutional arrangement for climate change initiatives 3.1.2 Attendance at COPs by some MDAs in addition to VPO
		3.2 Launching of a process for reforming Tanzania institutional framework for climate change governance	Positive change	3.2.1 Process initiated but not completed, partly due to change in government 3.2.2 CC institutional arrangement study was conducted and identified needs and options for institutional arrangements

		3.3 Funding is available for effective preparations and participation of more Tanzanians in international meetings and Conference of Parties (COPs) for relevant bilateral and multilateral agreements	Positive change	3.3.1 NCCTC and NCCSC meet before COPs meetings for preparation 3.3.2 Insufficient funding for participation from sectors 3.3.3 Sectors need to provide own funding or obtain funding through third parties
		3.4 Improved coordination of climate change initiatives across MDAs	Positive change	3.4.1 Some improvement of MDAs coordination with each other through NCCTC and NCCSC 3.4.2 Improvement within sectors with increased communication from the national to local levels 3.4.3 Merging of Agriculture with Livestock and Fisheries with new government
		3.5 Stronger involvement of MoF and PO-PC in planning and implementation of CC initiatives	Positive change	3.5.1 MoF involved in project as primary implementation partner 3.5.2 PO-PC increased 3.5.3 MoF has budget code for environment and climate change as initial step to track funds allocated and spent on climate change initiatives
Output 4: National Climate Financing Mechanism developed to support Tanzania to collect, coordinate, blend and account for climate finance <i>Lead implementing partner: MoF</i>	Partially Achieved	4.1 National Climate Fund* developed and effectively functioning *Changed from National Climate Fund to national climate change financing mechanism	Some positive change	4.1.1 Change from establishing National Climate Fund to creating national climate change financing mechanism 4.1.2 Some mobilization of resources and capacity building has occurred but the national climate change financing mechanism has not been developed to the point of functioning. 4.1.3 Environment Trust Fund in response to EMA (2004) was created at the VPO but not initiated by this project

		<p>4.2 National Climate Fund* governance structure and reporting mechanisms in place</p> <p>*Changed from National Climate Fund to national climate change financing mechanism</p>	Positive change	<p>4.2.1 There was a tremendous mobilization of resources but the structure and reporting mechanisms are not in place</p> <p>4.2.2 An essential foundation has been established to enable future further progress</p> <p>4.2.3 Some progress has been made towards identifying NEMC as the NIE for the Adaptation Fund</p> <p>4.2.3 NEMC is working on this process which requires additional demonstration of capacity</p> <p>4.2.4 MoF is pursuing NIE for the Green Climate Fund and VPO-DOE is already the NDA</p>
		<p>4.3 Lessons on the political and technical processes for Tanzania in establishment of National Climate financing mechanism</p>	Positive change	<p>4.3.1 MoF visited Ethiopia where the MoF is the NIE for the Adaptation Fund to learn about governance structure</p> <p>4.3.2 Lessons learned were used to inform study 'Framework for a National Climate Change Financing Mechanism (NCFM) for Tanzania' (2014)</p> <p>4.3.2 As NEMC progresses process of pursuing NIE accreditation for the Adaptation Fund and MoF pursues NIE accreditation for the Green Climate Fund lessons are being learned.</p>
		<p>4.4 Necessary capacity in place as the foundation for establishment and operationalization of national climate change financing mechanism</p>	Positive change	<p>4.4.1 MoF established inter-departmental Secretariat with the role of coordinating climate change financing mechanism effort</p> <p>4.4.2 Established an ad hoc inter-ministerial functional group to engage sectors on climate financing issues</p> <p>4.4.3 The MoF leadership role was a seconded position during the Mainstreaming Project; following the conclusion of the project a new position was created at the MoF called Climate</p>

				Finance Focal Point to specifically lead and coordinate climate finance issues at MoF; the same key actor was in both these roles, meaning the Mainstreaming Project built both institutional and individual capacity for strong leadership in the MoF for climate finance
		4.5 Strategy for ensuring that Tanzania gets a 'fair share' of international climate financing in place	Positive Change	4.5.1 Not achieved through the process because NEMC is still building capacity to become NIE for the Adaptation Fund and MoF is still building capacity to become NIE for the GCF 4.5.2 Some key individuals in leadership roles at COPs strengthen participation of Tanzania.
		4.6 Climate change resource mobilization and capitalization demonstrated through the National Climate Change Fund	No change	4.6.1 This has not been achieved. 4.6.2 Resource mobilization has occurred in other facets of project but not demonstrated through the National Climate Change Fund.
Output 5: Improved level of information availability and awareness on climate change impacts, adaptation strategies, environmental laws and regulation among the general public and rural communities <i>Lead implementing partner: NEMC</i>	Achieved	5.1 Number of videos on climate witness, documentaries, policy briefs, posters, fact sheets with key climate change facts on Tanzania produced in both English and Kiswahili	Positive change	5.1.1 Videos and printed outreach material produced in both English and Kiswahili 5.1.2 Materials include policy briefs about relevance of climate change to different sectors 5.1.3 Comic book style materials designed to reach the public, particularly targeting primary school children and their parents

		5.2 At least two major research undertaken and shared among MDAs capturing evidence of social and economic costs for environment and climate change impacts	Positive change	5.2.1 VPO produced "Establishment of baseline on the status of mainstreaming environment and climate change adaptation in selected MDAs sector plans"(Dec 2013) 5.2.2 Publication of "Evidence of Climate Change Impacts on Human Settlements, Health, Energy and Land Sectors and Benefits of Investing in Adaptation Strategies in Tanzania" (NEMC and UNDP, July 2013) 5.2.3 Production of sector specific policy briefs for Livestock, Fisheries, Human Health, Forestry and Water Resources (NEMC and UNDP, 2013)
		5.3 Quantitative information on climate-development links documented	Positive change	5.3.1 In addition to data in documents appearing in 5.2 VPO and sectors included quantitative data in NCCS (2012) 5.3.2 Following capacity building Districts collected data about climate change related to local development concerns
		5.4 Magistrates, NGOs and the private sector trained in environmental laws, regulations and enforcement methods	Positive change	5.4.1 NEMC conducted some training with magistrates, NGOs and private sectors in selected regions of Lindi, Kigoma and Mtwara 5.4.2 More could be done to build climate change capacity of private sector and consultants engaged in EIA
		5.5 Development of by-laws governing implementation of climate change adaptation strategies that respect human rights for selected sites	Positive change	5.5.1 NEMC used project framework as way to advance EMA (2004) for climate change and human rights.

3.2.1 Achievements of Output 1

Output 1: Climate change adaptation mainstreamed in National development planning processes as part of MKUKUTA-II

“We cannot alleviate poverty without linking development to climate change adaptation” (Actor 12).

The achievement of Output 1 was the foundation for all project outputs. There was substantial initial and then ongoing activity and Output 1 was achieved. The notable outcome of the activity surrounding this output is, crucially, the recognition that climate change should not only be framed as a matter of environmental concern but that it is instead central to livelihoods and poverty alleviation. Through the project and wider government activities a meaningful outcome is that climate change effects and the need for climate change adaptation are understood at different levels of government and across sectors as a core development issue. This understanding offers a strong motivation to mainstream climate change and to design and implement meaningful adaptations. In summary, this has led to a project outcome of climate change being understood by the GoT as a serious matter, which if not addressed impedes development goals and that requires meaningful, strategic adaptation interventions to address it as a cross-cutting issue.

There were a number of specific activities related to this output. Firstly, active participation of the Planning Commission from the President’s Office (PO-PC) in the Project Steering Committee (PSC) informed the PO-PC team to develop the necessary awareness and capacity for effective integration of E&CC issues in relevant national planning processes. Secondly, the project reinvigorated the National Climate Change Steering Committee (NCCSC) and National Climate Change Technical Committee (NCCTC). During the Mainstreaming Project the NCCSC and the NCCTC met in quarterly meetings where strategic policy and technical aspects of climate change were discussed. Thirdly, as a means of defining climate change challenges and understanding entry points, the baseline on the status of mainstreaming E&CC adaptation in key MDAs sector plans was established in June 2013. This was done through a study on *In-depth assessment of CC vulnerabilities to underpin delivery of MKUKUTA-II on Agriculture, Forest and Livestock sectors* (2013). This study identified a number of adaptation projects to be implemented in these key sectors.

Due to budgetary constraints, three of the four pilot projects focusing on food security were implemented: two in Dodoma and one in Mwanza². These were funded and implemented using the UNDP ‘small grants’ program. Despite budget limitations these projects have been successful from the standpoints of addressing the problems of water scarcity for both domestic consumption and irrigation as well as from the perspective of enhancing livelihoods through food security and income generation.

² The fourth project in Sigida to has a full project plan prepared but there was insufficient funding to implement.

Documents reviewed and feedback from stakeholders consulted during the evaluation suggest that the capacity built by the PO-PC team during this project has been instrumental in the development of subsequent national development plans including the Second Five-Year Development Plan (FYDP II-2016/17-2020/21). In addition, this provided the foundation for the development of sector specific climate change adaptation plans. The Ministry of Agriculture Livestock and Fisheries (MALF, formerly Ministry of Agriculture and Food Security) and Ministry of Water and Irrigation serve as best practice examples of ministries that have been able to translate the NCCS (2012) and adaptation into their sector strategies through development of relevant climate action plans. See Annex 5 for a presentation of MALF as a best practice case study. Drawing from these plans, the ministries have taken further actions such as development of the national climate smart agriculture program by MALF while Ministry of Water and Irrigation has developed climate resilience guidelines for conserving water supply and enhancing water management in both urban and rural areas.

3.2.2 Achievements of Output 2

Output 2: Review NAPA as part of the process for the development of the National Climate Change Strategy and development of NAMAs

The outputs targeted for Output 2 have been achieved and have resulted in the outcome of building capacity for the GoT for climate change adaptation and mitigation.

The project sought to ensure processes for NAPA, National Adaptation Plan (NAP) and NCCS were advocated to decision/policy makers and the general public by June 2013. Documented evidence (i.e. project progress reports, minutes of the Project Steering Committee and consultation with stakeholders) illustrate that this target was achieved. In terms of the NAPA review, this was done strategically to focus inputs and ideas for development and prioritization of key issues in the NCCS (2012). The project facilitated the various meetings by both NCCTC and NCCSC, which made relevant decisions as well as provided relevant directions for a way forward on NAP. With regards to the NCCS, the project played a critical role by facilitating finalization of the strategy through: 1) consultation with Civil Society Organizations (CSOs) and the private sector; 2) engaging a professional document reviewer; and, 3) launching and dissemination of the NCCS (2012).

The NCCS (2012) is an outstanding country position document about the impacts of climate change and the need for adaptation measures in Tanzania, crucially offering a compelling inclusion across sectors for the GoT to engage with climate change. From a governance perspective this document was also very beneficial in terms of building from the NAPAs to mobilize sectors to engage with capacity building in climate change. Following the vision defined in NCCS (2012) to mobilize sectors to develop sector specific adaptation strategies, the VPO-DOE produced *Establishment of baseline on the status of mainstreaming environment and climate change adaptation in selected MDAs sector plans* (2013). As identified by its title this document provides baseline information, which is the foundation for subsequent monitoring and evaluation of progress.

While the Mainstreaming Project focused strategically on adaptation by design, it acknowledged activities in the arena of climate change mitigation occurring through the Low Emission Capacity Building (LECB) initiative, which focused on the development of NAMAs. Through an integral component of the LECB, two concept notes and one full proposal for NAMAs were developed for the energy and transport sectors. In parallel with the core focus of adaptation, the Mainstreaming Project facilitated various technical working sessions/workshops including NCCTC and NCCSC meetings that reviewed and provided relevant directions for development of NAMAs.

3.2.3 Achievements of Output 3

Output 3: Strengthened institutional framework for improved climate change governance

Although not fully achieved, substantial progress was made on Output 3 with the outcome of providing a solid foundation for continued progress on strengthening the institutional framework and governance structures for climate change in the country. Key achievements under Output 3 include best practice field visits to Ethiopia and Thailand to offer examples of institutional arrangements for climate change governance. The Ethiopia field visit crucially was to consider the NCFM (see Section 3.2.4) while the Thailand field visit provided an example of institutional frameworks for good governance of climate change. These field visits were a good use of resources towards providing good examples of national approaches to climate change adaptation governance. Lessons learned from these trips had the outcome of informing discussions on designing appropriate institutions for the governance of climate change adaptations in Tanzania. Another positive outcome of these field visits is that it networked high-level decision-makers from the GoT with high-level decision-makers in Ethiopia and Thailand, which also strengthens these individuals ability to participate effectively in the international arena, such as COP meetings.

These lessons learned and experience further informed the design and supervision of the in-depth study on *Climate Change Institutional Assessment for Tanzania* (2015). This study provided options for consideration by the government including necessary structure, functions and capacity needs for effective climate change governance. Because establishing appropriate governance institutions reflects a process of learning and carefully identifying a strategic way forward to offer the most benefit and workability with existing institutions, the task remained incomplete at the termination of the Mainstreaming Project. Discussion with stakeholders confirmed that capacity in climate change governance had significantly progressed and there was a clear understanding of the gaps and strengths of the present institutional arrangements as well as understanding of possible future options for institutional arrangements to enhance responsiveness to climate change from a governance perspective. However, from a governance perspective it is preferable to take the time to develop appropriate, meaningful institutions rather than rushing the process, which may result in either unworkable institutions or arrangements that are seen as not legitimate or lack financial resources. Hence, the outcome of the Mainstreaming Project crucially established the foundation through mobilization and capacity building efforts from which appropriate institutional arrangements can be agreed. As the project terminated around the time of new government leadership this further allows the new government to benefit

from the individual and institutional capacity built to determine from an informed position the most appropriate governance institutions, including viable funding mechanisms. At the time of this evaluation, the matter was with the government department responsible for institutional matters for consideration and decision.

Finally, the activities surrounding this output had the beneficial outcome of preparing VPO-DOE, MoF and other MDAs for participation in the UNFCCC annual Conference of Parties (COPs) meetings. The Mainstreaming Project strengthened communication across the GoT regarding climate change issues and adaptations, which strengthened the preparation meetings and participation at COPs. The Mainstreaming Project brought increased activity to the NCCTC and the NCCSC, which are GoT institutions that meet in advance of the COPs to prepare the GoT position. As an example, the Mainstreaming Project facilitated pre-COP technical meetings that involved both NCCTC and NCCSC to establish government positions for COP 19 and COP 20 in Warsaw (Poland) and Lima (Peru) respectively. Similarly, after COPs, the project facilitated debriefing meetings to deliberate on the resolutions of the COPs and agree on a plan of action for the government's response in line with government's priorities and circumstances. The Mainstreaming Project also provided direct funding for some government officials to attend some COPs, increasing the number of well-prepared individuals representing the GoT, which in turn enhances the meaningful participation of Tanzania in the meetings. Meaningful participation at these crucial international meetings not only is linked to attendance at sessions, but also for key decision-makers to have the opportunity to speak informally with other key decision-makers. As one actor noted, "informal communications are so essential." Hence, from a governance perspective it is highly beneficial for the lead negotiator to have sufficient wider team support so that they can engage in both the formal and informal communications to best further national priorities.

3.2.4 Achievements of Output 4

Output 4: National Climate Financing Mechanism (NCFM) developed to support Tanzania to collect, coordinate, blend and account for climate finance

"Climate change is not an environmental issue – it's a development issue and we need to address climate change to progress development" (Actor 13).

Output 4 seeks to establish a NCFM for Tanzania to better access and implement climate change adaptation measures. It is worth noting that without a NCFM as of the start of 2014 Tanzania had secured approximately \$200 million in international finance commitments with approximately \$400 million forthcoming. Of these resources more than 80% are from local development partners and some access to UNFCCC funds.³ Hence, while it is still possible to

³ Despite this success, securing adaptation funding continues to be a persistent challenge and current funding levels do not reflect the need. A conservative estimates in *Economics of Climate Change in Tanzania* (2011) indicates that at least US\$500 million per year is required to address current risks by reducing future impacts and building resilience to future climate change. Moreover, the study shows that the cost of adaptation increases rapidly in future years, raising to

access funds for climate change adaptation without a NCFM, the creation of a functioning NCFM improves governance of climate financing both through widening access to possible funding sources and, crucially, in governing the mechanism by which funds are managed for implementation.

Some progress was made towards the targets of Output 4. The process of developing the NCFM was more challenging than anticipated at the start of the project due to determining the appropriate institutional structures to offer flexibility, build appropriate capacity and strategic positioning for implementation of climate change finance. In addition, external factors such as the complexity of the accreditation process and the limited time and financial resources resulted in some targeted activities not being achieved. Nonetheless, given the starting point substantial progress was made towards the NCFM. The *Tanzania National Climate Change Finance Analysis* (2013) report and its review identified additional issues that needed to be addressed to operationalize the NCFM to deliver the NCCS and also the Zanzibar Climate Change Strategy (ZCCS).

Key activities that were implemented included establishment of a Secretariat at MoF responsible for coordinating facilitation of NCFM development processes, including organizing a multi-sector functional working group to guide the NCFM. Other activities included an information gathering session to Ethiopia, which has a functional NCFM, to learn about a sample design, establishment and operationalization of the NCFM. Lessons learned in Ethiopia informed the in-depth study *Toward implementing climate change action in Tanzania* (2014) that was conducted to provide practical recommendations on best options available for Tanzania for establishment of a functional NCFM. The study tour to Ethiopia also informed the MoF, VPO-DOE and UNDP report *Framework for a NCFM for Tanzania* (2014). The process of finalizing the establishment of the NCFM is still on-going at the time of this evaluation. The MoF has the purview of finance both on the mainland and Zanzibar so can address climate finance in both geographies in response to the NCCS and ZCCS.

Given the GoT priority to have the NCFM in place and based on feedback from various stakeholders consulted during this study, efforts to achieve this target would benefit from the following:

- 1) Complete activities in the Mainstreaming Project that were not implemented
 - a. Establish and operationalize the governing body for the daily oversight of the NCFM, including effective inclusion of women;
 - b. Further stakeholder engagement to achieve consensus on implementation arrangements;

US\$1 billion per year by 2030 under a business as usual scenario. It is further worth noting that as funding needs for adaptation and mitigation finance grow globally, so will competition for scarce resources and hence funders will need confidence that climate finance will deliver results. Tanzania will benefit from having in place a credible and robust systematic approach to planning and management of climate finance. In view of this, Output 4 of this project was designed to assist Tanzania to address this challenge by facilitating establishment of a robust NCFM to improve governance of climate financing.

- c. Facilitate governance of the political process for accreditation
- 2) Engage in activities recommended in reports and by stakeholders
 - a. Analyse governance structures given the resources available to administer the implementation of the mechanism;
 - b. Further progress details of the financial, technical and management of the functioning of NCFM;
 - c. Design management information systems positioning in the NCFM, including operationalization modality; and,
 - d. Support for establishing climate change finance mobilization strategy with targets linked to sector and LGA requirements;
 - e. Access to seed money to launch the NCFM⁴.

Although the accreditation process has not been completed, collaborative progress has been made including MDAs agreeing on May 27th, 2014 that the MoF would serve as the Implementing Entity for accessing funds from the GCF Secretariat. The VPO-DOE is the National Designated Authority (NDA). The GoT seeks to achieve readiness for all areas the GCF supports for both mainland Tanzania and Zanzibar; to date readiness has not been achieved.

At the same time as establishing the mechanism for climate financing, the project facilitated discussions and decisions on related financial institutions such as the National Environment Trust Fund (NETF)⁵ and the National Implementing Entity (NIE) for the Adaptation Fund. Through this project different sessions were held by the both the NCCTC and NCCSC as well as Project Steering Committee.

Accordingly, decisions were made on the way forward whereby NEMC was endorsed for accreditation as NIE for the Adaptation Fund, MoF was identified as explained above as the Implementing Entity for the GCF, while the VPO was engaged with the establishment and operationalization of the NETF as identified in the Environmental Management Act 2004. NEMC is progressing the lengthy and complicated accreditation process set by the Adaptation Fund, a challenge compounded by limited funds for building the required capacity, including financial management and reporting systems. The NETF was struggling to secure funds for capitalization.

Despite the various challenges that hampered the full achievement of this targeted output, the foundation is now in place with an informed view on the additional actions needed to establish the NCFM. The outcome has been positive in terms of mobilization and capacity building for understanding possibilities for climate finance and in identifying placing value on flexibility so that a wider range of potential climate finance sources can ultimately be accessed. From a 'good governance perspective' the outcome has substantially moved Tanzania forward towards the NCFM with the issue of climate finance being addressed systematically by the MoF and a topic of engagement with MoF, VPO-DOE, NEMC and the NCCSC and NCCTC. Further evidence of the positive achievements and the sustainability of the foundation the Mainstreaming Project created is that within MoF a new position focused on climate finance was created following the

⁴ Initially USD 400,000 seed money had been identified for launching the NCFM in June 2015.

⁵Which was created separately under EMA (2004).

conclusion of project. In addition, the institutional knowledge can be built on dynamically through this role because, notably, the individual seconded to work on the Mainstreaming Project was appointed to the MoF's new Climate Change Focal Point role and as an individual has extensive knowledge and experience from the Mainstreaming Project and is leading the efforts to establish a functional NCFM. The MoF is continuing to progress a climate finance agenda on both the mainland and Zanzibar; for example, it has recently released the publication *Scaling out devolved climate finance in Tanzania 2016-2020* (2016), which presents increasing climate resilience of vulnerable communities through mobilization and delivery of finance for investment in local adaptation initiatives.

3.2.5 Achievements of Output 5

Output 5: Improved level of information availability and awareness on climate change impacts, adaptation strategies, environmental laws and regulation among the general public and rural communities

The implementing partner for Output 5 was NEMC and this output achieved its targets and overall had a number of very positive outcomes.

3.2.5.1 Research and publications for climate change awareness

In cooperation with UNDP, NEMC undertook research that resulted in a well-presented publication: 'Evidence of climate change impacts on human settlements, health, energy and land sectors and benefits of investing in adaptation strategies' (2013). In 2013 NEMC and UNDP also produced the sector specific briefings for the agriculture, livestock, fisheries, human health, forestry and water resources. These publications provided a foundation for the capacity building work with the districts and were commented on by district officials as being "very useful". The Mainstreaming Project directly supported the production, publication and distribution of various publications and videos to: 1) provide capacity building information to districts and other stakeholders, including sector specific policy briefings; and, 2) awareness building materials about climate change amongst the wider public. Publications were produced in both Kiswahili and English. The inclusion of the Kiswahili publications and videos enabled a wider reach in capacity building and even included a 'comic book style' about climate change and adaptation in Kiswahili that is appealing to both adults and children with accessible visuals and dialogue amongst characters to convey information.

3.2.5.2 Capacity building for climate change adaptation in LGAs

If we can build capacity with people at a district level we can do wonders – Actor 8

Beginning in 2013, NEMC conducted climate change and adaptation capacity building in 33 districts of the 169 districts in Tanzania⁶. "For those reached, it was good" (Actor 8). The outreach consisted of NEMC delivering information about climate change and adaptation followed by district officials then applying the knowledge to identify locations in their district

⁶ As of 2012, so approximately 20% of the districts.

influenced by climate change and to consider possible adaptations. The three initial districts where NEMC conducted their capacity building work (Siha, Karatu and Magu) were monitored following NEMC's interventions and this demonstrated the positive outcome of enhanced capacity building across sectors in districts that participated. "Evaluation plans for climate change adaptation increased more than 80% in districts where NEMC conducted capacity building. To me that was a success because we could see results on the ground" (Actor 7). Because of limited budgets many of the adaptation plans developed were not implemented.

As part of this evaluation the Siha and Karatu districts were visited by Dr Mary Dengler with Mrs Blandina Cheche, Principal Environment Management Officer at NEMC, who had conducted the work in the districts for NEMC to determine the outcomes of the outreach work in the districts. The outcome of the Mainstreaming Project Output 5 at the district level was very positive with increased knowledge about climate change, adaptations and their application to localities. During these site visits it was evident that district officers in a range of sectors were not only aware of climate change but could articulate clear adaptation strategies by sector. For more details please see Annex 6 (Siha) and Annex 7 (Karatu).

The district officials conveyed that climate change adaptation is a very real and serious concern that directly affects livelihoods and that without adaptation in future livelihoods in these districts would be threatened. They noted that "climate change is not a secret – we communicate with each other and constituents what we are doing and what are our challenges." The very positive outcome of capacity building has the primary limitation that beyond the scope of the project there is a lack of funding to implement the adaptation plans developed by LGAs and that more districts were not included in the capacity building.

3.2.5.3 Wider outcomes for climate change adaptation in LGAs

Some of the officers who had participated in NEMC's capacity building had moved to other districts, which is a common practice in governance of LGAs. These individuals would take the knowledge from the capacity building with them to their new posts in other districts. This is an informal mechanism where more than the 33 districts that NEMC visited received some information about E&CC issues and adaptations. While beneficial, this is not as effective as a district focused visit by NEMC where information is first disseminated and then district officers collaboratively work to identify applications in their district. The information outreach materials produced by NEMC and the program they ran in the 33 districts has the beneficial outcome of increasing the knowledge base about E&CC issues and provided a foundation from which districts could develop adaptation strategies across sectors for on the ground implementation. The outcome could be enhanced through further outreach work by NEMC in more districts.

Also notable was how the NEMC outreach empowered key individuals at the district level to mobilize others. For example, in the Karatu district one of the few individuals who participated in the NEMC outreach work who still remains at the district is the DEMO. In terms of good governance, he demonstrates how a key actor can make a transformational change given the appropriate institutional structures such as, in this context, wider government mobilization. In his role as DEMO he shows clear leadership and championed the importance of district officers from different sectors together comprehensively considering how to integrate E&CC adaptations for the benefit of the development of the district. The DEMO works closely with the other

district officials who can each clearly articulate the impacts of climate change and appropriate adaptation strategies related to their area of responsibility. The crucial information from the NEMC work was shared with new district officers as they were appointed by the DEMO and the district plans made at the time of the capacity building have been collaboratively expanded and further progressed.

This suggests two possible future strategies for additional capacity building in climate change adaptations: 1) identify a best practice district in each region and focus on building capacity through pilot implementation projects that could then be visited by districts with similar challenges; and; 2) organize capacity building with DEMOS from all districts by region who are taught possible climate change adaptation strategies and also how to mobilize the other district officials. Nonetheless, there is undeniably benefit in having district level training sessions where all officers in a district can learn about climate change issues and adaptation strategies and then work collaboratively under the facilitation of NEMC to develop district level strategies.

3.3 Project Efficiency

The project was ambitious in terms of its inclusion of national to local scales of government and many sectors for capacity building as well as including the target of creating a functioning NCFM. The project required efficiency in order to effectively implement its different components, particularly in the context of the notable challenge of a 20% shortfall from the originally planned budget.

Responsibility for the achievement of the outcomes was assigned to three implementation partners (IPs) and funding for each component of the project was allocated directly to the relevant IP for each output. Overall, this was an efficient approach to: 1) allocation of responsibility to implement specific components of the project; and, 2) to fund the separate project components. This meant that each IP, under the governance of the Project Steering Committee, had some autonomy to proceed with implementing the components they were responsible for without being encumbered by their funding or activities being linked directly to the pace of activity to progress other outputs.

Overall, the financial arrangement adopted by the programme worked well and structurally precluded obstacles that might have been experienced through other arrangements. However, two financial limitations are 1) insufficiency of funds for originally planned activities; and 2) prioritization of allocation of available financial resources based on the 20% shortfall. The funding stream where the project was not fully funded at inception and then did not achieve the full amount of funding originally budgeted was identified by stakeholders as the most significant limitation of the project, restricting some of the ability to conduct planned activities despite running the project efficiently. One actor commented that this situation “created expectations that were not met. It did not generate credibility that the project required” (Actor 10).

The lower level of financing available limited planned activities. For example, there was not the budget to implement the four planned pilot projects (Output 1). However, UNDP and GoT were resourceful in finding resources. Three of the four planned pilot projects to address risk vulnerability and climate change impacts in agriculture, forest and livestock sectors were implemented with money from UNDP’s ‘small grants’ funds. The use of an alternative method

to fund these projects shows innovation and flexibility on the part of UNDP and its partners but the timing of the implementation was delayed due to the initial uncertainty of the funding from within the Mainstreaming Project budget. Similarly for Output 5, if there had been more funding NEMC had the capacity to have worked with more LGAs on mainstreaming climate change at the district level. The concern on prioritization of funding allocation relates to limited availability of funding to support establishment of accredited institutions required by various international climate financing mechanisms such as the Adaptation Fund and Green Climate Funds (GCF).

While overall this was an efficient governance approach, there were some points where this presented challenges. The development of a functioning NCFM had the outcome of additional capacity but the target output was not fully achieved. The early step in this process of determining which agency would be put forward to complete the lengthy application process for accreditation as NIE for the Adaptation Fund took longer than originally anticipated. It was decided through a bidding process where NEMC and the Commission for Science and Technology (COSTECH) submitted applications that NEMC would be put forward as the NIE for the Adaptation Fund. After NEMC was determined to be the best choice for seeking NIE accreditation the financial resources for Output 4 had already been distributed to the mainstreaming activities within MoF, which was simultaneously working on NIE accreditation for the GCF.

So, while NEMC received resources for LGA capacity building activities for Output 5 they did not receive financial resources to support their activities in furthering the arduous application process to become NIE. This meant that the Mainstreaming Project did not financially support NEMC in progressing the later stages of the complex NIE process for the Adaptation Fund. Although NEMC later secured some funding from other sources, the process took some time leading to delays in progress towards accreditation. This was partly a reflection of the reality that the initial process to select an agency for NIE was lengthy and overall the NIE accreditation process is more complicated than originally anticipated⁷. Notably, this also has been the experience of other LDCs for both the Adaptation Fund and the Green Climate Fund, as the accreditation process has been called ‘exceedingly painful’ (Lo, 2016). This possibly could have been mitigated by either doing some funding by outputs in stages linked to targets or raising some of the additional originally targeted funds for the project, which fell short by 20% from the original budgeting targets. Also, countries can still apply to the Adaptation Fund through a partner and Tanzania has been successful with this approach in the past, receiving \$5,008,564 in December 2011 for an adaptation project for coastal communities administered through UNEP.

To further build capacity as part of the Mainstreaming Project while the NIE accreditation process remains outstanding, an action that offers possible strategic complement would be an application with UNDP as the implementing entity for a specific adaptation project. This could be submitted to the Adaptation Fund as an interim strategic measure and yields an output of an additional implementation project on the ground that also offers the outcome of building

⁷ As of this evaluation report the East African countries that have a designated NIE are Ethiopia, Kenya, and Rwanda. <https://www.adaptation-fund.org/apply-funding/implementing-entities/national-implementing-entity/> [Accessed September 23, 2016].

additional capacity for GoT agencies through experience in the NIE accreditation process. As a priority we recommend that UNDP build from the successful foundation created by the Mainstreaming Project and support the GoT's ongoing efforts to achieve accreditation for both the Adaptation Fund and the Green Climate Fund.

In general terms, financial management systems applied by all the three IPs have been found to be of good quality, with availability of documentation concerning policies, procedures and practices for funds management. There were sometimes delays due to bureaucracy in the approval of funds, particularly at the VPO, which led to delayed starts of various activities including the demonstration projects.

3.4 Project Effectiveness

The evaluation by output indicated that some progress has been made towards the achievements of each target output. The most challenging was Output 4 as preparation of financing mechanisms for climate change proved to be more complex and also highly dependent on external factors. As discussed in Section 3.3, the outcomes from Output 4 possibly could have been more effective and efficient with some modifications to the process. Examples of possibilities include managing the NIE process in stages and also including an application to the Adaptation Fund by UNDP and the GoT implementing partner identified as the target NIE as further evidence towards demonstrating the GoT capacity in the accreditation process. This would have also increased the effectiveness of Output 4 because it could have had an outcome of receiving funding from the Adaptation Fund for implementing a tangible climate change adaptation project in Tanzania.

The extent of outcomes achieved has varied by output but overall the project was effective because it has made positive achievements to the desired outcome of building capacity for E&CC adaptation throughout GoT at the national to local scales of government across sectors. An interviewee commented that now, "in principle seeing reflections of mainstreaming in policy, in the sectors and how these can be reflected in implementation on the ground" (Actor 5). This comment reflects directly the stated UNDAF Outcome 1 of key MDAs and LGAs integrating climate change adaptation and mitigation in their strategies and plans. The strategic programmatic decision to address mitigation through the separate LECB project was beneficial for the mainstreaming outcome effectiveness because it allowed a focused effort on adaptation capacity building.

During project implementation in addition to programmatic design and leadership by UNDP the effectiveness of outcomes also was enhanced by the more mundane and practical support provided by UNDP. Examples include providing necessary equipment, such as laptops, and logistical support so individuals could attend meetings. Some additional low-level logistical support could have further enhanced outcomes. A specific example is that providing an additional vehicle could have allowed NEMC to conduct work in more than one district simultaneously, widening the number of districts that had capacity building engagement. Inclusion of this sort of material support should be budgeted strategically as these practical components may offer cost-effective measures that further the resulting outcomes.

3.5 Project Partnership Strategy

“The UNDP – we worked very well with them” (Actor 4).

The partnership strategy where the UNDP worked with three IPs in the GoT based on the targeted five outputs was widely seen by stakeholders as the best approach to achieve the desired outcomes. VPO-DOE was strategically the optimal GoT partner for Outputs 1-3 because this organization has the primary responsibility for leading E&CC policy in GoT, for example authoring the NCCS (2012). The partnership strategy itself was beneficial in terms of building capacity in key government institutions beyond the VPO-DOE. The selection of MoF as the partner for Output 4 was logical strategically to mainstream climate change within finance and accounting for national sector budgets, including both the mainland and Zanzibar. The desired outcome of having an operational NIE was not fully achieved during the process but this was not a reflection of the suitability of the partnership strategy. Some progress was made towards the capacity for this target output to be later achieved and further the MoF considered how to account for E&CC programs in the budgeting process. NEMC was an excellent partnership choice for the capacity building at the LGA level.

The UNDP partnership strategy was reflected in the financial arrangement where UNDP distributed funding to each of the three GoT implementing partners directly. This offered the benefit of the activities within the three GoT partners, under the guidance of the Project Steering Committee, having some financial autonomy in furthering their outputs. The one limitation to this approach is that it limited the possibility of some funding later in the implementation process being directed to NEMC to assist in their activities related to their capacity building work for the accreditation process to become NIE for the Adaptation Fund (see Section 3.3).

The UNDP partnership strategy included, in collaboration with the VPO-DOE, the selection of a Project Coordinator. The Project Coordinator had an employment contract with UNDP and was physically located in the VPO-DOE offices to run the project. Some stakeholders commented that for building capacity it would have been better if the individual had been contracted with the VPO-DOE for greater integration within the VPO-DOE. However, on balance, this overall arrangement used is logical and the most appropriate structural arrangement because the UNDP is partnering with three agencies and the Project Coordinator had to work amongst those three implementing partners and across sectors to manage the project. Even individuals critical of the Project Coordinator being employed by UNDP rather than the VPO-DOE concurred that this arrangement did not impede the implementation of the project; indeed there was benefit for the Project Coordinator to be situated at the VPO-DOE.

Overall the partnership strategy in the Mainstreaming Project was positive in terms of leading to targeted outputs and desired outcomes.

3.6 Project Human Rights and Gender Inclusion

In the first instance, the project concept, design and implementation furthers human rights because by including the local level of government the project allocates some resources to capacity building in E&CC adaptation at the human scale where implementation projects would

occur and provide direct benefit for livelihoods. Rather than focusing only on the national level of government, the inclusion of the local level of government furthers human rights by bringing knowledge about climate change directly to people through, in particular, NEMC's capacity building work. At the local level the DEMOs and officers of other sectors emphasized that people witness the effects of climate change but until the capacity building activities did not necessarily understand that it was linked to wider, global scale changes in climate. Having that knowledge, for example that the changes in rainfall patterns and pestilence negatively effecting agriculture are linked to what is happening in the wider world, beyond their locality, is in itself empowering knowledge; people can then recognize that some types of adaptations to these changes are not only beneficial, but also for ensuring future livelihoods, essential. Capacity building supports livelihoods, human right to education and human dignity in recognizing the changes observed have a wider cause beyond their locality. This allows local communities to then better engage with their district officers to consider what specific adaptation measures might be beneficial in their specific locality. The districts conveyed that the contextual knowledge about climate change made communities ask what they can do in terms of adaptation. District officials conveyed a sense of urgency; that adaptation actions needed to start to be addressed as without adaptation measures climate change effects would continue to compound and worsen the local economy and potentially the viability of the very survival of communities.

Sharing the knowledge about climate change through the project had the beneficial outcome of linking climate change mainstreaming directly with livelihoods at a scale of governance where adaptation measures are and will be implemented. Rather than offering top-down generated solutions the capacity building empowered district officials to identify potential solutions. The district officers shared with enthusiasm many potential project-based adaptations including some well-developed project proposals. However, the greatest limitation is the lack of funding for pilot implementation projects moving forward. Introduction of numerous implementation projects was beyond the scope of the Mainstreaming Project, but future climate change mainstreaming activities should seek to include more pilot implementation projects so that communities can have practical experience with implementation strategies and further progress on the ground. The two pilot implementation projects that occurred in Dodoma and the one pilot project in Mwanza directly benefited local communities, including women and families, and also offered the building of capacity to replicate similar projects in other localities in future.

The Mainstreaming Project had the outcome of empowering women with knowledge about climate change adaptation in multiple ways. Firstly, there were a number of women at high levels in leadership roles responsible for delivering the project, such as the work done by NEMC and the VPO-DOE. Secondly, women from different sectors at the national level participated in the capacity building activities and also some women at the district level. MALF was particularly notable in terms of female leadership amongst sectors because MALF's Environment Management Unit consists predominately of women, including a woman at the head of the Unit. MALF's Environment Management Unit engages in furthering projects in the sector that most directly effects community livelihoods across Tanzania. MALF's Environment Management Unit is well-organized in terms of integrating consideration of E&CC throughout its project development and implementation, which in turn has human rights benefits for livelihoods in communities, including for women and families. Through the Mainstreaming Project the capacity of these women to integrate E&CC adaptations in their professional roles

was increased, which also improves their potential for career advancement. This in turn offers a ‘ripple effect’ of benefitting women and communities at the local level in the future as on the ground projects that are informed by the additional capacity built by the Mainstreaming Project are implemented in the future.

3.7 Degree of Change

The Mainstreaming Project made a lot of difference. Mainstreaming environment issues had started and then this focused on climate change. Many avenues about climate change specifically opened as a result of this project. – Actor 15

The Mainstreaming Project was strategically deployed at a highly relevant time for enhancing capacity in E&CC in the GoT. The project coincided with mobilization of sectors to create the National Climate Change Strategy (2012) and to develop national climate change financing mechanisms as well as a time of increased variability in rainfall patterns so with heightened on the ground challenges with agriculture, livestock, and natural resources management, including wildlife conservation. The project design and implementation further enhanced parallel activities within the GoT that were supported by other organizations, such as DFID and DANIDA. Hence, the project was well-timed because it was able to further the existing mobilization process. For example, one interviewee commented that the “project added to the awareness that was already there and expanded it” (Actor 4).

There was a positive degree of change as a result of the Mainstreaming Project activities where capacity building in E&CC was enhanced through the UNDP interventions in partnership with VPO, MoF and NEMC. As it was timed to further existing mobilization, exact attribution of the degree of change as a result of the Mainstreaming Project is not quantifiable. Qualitatively stakeholders interviewed clearly expressed that the Mainstreaming Project made a positive difference in the degree of change of knowledge about environment and climate change issues and adaptation at the national and local levels and some foundational and fundamental progress towards the capacity for the NCFM. Progress towards the NCFM provides an excellent example of how the Mainstreaming Project was instrumental in embedding E&CC within institutional structures. For example, in the case of the MoF there is evidence of substantial change towards including E&CC in institutional governance through the creation of the permanent Climate Change Finance Focal Point position; notably, the key actor from MoF during the Mainstreaming Project was appointed to this new role responsible for strategically moving climate finance ahead at the MoF.

3.8 Project Sustainability

“It was useful and it still is because we are adapting to the reality of climate change” - Actor, 6.

The output of having increased capacity for climate change adaptation is not something easily quantifiable but the preponderance of evidence from the literature review, interviews and focus groups is that the outcome of increased capacity was substantially improved across sectors and at different levels of government. As the primary outcome of this project is increased capacity in

E&CC adaptation this enhanced knowledge and skills will be sustained and, ideally, continue to develop over time. This will be beneficial as further work is undertaken in the NIE accreditation process and as on the ground adaptation projects are developed, seek funding and are implemented.

To a limited extent capacity will continue to strengthen beyond the termination of the project as individuals who developed skills and gained knowledge from the project communicate with other individuals. As individual actors may change job roles they can bring the E&CC adaptation capacity to their new roles. A good example of this is at the district level where individuals relatively frequently move to a new role in a different district. While this informal continuation of capacity building is a positive outcome of the project outputs and administrative practices of career progression this alone is insufficient for continuing to build capacity in E&CC.

The need for additional capacity building exists, particularly at the district level and across sectors at the national level. Awareness of climate change issues and adaptations is an essential initial step that needs to be followed by a commitment to action in terms of actual implementation of adaptation strategies. “Having policy is one thing but also need to interpret [policy] into *action*” (Actor 9).

The Mainstreaming Project included the output of three pilot implementation projects that will provide sustained benefit in these localities and also offer adaptation project models for other communities with similar adaptation challenges. Such implementation projects build capacity, test potential implementation strategies in practice and offer ongoing benefit beyond the termination of the project. When educating people at the local district level and in communities about E&CC adaptation strategies there are multiple positive benefits in ‘learning by doing’ and ‘learning by seeing’ component in demonstration through practice. This occurs when the education component can be explicitly linked to the implementation of the community project. Following the foundation created by the Mainstreaming Project, future projects in E&CC adaptation capacity building would benefit from the inclusion of more pilot implementation projects.

Finally, the change in government at the conclusion of the project also has an effect on sustainability of the project outcomes as a new government will define its own agenda in terms of E&CC adaptations. The new government⁸ has a continued commitment to furthering E&CC adaptation strategies, including the NCCS (2012). For example, the Five Year Development Plan (2016/7-2020/21) promotes the inclusion of consideration of climate change in sectors as detailed in the NCCS (2012). Hence, the outcome of capacity building in E&CC adaptation remains part of the knowledge and skill set of government officials as policies are shaped, showing the applicability and resilience of the outcome of the Mainstreaming Project going forward.

⁸ Also known as 5th phase government.

4. LESSONS LEARNED

This section provides a summary of lessons learned from the Mainstreaming Project:

- 1) Building capacity in climate change issues and adaptations is a complex but necessary process that requires engagement across sectors and at different levels (national to local) of government.
- 2) The project itself was timely as it reinforced and furthered the existing efforts surrounding the creation of the NCCS (2012) and this enhances both the effectiveness and value for money of the project.
- 3) At the national level the opportunity to visit other LDCs and learn from their example was beneficial for building capacity and informing consideration of potential options for institutional structures to govern climate change in Tanzania.
- 4) The mobilization of the already existing NCCSC and NCCTC was an excellent approach for good governance of climate change adaptations as these institutions were already situated within government structures and it has the outcome of strengthened institutions that continue to be engaged in governance of climate change following the completion of the Mainstreaming Project.
- 5) The UNDP partnership strategy with the GoT to implement the project with three separate agencies made institutional governance of the project more complex but offered benefit for building capacity to meet the planned outputs.
- 6) When planning this ambitious multi-agency project that reaches from the national to the local district scale and across sectors there may have been some benefit to plan based on actual funds available rather than for intended funding. Continuing to seek funding while the project is in progress may be a stressor that is a distraction from the project implementation and delay some actual project activities.
- 7) Although the project was relatively short in duration it possibly could have been structured in two phases. This may have been useful from a funding perspective by using available funds at the start of the project for Phase I while raising funds for Phase II. This could have incentivized reaching clear interim targets that may have assisted in furthering progress on Output 4 in particular and also increased the number of districts visited in Output 5.
- 8) The funding arrangement where the three different partners had separate budgets had benefits because it gave each partner some autonomy in furthering their component of the project. One weakness with this approach was when NEMC was identified to be the NIE for the Adaptation Fund they did not then have resources to further this initiative. Perhaps if this had been designed as a staged project with phased implementation this could have been addressed both by having more funding available and the ability to direct some of the funds to NEMC to support the needed internal capacity building related to Output 4.

- 9) Inclusion of the MoF mobilization in climate finance is a very positive governance outcome of the Mainstreaming Project with demonstrated continued benefit through the creation of the Climate Change Finance Focal Point position. Notably, the same individual who was the responsible actor at MoF during the Mainstreaming Project was appointed as the new Climate Change Finance Point so from a good governance perspective valuable institutional knowledge from the Mainstreaming Project provides a foundation for continued development of climate financing in Tanzania.
- 10) The project had the positive outcome of supporting the building of capacity for climate change across government sectors and enhanced climate change governance capacity within the GoT.
- 11) Some sectors, like Agriculture (now linked to Livestock and Fisheries, e.g. MALF), were particularly impressive in their integration of climate change into planning and implementation. Sectors that already had some capacity were better able to mobilize as part of this process.
- 12) Sectors that particularly benefit the reduction of poverty, like Agriculture, demonstrated the most proficient capacity for incorporating climate change concerns and directly linking climate change governance strategies with furthering MKUKUTA-II development priorities.
- 13) Partnerships when building capacity and for implementation of adaptation strategies for climate change are important and should include the CSOs, NGOs and the private sector. This worked well in this project as CSOs were involved both in implementation of pilot projects, but also in the decision-making through participation in the Project Steering Committee and the NCCTC.
- 14) Communication of climate change adaptation projects to others could enhance awareness, foster capacity building through information sharing and enable strategic deployment of resources. Informal information sharing occurs now, for example some DEMOs use *whats app* discussion groups, but a central database of projects would offer benefit. Such a climate change adaptation reporting database could be presented in a website that perhaps could be supported by either a NGO or private sector partner.
- 15) The project's most notable outcome is the building of capacity within the GoT at the national down to the local levels across sectors. The inclusion of the district level outreach led to the positive outcome of knowledge and skills at the level where implementation occurs and offers direct benefit through adaptation strategies. As a result of the Mainstreaming Project and aligned efforts the GoT has furthered governance of climate change adaptation at the national level in terms of policy down to the local level for more informed and strategic 'on the ground' implementation.
- 16) At the local level communities have been witnessing evidence of climate change (change in rainfall both in timing and intensity, etc) that directly impacts livelihoods. Until the

capacity building activities there was not necessarily a realization that the local changes observed were linked to the wider global changes in climate. Capacity building was beneficial so that rural communities can contextualize the issue and then learn that adaptation measures are necessary and to begin to determine the best approaches for their locality.

- 17) Reaching out at the district level was a highly beneficial component of the project because it led to the outcome of local representatives from the different sectors working together to address climate change as a cross-cutting issue and developing locally appropriate adaptation strategies.
- 18) Demonstrations are very useful illustrations for building capacity at the local level and future work to mainstream climate change adaptation strategies would benefit from the inclusion of funding for implementing additional pilot adaptation strategies.
- 19) Key actors in some sectors became climate change champions and were essential for furthering the good governance of climate change in terms of building capacity and moving the process forward.
- 20) Inclusiveness of women was apparent in the project as some key individuals were women, including the majority of the Ministry of Agriculture's Environment Management Unit. Women are engaged in the issue of climate change and some serve in leadership roles.
- 21) The inclusion of the local district capacity building component was beneficial for the outcome of furthering human rights and addressing real issues of poverty alleviation.
- 22) Over the period of a multi-year project there is change of individuals in roles. In a capacity building project the outreach component still has benefit, particularly at the district level because as the district officers move to other districts they are able to bring that knowledge and experience about climate change with them.

5. CONCLUSIONS AND RECOMMENDATIONS

It is a start. Now climate change is mainstreamed. If there is another chance for further mainstreaming we need to implement issues identified as part of building capacity. – Actor 14

The Mainstreaming Project was an ambitious project that included capacity building activities across sectors and levels of government (from national to local). The timing of the project and the scope were both well-designed to empower the GoT to build capacity in creation of institutional structures for climate change adaptation, further NCFM and engage LGAs in designing cross-cutting locally appropriate adaptation strategies. Despite budget constraints, overall the project demonstrated substantial progress towards the attainment of targeted outputs and, crucially, had the meaningful outcome of progressing the institutional capacity for the governance of climate change adaptations in Tanzania.

Substantial progress has been made from the starting point of the Mainstreaming Project but within the GoT at both the national level and the LGA level there would be benefit from continued focused work on mainstreaming climate change awareness and adaptation strategies. A future project would benefit from similarly working with the three IPs for specific components. VPO-DOE is the appropriate IP for building national level institutional capacity for governance of climate change adaptation in policy and across sectors. The outcome across sectors is varied and there is scope for additional work with sectors towards integrating climate change adaptation in their planning. One of the mechanisms that enhanced the governance approach was that some key individuals in the VPO-DOE and other sectors became climate change champions and collaboratively furthered the Mainstreaming Project outcomes.

There was significant progress made towards establishment of the NCFM and it would be highly beneficial to further support the MoF in the final capacity building required to be accredited as the NIE for the Green Climate Fund. The amount of progress the MoF has made is notable given the baseline at the start of the project. As a priority it is recommended that a future project include supporting the MoF to take the final steps to become NIE and also towards developing an accounting mechanism to track climate change adaptation related expenditures within sector budgets. As NEMC was identified as the target NIE for the Adaptation Fund a project focused on furthering the NCFM should also allocate support to NEMC. As identified in the Mainstreaming Project document, there is benefit to the GoT to having the capacity to apply directly to climate change adaptation finance programs. However, as a possible interim measure towards demonstrating necessary capacity for MoF and NEMC to become NIE of the Green Climate Fund and the Adaptation Fund respectively, UNDP could consider that a follow-up project to the Mainstreaming Project possibly include as part of its program activities an application to the Adaptation Fund where UNDP is the Implementing Entity. The rationale for this as programmatic activity is as a strategy for further developing GoT capacity while at the same time obtaining funding for a strategic adaptation issue.

There is continued need for capacity building at the district level. Activity at this level is beneficial for furthering implementation on the ground where the impacts of climate change are making people's lives more uncertain. Intervention at the district level has the direct benefit of empowering local communities to improve their livelihoods and address poverty alleviation

through climate change adaptation strategies. Demonstrations enhance building capacity at the local level and future work to mainstream climate change adaptation strategies could benefit from the inclusion of funding for implementing additional pilot adaptation strategies as a component of the capacity building. Pilot implementation could include both: a) community scale implementation projects, such as the three that were implemented in Dodoma and Mwanza as part of the Mainstreaming Project where the local livelihood is transformed; and, b) low cost, small scale interventions that allow districts to experiment with identifying appropriate strategies for their specific locality. For example, in a future project to enhance capacity in climate change adaptation NEMC led outreach in each district could, perhaps in collaboration with MALF's Environment Management Unit, include provision of possible types of drought and/or pest resistant seed that the district could plant in experimental plots to compare in the locality. Another example could be planting sample plots of native trees near water sources or funding to compare different types of beehives in a locality. The capacity building activities would then include a practical action component. The sharing of information is beneficial and the opportunity for some type of relatively low-cost, small-scale pilot intervention as part of the capacity building at the district level would be of practical benefit to local communities as they then work to identify locally appropriate adaptation strategies.

Depending on available funding another possible future project design approach to enhance climate change awareness and capacity building at the district level could be to identify a district in each eco-region that could pilot potential strategies and then inform the practice of other similar districts. Following this methodology the pilot district characteristics would include 1) already demonstrating some capacity for planning and implementation of adaptation strategies; 2) demonstrated cross-sector collaboration; 3) presence of a well-informed and organized DEMO; and, 4) a willingness to share best practices with other districts. For example, a district like Karatu (see Annex 7) would have the capacity to implement pilot strategies and share knowledge with similar districts.

In terms of building institutional capacity for governance of climate change adaptation in Tanzania it is also of critical importance that the GoT have adequate preparation and representation at the annual COP meetings. Meaningful participation in these meetings positions Tanzania to best represent its national position and achieve policy objectives and adaptation funding opportunities. The GoT is extremely fortunate to have a few key actors in the global climate change negotiation arena who are well-respected leaders internationally and well-networked with other key decision-makers. Their continued participation at the COP meetings is strategically highly beneficial for the GoT and, indeed, other African nations. Their participation can be optimized through ensuring that they have an adequate team to represent the GoT in the meetings. There is benefit to the attendance at the meetings by individuals from some key sectors, like MALF and MEM, as well as the MoF. In addition, there is strategic benefit to sending some mid-level individuals from particularly the VPO-DOE and MALF to provide support to the key actors in the negotiation who can also gain practical experience about the dynamics of international climate change negotiations.

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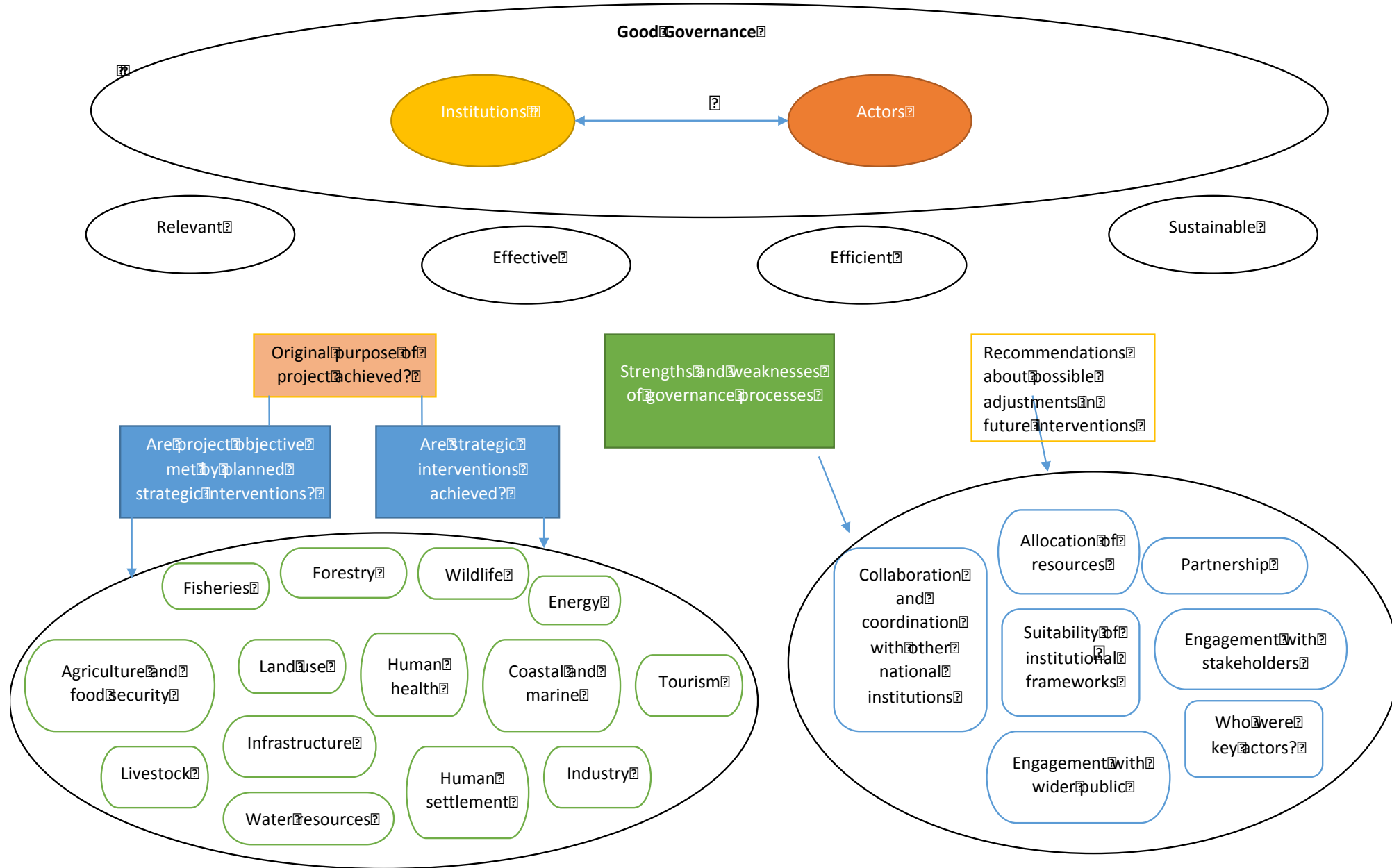
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ANNEX 2: INDIVIDUALS INTERVIEWED

Surname	First name	Affiliation	Interview	Focus Group	Date
Akyoo	Dr Jacob Mesheck	Karatu District, Principal Veterinary Officer		X	Sept 16th
Bwoyo	Deusdedit	Ministry Natural Resources & Tourism, Coordinator, Private Forestry	X		Sept 9th
Cheche	Blandina	NEMC, Principal Environment Management Officer	X		Sept 5th
Chonjo	John	Siha District, Health Officer		X	Sept 15th
Cunningham	Aaron	UNDP, Program Analyst (Climate Change & Energy)	X		Sept 5th
Dabo	Awa	UNDP, Country Director	X		Sept 22nd
Deemay	Safari	Karatu District, Agricultural District Water Engineer		X	Sept 16th
Kaai	Papakinyi	Karatu District, District Education Officer (Primary)		X	Sept 16th
Kaaya	John	Ministry of Natural Resources & Tourism, Principal Wildlife Officer	X		Sept 9th
Kimwaga	Zahoro	Ministry Natural Resources & Tourism, Director of Tourism	X		Sept 9th
Kitogo	Abbas	UNDP, Programme Specialist (Energy, Climate Change & Extractives)	X		Sept 5th
Lukambuzi	Lilian	NEMC	X		Sept 5th
Makota	Dr Vedost	NEMC	X		Sept 5th
Malavanu	Tulizo	MALF-EMU, Environmental Officer		X	Sept 14th
Malozo	Mponda	MALF-EMU, Agriculture Officer		X	Sept 14th
Mariki	Stephen	Project Coordinator			Sept 6th
Massoy	Theresia	MALF-EMU, Livestock Officer		X	Sept 14th
Minde	Fina	Siha District, DEMO		X	Sept

					15th
Mrema	Winnifrida	Ministry of Energy and Minerals, Principal Environmental Officer	X		Sept 9th
Mrosso	Evarist	Siha District, Water Technician		X	Sept 15th
Mruma	Stanley	Karatu District, District Environmental Focal Officer		X	Sept 16th
Msemo	Albert Manimo	Karatu District, Statistician		X	Sept 16th
Mumwi	Bibiana	Siha District, Forest Assistant		X	Sept 15th
Muyungi	Richard	VPO-DOE, Director of Environment; UNFCCC Chief Negotiator for Tanzania	X		Sept 21st
Mwina	Dr Neloho	Ministry of Natural Resources & Tourism, Acting Director	X		Sept 9th
Ningu	Julius	VPO-DOE, Former Director of Environment	X		Sept 8th
Natai	Shakwaanande	MALF-EMU, Head of Unit	X		Sept 14th
Naftal	Jimreeves	MoF, Climate Finance Focal Point	X		Sept 26th
Paulo	John	Karatu District, Engineer		X	Sept 16th
Sendi	Lucy	MALF-EMU		X	Sept 14th
Sheuya	Zainabu	MALF-EMU, Agriculture Officer		X	Sept 14th
Silayo	Prof. Dos Santos	Tanzania Forest Services Agency, Acting Chief Executive	X		Sept 9th
Sulle	Felix	Karatu District, Community Development Officer		X	Sept 16th
Sulle	Wayda Peter	Karatu District, Agricultural District Crop & Irrigation & Cooperative Officer		X	Sept 16th
Tillya	Adelaide	Assistant Project Coordinator	X		Sept 22nd

ANNEX 3: THEORY OF CHANGE



ANNEX 4: MATRIX OF EVALUATION

Relevant Evaluation Criteria	Key Questions	Specific Sub-Questions	Data Sources	Data Collection Methods/Tools	Indicators Success Standard	Methods for Data Analysis
1. To what extent does the project mainstream environment and climate change adaptation in the context of the implementation of national policies and development plans?	1.1. Are project objectives met by the planned strategic interventions?	<p>1.1.1 Has the project objective of building capacity of Tanzania to adapt to climate change impacts been met?</p> <p>1.1.2 Has the project objective to enhance resilience of ecosystems to the challenges of climate change been met?</p> <p>1.1.3 Has the project objective to enable accessibility and utilization of climate change opportunities been met?</p> <p>1.1.4 Has the project objective to enhance participation in climate change mitigation activities been met?</p> <p>1.1.5 Has the project objective to enhance public awareness about climate change been met?</p> <p>1.1.6 Has the project objective to strengthen information management on climate change been met?</p> <p>1.1.7 Has the project objective to enhance institutional arrangements to adequately address climate change been met?</p> <p>1.1.8 Has the project objective to enhance mobilization of resources in particular to finance to address climate change been met?</p>	National Climate Change Strategy (2012) project objectives, project progress reports, other relevant documents, key stakeholders.	See reports with project results. Semi-structured interviews of key stakeholders. Site visits.	Identify examples where project objectives are met and where there are gaps.	Document review, TOC approach, compilation of data.

	1.2 To what extent are strategic interventions achieved?	1.2.1 Which strategic interventions by sector were successful? 1.2.2 Which strategic interventions by sector had weaknesses? 1.2.3 Are there omissions in strategic interventions? 1.2.4 Are the strategic interventions effective, efficient, relevant, sustainable and inclusive?	See Table 4 of Strategic interventions (pg. 54-75 National Climate Change Strategy, 2012)	See reports with project results. Semi-structured interviews of key stakeholders. Site visits.	Compare original strategic interventions identified with progress in different sectors. Identify best practices.	Document review, TOC approach, compilation of data. Identify best practice case studies.
2. To what extent does the project strengthen climate change governance?	2.1 How suitable are the institutional frameworks for climate change governance?	2.1.1 What institutions were developed to address climate change governance? 2.1.2 How did the institutions evolve during the project? 2.1.3 What institutions are in place to continue the work started with the project? 2.1.4 What new institutions could be created to address gaps in governance?	Project team, documents and key stakeholders.	Literature review and interviews with key stakeholders.	Identification of the social networks of governance.	Document review, TOC approach, grounded theory to map governance networks.
	2.2 Who were the key actors involved in climate change governance?	2.2.1 Who were the key actors who adopted leadership roles in the project? 2.2.2 Are there actors that could have played a more central role in the project?	Project team, documents and key stakeholders.	Literature review and interviews with key stakeholders.	Identification of the social networks of governance.	Document review, TOC approach.

	2.3 How has the project made use of collaboration and coordination with other national institutions?	2.3.1 Does the project situate climate change adaptation and mitigation in the context of national development priorities? 2.3.2 What have been the strengths and weaknesses of collaboration with other national institutions and international institutions? 2.3.3 Are there additional potential strategic opportunities for collaboration?	Project team, documents and key stakeholders.	Literature review and interviews with key stakeholders.	Identification of the social networks of governance.	Document review, TOC approach.
3. To what extent does the project engage stakeholders?	3.1 How does the project engage with key stakeholders?	3.1.1 How are the concerns and views of stakeholders included? 3.1.2 When conflicts arise amongst stakeholders how is an equitable resolution reached? 3.1.3 What are the mechanisms of collaboration amongst stakeholders? 3.1.4 Is project management and implementation participatory and does this contribute towards the project objectives?	Project team, documents and key stakeholders.	Literature review and interviews with key stakeholders. Site visits.	relevance, efficiency, effectiveness, sustainability.	Document review, TOC approach.
	3.2 How does the project engage with the wider public?	3.2.1 How is information about the project communicated to the wider public? 3.2.2 What and how are the key messages about climate change adaptation communicated to the public? 3.2.3 To what extent have disadvantaged and marginalized groups benefitted from work in mainstreaming climate change?	Project team, documents and site visits.	Literature review, interviews and possible focus groups. Site visits.	relevance, efficiency, effectiveness, sustainability.	Document review, TOC approach.

4. To what extent has the project offered financial value?	4.1 Have resources been allocated strategically to achieve outcomes?	4.1.1 Has there been economical use of financial and human resources? 4.1.2 Have the outputs been used by partner organizations in decision-making? 4.1.3 Do the results achieved justify the costs? 4.1.4 Are the monitoring systems in place helping ensure effective and efficient project management?	Project team, documents and key stakeholders.	Literature review and interviews with key stakeholders.	relevance, efficiency, effectiveness, sustainability.	Document review, TOC approach.
5. Has the UNDP partnership strategy been appropriate and effective?	5.1 How have partnerships affected the progress towards achieving outputs?	5.1.1 How does the UNDP interact with stakeholders? 5.1.2 What are the strengths and limitations of the partnerships formed? 5.1.3 What is the level of consensus amongst the UNDP and other donor organizations?	Project team, documents and key stakeholders.	Literature review and interviews with key stakeholders.	Identify partnerships formed and their strengths, limitations and overlaps.	Document review, TOC approach.

6. How sustainable is the project?	6.1 Are there social, political or economic risks that may jeopardize the sustainability of project outcomes?	6.1.1 Is stakeholder engagement and ownership sufficient that project benefits will be sustained? 6.1.2 Are lessons learned being documented and shared with others who can learn from the project? 6.1.3 Do the UNDP interventions have well designed and well planned exit strategies? 6.1.4 Are there limitations to the current legal frameworks, policies, governance or processes that may undermine the long term sustainability of project benefits? 6.1.5 Are there environmental risks that may jeopardize the sustenance of the project outcome? 6.1.6 Are there recommended modifications to the current partnerships to promote long-term sustainability of project outcomes?	Project team, documents and key stakeholders.	Literature review and interviews with key stakeholders. Site visits.	Identify partnerships formed and their strengths, limitations and overlaps.	Document review, TOC approach.
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Annex 5 MALF Environment Management Unit as a best practice example of integration of climate change adaptation in sector strategies

These findings follow from document review and a focus group with MALF-EMU officials and Dr Mary Dengler on September 14th at the ministry. MALF-EMU emphasized how the VPO-DOE is the “national custodian of climate change issues” and they have invited other sectors to engage in moving governance of climate change issues and adaptations forward. MALF (formerly until the change to the new government known as the Ministry of Agriculture, Food Security and Cooperatives) is responsible for the sector that is the foundation of Tanzania’s economy and has been involved in considering adaptation strategies since 2007, beginning with engagement with NAPAs. Prior to that time Tanzania had been experiencing drought, short rains, and an increase in pests and diseases. The Ministry of Agriculture, Food Security and Cooperatives had concerns from the perspective of the local knowledge of the farmers and the ministry had to respond. It was following the NAPA process that the ministry realized that the changes being reported from local knowledge were linked to climate change and it was essential to identify adaptation strategies.

As the VPO-DOE led the progression of the national government dialogue about climate change there was movement from NAPAs to mobilization for creating the NCCS (2012). The ministry was “involved from the beginning” and there was a realization of the “need to mainstream climate change in programs, plans and budgets.” Within the ministry mainstreaming started with the *Tanzania Agriculture and Food Security Investment Plan* (2011), which was also linked to disaster management and climate change, and put in place measures for food security and increased resilience to climate change. At that stage, when ministry officials referred back to Ministry of Agriculture and Livestock policy created in 1997, they “realized issues related to climate change were not captured. We had to review the agriculture policy in 2013 to incorporate issues related to climate change and to put in place adaptation measures for climate change.” This example illustrates how the governance of climate change issues within sectors is a process and that the initial capacity building came with a realization of the need to modify the baseline governance guidelines to incorporate the range of activities related to climate change. Individuals at the MALF-EMU further noted that the implementation of EMA (2004) included mainstreaming for environmental issues.

The Environment Action Plan for the sector also included dissemination of climate change information to local districts so MALF was also doing outreach about climate change and agriculture to districts in complement to the project specific work by NEMC through the Agriculture Sector Development Program-I. MALF-EMU officers noted that this work used some of the materials created by UNDP and NEMC through the Mainstreaming Project and that they supported the idea of building capacity first as a mechanism for change in agricultural practices. As was also noted in evaluation focus groups with the Siha and Karatu districts (See Annexes 6 and 7) farmers can articulate changes in their locality from the last ten years such as rainfall patterns, drought, increase in pests and diseases; this made it easier to engage with them about climate change. Rather than talking about changes that are happening “what is more interesting to them is *how* to overcome these challenges.” They specifically want to know “what works for me?” Hence, making blanket recommendations is less useful as there is variation based on the different agricultural zones of production. As a

way forward it would be beneficial to do further work to determine which *specific* adaptations are most suitable to different localities. The MALF-EMU also noted the benefit of working with other institutions and NGOs to work with farmers directly as their role focused primarily on working with district officers rather than at the village level.

In 2014 MALF released its *Agriculture Climate Resilience Plan 2014-2019* which identifies strategies for agriculture to increase resilience to the effects of climate change. To respond to this and NCCS (2012) MALF has taken specific actions to increase the value of agriculture. One mechanism is to increase food security by reducing food waste by building 275 storage warehouses. The strategy of addressing post-harvest food security through deploying appropriate post-harvest technologies is a beneficial climate change adaptation that provides food resources for both people and livestock in times of drought. This initiative was explicitly linked to climate change adaptations when funded through the Big Resources Now (BRN) program. However, MALF-EMU officers noted that it is sometimes “challenging to convince people that it has a purpose for addressing climate change” as people are not thinking about the impacts of climate change and may simply see it as food storage without considering the food security or strategic implications.

Another climate change adaptation measure is to increase the efficiency of water use, for example through drip irrigation. They noted that one of the challenges is uncertainty. “We might plan for something and it doesn’t happen.” This may make stakeholders question the necessity of actions. Conversely, if plans are not put in place and there is a tragedy of loss of crops from flooding or drought then livelihoods are affected. There are benefits to longer time scales for comparison. “If compare five years ago to now then NGOs and others are better able to understand the role of climate change and the need to enact the climate resilience plan.” Nonetheless, “the situation [in terms of awareness and action] is much better than before because *now* people are worried about *what* to do about it.” There are many efforts that are dispersed but “through collaborating we can work together for coordination.”

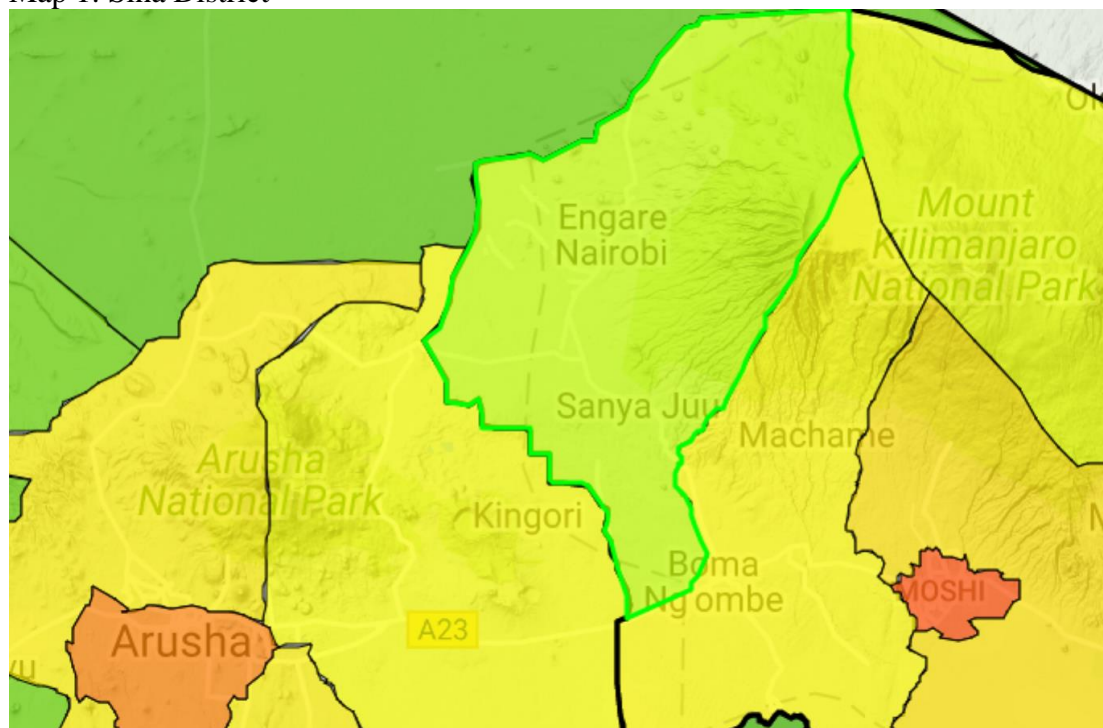
MALF-EMU emphasized the benefits of collaboration and communication in implementation of climate change adaptation strategies. Their feedback highlights the possible benefits of the following initiatives to strategically further climate change adaptation:

- 1) Recognizing the seven climate regions and the 64 different agricultural zones in Tanzania it would be beneficial to have a program that works on developing best practice adaptation strategies in the different regions and agricultural zones to enhance climate change resilience in a way that contributes to furthering the development of Tanzania; and,
- 2) Creation of a central database of information about climate change adaptation strategies that have been deployed in different locations. This would allow collaborative information sharing in a more systematic way so that as sectors or districts are designing new implementation programs they can be informed by past projects. The ideal database would be widely accessible by the national and local levels of government and allow project managers to input information directly.

Annex 6 The case of the Siha district

Siha is a rural district located in the Kilimanjaro Region. It is a very dry swath of land nestled between Kilimanjaro National Park and Arusha National Park (Map 1). The population of Siha District as of 2012 was 116,313 people.

Map 1: Siha District⁹



The focus group in Siha consisted of the district environment management officer (DEMO), water officer and forest assistant and health officer. The Siha district had experienced “a lot of impacts [of climate change]. For three years Siha has seen the impact of drought.” They noted that the rainfall patterns had demonstrated a change in the rain timing and intensity; in the past it would rain from February – April but in recent years the rains started later (April or May) and when it rained it would be with greater intensity, causing soil erosion and flooding. The district officials commented that for climate change in their locality, “you can see the impacts, really.” Before the NEMC capacity building the local community was aware of local changes but did not know that it was linked to wider, global causes and trends; instead, the change in rains were sometimes linked to folklore where “the local variation of rain caused social problems.” The NEMC capacity building was beneficial for linking local changes to climate change and the need for adaptation so the local community could consider modifications to planting times, crops used and water management practices so there would be sufficient crops to harvest. The climate change awareness and capacity building helped provide an answer beyond folklore. “The only solution is to sit and share the knowledge with the local community about climate change and they can in turn share with other people.” The urgency of the need for appropriate adaptation solutions was emphasized as in Siha and other localities workable adaptations were a matter of survivability for the many communities

⁹ Map generated at: <http://www.citypopulation.de/php/tanzania-admin.php> [September 26, 2016].

reliant on agricultural production as the basis of the local economy. The work by NEMC was very beneficial in terms of “realizing what people see locally is linked to global concerns” (Actor 6).

Siha officers also talked about the practical challenges of implementing adaptation measures; the most substantial being adequate funding. Additional capacity building about climate change adaptation within the district was not possible after the project due to lack of funding. The extent to which funding was lacking was apparent when the DEMO commented that today there is not even an adequate budget to make photocopies of awareness building materials. This is partly linked to institutional structures where the environment department is new so there is not direct funding for E&CC and the funding is indirectly through projects in other sectors. District officials noted the benefit of E&CC initiatives, such as planting trees, being done in coordination with local NGOs. The environmental committees in villages were identified as useful organizations for district officials to outreach into local communities. These committees consist of elected members of the community, but they may not be well-informed about E&CC issues and would benefit from capacity building. The existence of awards from the national government as incentives was also noted but these also sometimes lacked funding to administer. Siha district demonstrated that the outcome of the mainstreaming project outreach was of positive practical benefit to LGAs in terms of awareness building about climate change and the identification of adaptation strategies.

Annex 7 Karatu District: a best practice case study for capacity building at LGAs

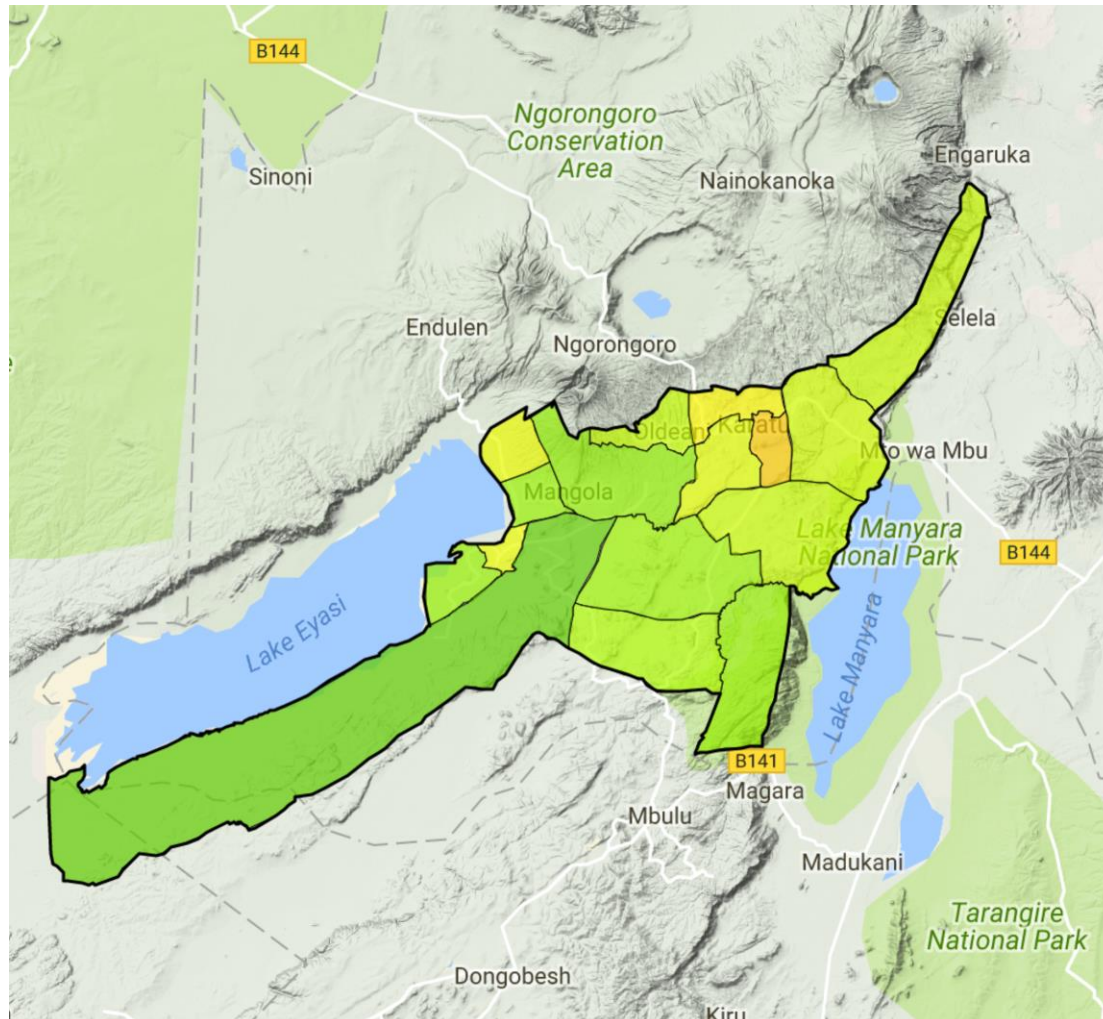
Karatu is one of seven districts in the Arusha region and consists of 14 wards with a 2012 census population of 230,166 people (see Map 2). The main economic activity is agriculture and it also has some economic benefit from tourism related to wildlife conservation. To the north the Karatu District extends into the Ngorongoro Conservation Area, to the point of the first visitor observation point and also includes part of Lake Manyara National Park and stretches along the southern shore of Lake Eyasi (see Map 2). Hence, the district includes three recognized wildlife corridors: 1) Ngorongoro Conservation Area to Lake Manyara National Park; 2) Ngorongoro Conservation Area to Lake Eyasi; and, 3) Ngorongoro Conservation Area to Magara, which extends further southward to Tarangerie National Park. Farmers have left specified wildlife corridors but with drought conditions linked to climate change wildlife extends beyond the recognized corridors. So within the district there is conflict between villagers and wildlife as the wildlife can enter villages and eat crops. The district relies on agriculture but also is very dry. Productivity of agriculture has diminished in recent years due to changes in rainfall pattern and the district is very vulnerable to the effects of climate change. The change in rainfall has resulted in a reduction of crop yield from approximately 30 bags per acre to 6-8 bags per acre.

Dr Mary Dengler and Mrs Blandina Cheche, who conducted the capacity building work for NEMC, met with district officers on September 15, 2016. The focus group meeting consisted of the DEMO, education officer, community development officer, veterinary officer, statistician, agricultural district water engineer, and the agricultural crop officer. The DEMO emphasized that because “climate change is a cross-cutting issue every department has identified some issues and possible adaptation strategies to climate change.” They indicated that they were thankful for the awareness raising support provided by NEMC, that they found the printed materials to be useful and the capacity building was instrumental in helping them consider adaptation strategically. As a result their district had identified “climate change impacts *specific* to different departments.” The ability of the different departments to clearly identify issues related to climate change and potential adaptations was impressive as was the knowledge of the different officers when discussing how they collaborated with other officers due to the cross-cutting nature of the issues and adaptation strategies.

The agriculture officer noted that climate change is mainstreamed through any agriculture or irrigation project through inclusion in the EIA and also that “the farmers themselves now talk about climate change”. As a day-to-day practice they emphasize farming systems that conserve the environment, such as avoiding soil compaction and using contour farming, drought resistant crops and appropriate irrigation techniques. In the past ten years there has been “a very big difference in rainfall patterns”. For example, in 2000, 2003, 2008, and 2009 there were no short rains between November – January, which meant the soil had drought conditions at the normal planting time. The long rains, typically from March – June, also had demonstrated noticeable change in pattern with uncertainty about when the rains will start and when the rains do occur they may be very heavy which results in flooding and soil erosion. While some information comes from the Tanzania Meteorological Association (TMA) now farmers are not guaranteed a clear time for planting and are uncertain of the best time to plant crops. Previously, when rainfall followed a consistent annual pattern all the seeds were planted by mid January. As an adaptation maize farmers now have mixed

cropping by planting pigeon peas between the rows of maize as an additional drought resistant crop that provides food and also helps to conserve soil moisture.

Map 2: Karatu District¹⁰



The livestock officer commented that the livestock was also very vulnerable to climate change and in coordination with the planning officer and agriculture had agreed a land use planning strategy to separate livestock pasture from croplands to avoid soil compacting. As an adaptation measure to conserve more limited water resources the district encouraged keeping fewer animals of higher producing capacity and also to manage pasture to store supplemental feeds to have adequate food in times of drought.

The water engineer noted that because of climate change there was a decrease in available water to the extent that the National Parks were sometimes piped water from the district for conservation. In coordination with the planning officer and other officers there were efforts

¹⁰ Map generated at: <http://www.citypopulation.de/php/tanzania-admin.php> [September 26, 2016].

to protect and conserve water resources through an integrated water management resources approach that included protecting uplands and planting more trees to bring up the water table. The district had also seen a shift from using surface water to accessing groundwater from deep bore holes. Another adaptation strategy was to increase rainwater collection that could then be used during dry conditions for domestic, livestock and irrigation uses.

The development officer detailed how the heavier rainfalls related to climate change had the impact of flooding causing damage to infrastructure like bridges, roads and drains. Grasses and trees are planted and contour farming is used as strategies to help reduce siltation.

The district has an annual goal of planting 1.5 million trees annually, but that due to funding limitations approximately 600,000 – 700,000 indigenous trees are actually planted each year. There are 30 tree nurseries in the district so the tree planting also generates local income. Each tree costs between 500 and 1000 Tanzanian Shillings. Karatu has made substantial efforts to promote tree planting involving everybody from individuals, farmers, and schools with every stakeholder having a responsibility to plant a specific number of trees by group. Some tree planting funding comes from the district and NGOs and there is support with tree seeds from the National Tree Seed Agency.

Cutting trees to make charcoal was previously the primary means of supplemental income to farming. Now, as an adaptation strategy to address climate change the district is working to conserve the trees and use them sustainably. A permit is now required to cut trees and those who cut without permits are subject to law enforcement. In the past 92% of cooking in the district was done by burning wood and there has been a shift to using more efficient stoves and also the growing use of biogas (cow dung) as a fuel source. In partnership with an NGO now more than 800 homes in the district use biogas instead of wood for fuel and the resulting slurry from biogas burning is then used as fertilizer in family vegetable gardens. An alternative type of supplemental income is bee-keeping, which also has benefit for crop pollination. Bees have also been shown to serve as a natural way to deter elephant encroachment into croplands. So bee-keeping offers a supplemental source of income that enhances crop pollination and can be situated strategically to deter elephants, which can offer multiple benefits to the Karatu district containing three recognized wildlife corridors.

The district officials in Karatu collaborate on adaptation strategies to optimize action with limited financial resources. Notably, one of the few individuals who participated in the NEMC outreach work and who remains employed at the district is the DEMO. He illustrates how a key actor can influence positive change within governance institutions. In his role as DEMO he championed the importance of district officials together comprehensively considering how to integrate E&CC adaptations for the benefit of the development of the district. The DEMO works closely with the other district officials who can each clearly articulate the impacts of climate change and appropriate adaptation strategies related to their area of responsibility. Information from NEMC's work was shared with new district officers as they were appointed by the DEMO and the district plans made at the time of the capacity building have been collaboratively expanded and further progressed. The most significant challenge is to identify funding so that the adaptation measures identified can be implemented.

The case of Karatu points to a few possible innovative directions for mobilization of resources for implementation of identified adaptation strategies in addition to funding through district agricultural programs and partnership with NGOs.

Firstly, in terms of capacity building through implementation of pilot adaptation strategies a well-organized district like Karatu could serve as a location in the eco-region where strategies are piloted and then disseminated to other similar districts. Following this methodology the necessary pilot district characteristics would include:

- 1) already demonstrating some capacity for planning and implementation of adaptation strategies;
- 2) demonstrated cross-sector collaboration;
- 3) presence of a well-informed and organized DEMO; and,
- 4) an ability and willingness to share best practices with other districts.

This would benefit both Karatu and other districts in the region more widely, build capacity at the local level for climate change adaptation strategies and result in ‘on the ground’ progress in implementing adaptation strategies in a manner where the information can then be shared more widely at the local level and replicated by other districts.

Secondly, the presence of the wildlife corridors in Karatu situate it as an ideal pilot location to test the use of bee-hives to manage on a large scale the demarcation of wildlife corridors, protect crops and villages from migrating wildlife while also providing an alternative livelihood for the local community. Using bees for natural management of elephant movements in wildlife corridors offers the community alternative livelihoods and is also beneficial as an anti-poaching strategy by involving local communities in good governance solutions. In the Karatu district along the wildlife corridor from the Ngorongoro Conservation Area to the Lake Eyasi basin the promotion of bee-keeping could specifically target the marginalized indigenous community of the Hadzabe Tribe who depend on tree roots, fruit and honey as their food and forest and shrubs as their homes. As a result they are vulnerable both to climate change due to diminishing food and shelter and also to elephant grazing in their communities.

Thirdly, a crop specific agriculture project that looks at water conservation and providing a reliable water source in the context of climate change adaptation could be undertaken in approximately 5000 hectares of the Karatu district. The onions produced by villages in the region – Jobaj, Mbuga, Nyekundu, Qangdend, Mangola, Barazani, Laghangarer, Dumechand and Maleckchand – are a primary provider for onions in Tanzania and also for export to nearby countries, including Kenya, Uganda, Sudan, South Sudan, Rwanda and Burundi. The continued viability of the onion production is threatened by flooding due to changing weather patterns linked to climate change and directly threatens a reliable livelihood for communities and revenue source within the district. A project to ensure reliable onion production in the future would integrate water conservation, protection of existing forest resources, and livestock management and offer an example of a multi-village adaptation approach instructive for managing other vegetable crops in other locations.