

## Climate Change Vulnerability and Adaptation Preparedness in Tanzania

Africa has contributed very little to global warming, but it will be affected severely by climate change. While the continent has a role to play in the mitigation of greenhouse gas emissions, Africa's major focus is on issues of adaptation. In order to address the challenges of adaptation to climate change, African countries need substantial financial resources. At the same time, they require information systems, technical capacity, and the right policies and institutions. The governance of climate change adaptation is as important as its finance.

This study gives an overview about Tanzania's efforts to address the challenges of adaptation to climate change so far. It provides information on existing policies and maps institutions and main actors in a rapidly emerging policy area influenced by a wide array of actors and interests.

The study constitutes a snapshot into the state of adaptation preparedness in East Africa, as at mid-2010. It shows what Tanzania has already achieved in this regard. But it also identifies "loose ends" and problems, many of which are similar and related to issues encountered in governance and development policy debates more generally.

This volume forms part of a series of three studies (on Kenya, Tanzania, and Uganda, respectively) commissioned by the Heinrich Böll Foundation's Regional Office in Nairobi, Kenya. The studies should be of interest to everybody working in the area of climate change in East Africa – to those who seek general information and orientation in the field, as well as to experts already working towards a sound response to climate change in the region.

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LTS Africa  
Nick Hepworth

**Climate change  
vulnerability  
and adaptation  
preparedness in  
Tanzania**

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LTS Africa  
Nick Hepworth

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## Preface

Africa has contributed very little to global warming, but it will be affected severely by climate change. While the continent has a role to play in the mitigation of greenhouse gas emissions, Africa's major focus is on issues of adaptation. In order to address the challenges of adaptation to climate change, African countries need substantial financial resources. At the same time, they require information systems, technical capacity, and the right policies and institutions. The governance of climate change adaptation is as important as its finance.

The provision of financing for adaptation has become a major issue in international climate policy. While the UNFCCC COP 15 in Copenhagen, in December 2009, did not arrive at bidding agreements, the "Copenhagen Accord" promises substantial finance in the years to come. At the same time, African countries have begun to establish and extend systems, institutions and policies designed to deal with climate change adaptation.

This study gives an overview about Tanzania's efforts to address the challenges of adaptation to climate change so far. It provides information on existing policies and maps institutions and main actors in a rapidly emerging policy area that is influenced by a numerous actors and interests. The study constitutes a snapshot into the state of adaptation preparedness in East Africa, as at mid-2010. It shows what Tanzania has already achieved in this regard. But it also identifies problems, many of which are similar and related to issues encountered in governance and development policy debates more generally.

The studies should be of interest to everybody working in the area of climate change in East Africa – to those who seek general information and orientation in the field, as well as to experts already working towards a sound response to climate change in the region.

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## Executive Summary

Human induced climate change is likely to have severe consequences for Africa and a great deal of political attention and discussion is focusing on what the countries of Africa need in order to adapt. Within these debates important questions surround the priorities for funding, the scale of funding required and the best ways to deliver the resources needed. This study explores these questions by examining the level of preparedness for climate change in Tanzania and considers the current level of scientific understanding of future change and vulnerabilities; the country's current socio-economic context; the range of actors involved, their capabilities, actions to date and future policies and plans. It also examines the level of awareness on climate change, the role played by Tanzania in international negotiations and the role and profile of gender empowerment in Tanzania's response. Based on this analysis the following set of headline findings emerge and these inform the series of recommendations which follow.

### Headline findings

Tanzania's economy, the wellbeing of its population and its recent, positive economic development trajectory are particularly vulnerable to climate change and this is evidenced by the widespread damage and hardships imposed by regular drought and extreme rainfall events under current climate variability.

The issue of climate change has risen up the political and development agenda in Tanzania over the past three years reflecting heightened global attention on the issue. The government, research and NGO community in

Tanzania are increasingly active on the issue and with the support of development partners, in particular the Norwegian, British and Danish donors, a major new research platform and coalition of NGOs working on the issues (Forum CC) have been established. In a recent stocktaking exercise by the donors, there were over 100 different ongoing initiatives concerned with some aspect of climate change in Tanzania.

With support from donors, Tanzania is well represented in global negotiations on climate change and the country has received international recognition for the priority it has placed on gender empowerment in its response. Further, there are ongoing efforts to embed consideration of climate change implications into the forthcoming National Strategy on Growth and Poverty Reduction though the issue is not yet incorporated into sectoral plans.

Despite these positive signs Tanzania is not well prepared for the challenge of adapting to climate change. The technical capacity and resources which exist tend to be tied up in serving the needs of the international agenda rather than actively planning and working to build Tanzania's domestic resilience. Current policies and plans on the issue, including the NAPA, are inadequate and this appears to partially explain the lack of international finance to support adaptation. Government coordination on the issue, within the Division of the Environment in the Vice President's Office, where responsibility for CC currently lies, suffers from a lack of authority, capacity and ability to influence across government.

The reach and efficacy of government in supporting the most vulnerable communities is weak irrespective of climate change and there are systemic problems with governance, public sector functionality and the efficacy of aid which must be negotiated and learnt from within efforts to prepare Tanzania for the challenges of climate change.

Although the donor community is committed to close collaboration and coordination under the Paris Declaration, coordination and leadership on climate change issues needs to be strengthened. In particular coordination and action need to extend beyond the donor group working on environment. Further, externally driven initiatives which threaten to fill the space of a more legitimate, Tanzanian owned response should be discouraged.

### Key recommendations

The current capability of Tanzania to adapt to climate change is severely limited. Above all, this work therefore underlines the urgency of a meaningful and binding global agreement to curb GHG emissions to minimize future climate change. The assumption that finance can simply be channelled to limit the impacts of climate change in countries like Tanzania is dangerous - the well documented difficulties of delivering development assistance in Africa are evidence of this. At the same time the social, economic and political imperatives for adapting to the climate change already set in train, and the potential for new and significant funding for this, demand action and radical thinking about how best to overcome the formidable challenges which climate change adaptation poses. To stimulate the Heinrich Böll Foundation's thinking on these opportunities the following recommendations are made:

- Tanzania needs, and should be supported to develop a new National Climate Change Policy and Strategy or 'new' NAPA which includes the screening of current and future sectoral initiatives.
- A national vulnerability assessment which delineates the geographical, sectoral and demographic priorities for support is required, ideally conducted with full ownership by the Tanzanian government and stakeholders. Irrespective of the uncertainties in climate change predictions, this will provide an objective basis for planning, fund allocation and performance monitoring - and will be a key tool in shaping a revised NAPA or climate change strategy.
- Coordination and leadership on climate change within and by the Tanzanian government needs to be strengthened. To balance, on the one hand, the need for a sustained high level of political attention on climate change-related issues, with the need for sound technical input and more efficient coordination, the disaggregation of responsibility for international negotiations from domestic adaptation planning should be considered. Under such a scenario, the Vice President's Office could retain its role in international negotiations but with

domestic planning mandated to some new entity or existing body with the required levels of authority and sufficient political influence to reach and drive change across government (such as the Prime Minister's Office or the Ministry of Finance and Planning).

- The climate change response in Tanzania represents an opportunity to undertake much needed targeted research and advocacy on the systemic problems and contextual solutions to the 'implementation gap' between government policy and action on the ground - a problem which Tanzania shares with many countries in sub-Saharan Africa. Such work can provide innovative thinking about how existing institutional arrangements and architectures - for example in environmental protection, agricultural extension, land planning, natural and water resource management and disaster risk management - which will play a major role in building resilience can be better supported to deliver - particularly for poor communities.
- A national or regional research, oversight and advocacy facility with the mandate to promote the responsible interpretation and use of climate science and change scenarios; track the costs, benefits, efficacy and outcomes of government, development partner and NGO effort and investment on climate change adaptation should be established and provided with financial and political support (or these roles conferred on existing organisations). Astute delivery of these functions is considered crucial within an effective response to climate change, to provide institutional incentives, promote integrity, transparency, and accountability, and to guard against overlapping, parallel or conflicting initiatives.
- Effort is needed to unlock the current dilemmas within funding debates and to reconcile the disconnects between adaptation financing expectations within government and donor communities. Compromise models which overcome the inadequacies of current Official Development Assistance (ODA) and innovative modalities of adaptation finance support mechanisms should be developed, deliberated and tested.

- The Private Sector is yet to be meaningfully engaged on climate change issues in Tanzania, although this is a crucial element of any effective response. This could usefully be initiated through a national or regional conference on the opportunities and challenges facing the private sector presented by, for example, adaptation and 'green' technologies, climate finance investment and private sector support for weather indexed insurance.
- Support is required to ensure that the climate change response in Tanzania moves beyond merely gender inclusion, towards gender empowerment through (and for) effective climate change adaptation, through for example by targeting work with women's groups, farming cooperatives, rural development, or economic empowerment initiatives .



## Acronyms

ASDS	Agricultural Sector Development Strategy
AU	African Union
CC	Climate change
CCA	Climate Change Adaptation
CDM	Clean development Mechanism
CEEST	Centre for Energy, Environment, Science and Technology
CIDA	Canadian International Development Agency
COP	Conference of the Parties - to UNFCCC
COSTECH	Commission for Science and Technology
CSO	Civil Society Organisation
DANIDA	Danish International Development Assistance
DFID	Department for International Development
DoE	Division of Environment
DP	Development Partners
DPG	Development Partner Group
DPG-E	Development Partner Group-Environment
DRR	Disaster Risk Reduction
EIA	Environmental Impact Assessment
EISP	Environment Implementation Support Programme
EMA	Environmental Management Act
ENSO	El Nino Southern Oscillation
GBS	General Budget Support
GBS-PAF	General budget Support Performance Assessment Framework
GEF	Global Environmental Facility
GoT	Government of Tanzania
GCM	Global Circulation Model
GEF	Global Environment Facility
GDP	Gross Domestic Product
GHG	Green House Gas
HBF	Heinrich Böll Foundation
HDI	Human Development Index
HEP	Hydro-Electric Power
IFRC	International Federation of Red Cross and Red Crescent Societies
IDGE	Informal Discussion Group on the Environment
IDRC	International Development Research Centre
IFAD	International Fund for Agricultural Development
IIED	International Institute for Environment and Development
IPCC	International Panel for Climate Change

IUCN	International Union for Conservation of Nature
INGO	International Non-governmental organisation
IWRM	Integrated Water Resource Management
JAS	Joint Assistance Strategy
JAST	Joint Assistance Strategy, Tanzania
JICA	Japan International Cooperation Agency
LDC	Least Developed Country
MAFC	Ministry of Agriculture, Food and Cooperatives
MEM	Ministry of Energy and Minerals
MDGs	Millennium Development Goals
MKUKTA	National Strategy for Poverty Reduction and Economic Growth
MoWI	Ministry of Water and Irrigation
MNRT	Ministry of Natural Resources and Tourism
MoF	Ministry of Finance
NAPA	National Adaptation Programme of Action
NEMC	National Environment Management Council
NCCF	National Climate Change Focal Point
NCCTC	National Climate Change Technical Committee
NIMP	National Integration Master Plan
NGO	Non-governmental organisation
ODA	Official Development Assistance
PMO	Prime Minister's Office
PRA	Participatory Rural Appraisal
RCM	Regional Circulation Model
REDD	Reducing Emissions from Deforestation and Degradation
SAM	Social Accountability Monitoring
SEI	Stockholm Environment Institute
TA	Technical Assistance
TANDREC	Tanzania Disaster Relief Committee
TI	Transparency International
TFS	Tanzania Forest Services
TMA	Tanzania Meteorological Agency
TNRF	Tanzanian Natural Resources Forum
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
VPO	Vice President's Office
WFP	World Food Programme
WHO	World Health Organization
WSDS	Water Sector Resources Forum



# One: Introduction

National economies, livelihoods and social wellbeing across Africa are highly vulnerable to climate variability and the additional challenges imposed by human induced climate change are likely to be formidable. Adequate funding and technological assistance to build resilience and support adaptation are required, and appropriate institutional arrangements are needed to facilitate this, possibly under a legally binding framework. Outstanding questions remain concerning the key vulnerabilities and priorities for support, the scale of funding required, the best ways of administering support and the optimum design of effective, accountable and transparent 'adaptation governance'.

In order to address these questions, to respond to demands for adaptation finance and support goal-oriented administration of these funds from an informed stance, the Heinrich Böll Foundation (HBF) Nairobi have commissioned case studies in Kenya, Uganda and Tanzania to evaluate these countries' state of preparedness for climate change adaptation. This report is the output of that work for Tanzania. It provides:

- a profile of climate science, key impacts, vulnerabilities and adaptation priorities (Chapter 2);
- a review of policy documents and a critical evaluation of their genesis, adequacy and relevance (Chapter 3);
- an overview of the legal framework in respect of climate change and the degree to which mainstreaming of climate change issues has occurred (Chapter 3);

- a review of the main actors, organisations and institutions, their responses and their capacity and efficacy in implementing adaptation policies (Chapter 4);
- a review of the main trends within public debates and levels of awareness about climate change within the public sphere (Chapter 5);
- a summary of the interfaces with international climate change negotiations and the role played by state and non-state actors (Chapter 6);
- an analysis of the way the gender dimensions of climate change are reflected in adaptation actions, actors, plans and their genesis (Chapter 7);
- a 'gap analysis' and suggestions to guide HBF engagement at a national and regional level on climate change (Chapter 8).

The methodology incorporated desk study and review of literature, triangulated through face-to-face interviews with key informants and attendance of stakeholder meetings on climate change in Tanzania between February and April 2010. Sources included government, NGO and development partner reports, policy documents and peer reviewed research, and informants included key individuals within government, non-governmental organisations, academia and development partners.

Given the limited time available to meet the growing number of actors working on climate change in Tanzania, this study does not claim to be comprehensive. Rather, it draws on discussions with key players in Tanzania, a critical review of policy documents and related research conducted by the author in Tanzania from 2004-2010 to provide an insightful and contemporary account of Tanzania's preparedness for climate change adaptation as of 2010.

## Two: Tanzania and its Changing Climate

To contextualize later discussions, this chapter provides an overview of the socio-economic situation in Tanzania, current scientific understanding of climate change, key vulnerabilities and adaptation priorities.

The National Strategy for Poverty Reduction and Economic Growth 2005-10 (known as MKUKUTA in Swahili) has been Tanzania's main policy instrument for stimulating poverty reduction, aiming to deliver high and shared growth, high quality livelihoods, peace, stability and unity, good governance, high quality education and international competitiveness. It is committed to attaining the Millennium Development Goals (MDGs), and their targets on poverty reduction, hunger, disease, illiteracy, environmental degradation and discrimination against women by 2015<sup>1</sup>.

Since 2000 the Tanzanian economy has consistently achieved growth rates above 5% per year, up from an average of 3% per year in the late 1990s. The GDP per capita of Tanzania grew by more than 40% between 1998 and 2007 and GDP growth stood at 7.46% in 2008 despite the onset of the global economic downturn<sup>2</sup>. Significant progress has been made in increasing school enrolment, reducing the gender gap in schools and improving levels of literacy.

However, Tanzania remains one of the world's poorest and least developed countries with the Human Development Index (HDI) placing it 151st out of 182 countries. To put Tanzania's development status and fledgling economy into perspective a selection of HDI

1 Mkukuta 2005

2 World Bank, World Development Indicators

metrics have been presented against those from Germany in Table 1.

Amongst many difficult challenges, population growth, underemployment, poor health, HIV/Aids, low investment, a reliance on primary production, shortage of skills and difficult governance issues continue to undermine development efforts. Average life expectancy is only 45 years. Donor dependence remains high with Official Development Assistance (ODA) grants accounting for around 40% of total government expenditure. Good governance is facing increasing challenges with a recent sharp decline to a rank of 126th of 180 countries in Transparency International's (TI) Corruption Perception Index<sup>3</sup>.

There is also a growing disparity in poverty levels - the Gini Index of inequality is increasing - with large regional differences between rural and urban populations. Despite consistent economic growth over the past 15 years, 97% of Tanzania's 41 million people still live on less than \$2 a day. The number of Tanzanians living below the national poverty line has decreased by only 5%, from 39% in 1992 to 34% in 2006<sup>4</sup> despite an almost doubling of GDP.

Agriculture, 95% of which is rain-fed supports the livelihoods of two thirds of Tanzanians, employs 80% of the rural workforce and accounts for 46% of GDP<sup>5</sup>. 90% of Tanzania's energy is derived from wood and biomass fuel and only 5% of the population have access to the electricity grid. At a national level there is a very heavy reliance on hydro-electric power (HEP), with around three quarters of the nation's electrical power generated by HEP<sup>6</sup>.

As indicated in Figure 1 these social, environmental and economic contexts tie Tanzania's growth and poverty reduction efforts closely to climate and rainfall, and makes it highly vulnerable to climate change.

3 Transparency International 2009

4 Human Development Report 2009, United Nations Development Programme, New York.

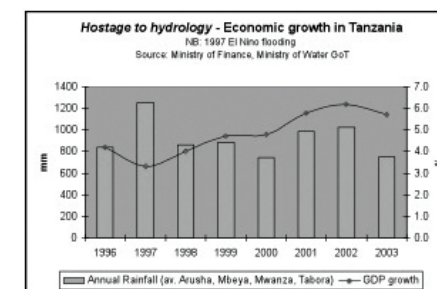
5 Hepworth and Goulden 2008

6 Proportion of power supplied by HEP varies from 63% to 79% depending on source.

Table 1. Tanzania at a glance: key development indicators from Tanzania and Germany<sup>7</sup>

Country	Total Population (millions)			Annual pop. growth (%)		Urban pop (%)		ODA per cap US\$	Ad. lit. (%)	% not using impr. water source	% living on less than \$2/day	GDP per cap (US\$)	Ann. GDP growth (%)	Gini Index (b.)	Gov. spend on health per capita (US\$)	Public spend on edu. per pupil (US\$)	Life ex-pet. at birth
	1990	2007	2020a	1990-1995	2005-2010	1990	2007	2007	2007	2006	2000-2007	2007	1990-2007	1992-2007	2006	2006	2007
Germany	79.4	82.3	80.4	-0.1	-0.2	73.1	73.8	..	..	..	..	40324	1.4	28.3	2,548	4,837	75
Tanzania	25.5	41.3	59.6	2.8	3.0	18.9	26.2	69	72.3	45	96.6	400	1.8	34.6	27	-	45

Figure 1. The relationship between economic growth and average rainfall at selected stations in Tanzania (Hepworth 2010).



### 2.1. Climate variability in Tanzania

Natural climatic variability, its impacts and governance response carry important lessons for assessing Tanzania's preparedness for anthropogenically induced climate change, and an understanding of climate variability in Tanzania provides important context for discussions within this study.

East Africa's climate is naturally dynamic with high

7 Human Development Report 2009. a. Estimates are based on various sources and are associated with high levels of uncertainty. b. The Gini index is a measure of a nation's social equity and lies between 0 and 100. A value of 0 represents absolute equality and 100 absolute inequality.

temporal and spatial rainfall variability. Some variability can be explained by large scale oscillations in atmospheric and ocean circulation - in particular the El-Nino Southern Oscillation (ENSO) and less well known events such as the Indian Ocean Dipole reversal. Research linking rainfall variability in East Africa to ENSO and sea surface temperature variations in the Indian and Atlantic oceans suggests that extreme events occur regularly at cycles of approximately 2.3, 3.5 and 5 years<sup>8</sup>.

However, as in other countries in the region, there is a perception, reflected in grey literature such as the NAPA that the frequency of extreme events is increasing and that this is due to anthropogenic climate change. Similarly, there are a growing number of studies which draw on relatively short records of rainfall (30-40 years) to attribute observed variation or downward trends to human induced climate change. However there is little published peer-reviewed literature on recent trends in extreme events and rainfall in East Africa, and analysis of available records shows no clear change in the frequency of droughts, but finds that droughts tend to occur regularly in East Africa<sup>9</sup>. In addition the short historical rainfall record available means that identifying trends with any confidence is difficult. At the same time, as will be explored, there are risks in attributing what could be natural variability to human induced climate change.

Existing climate variability has significant socio-

8 Hepworth and Goulden 2008

9 Goulden 2006

economic impacts in Tanzania, in particular through floods, droughts and changes in seasonal rainfall. Periodic floods and droughts bring widespread infrastructure damage, displacement, erosion of livelihood assets and food insecurity. Most recently in January 2010, unusually heavy rainfall associated with the current El Nino event saw widespread flooding in Morogoro and Dodoma Regions which lead the International Federation of Red Crescent and Red Cross Societies to launch an emergency appeal for US \$1.6 million. Kilosa District was particularly badly hit with 50,000 people affected, 28 000 forced to vacate their homes and 10 000 people homeless. Water and sanitation infrastructure and roads were badly damaged, with large areas of farmland flooded<sup>10</sup>. Drought has also taken a heavy toll in 2009 with pastoralist villages in the north of the country losing up to 80% of their herds<sup>11</sup>.

Changes in rainfall reliability, onset and cessation cause crop failure and hunger, exacerbated by other stresses such as land degradation and insecurity of land tenure. As suggested in Figure 1, rainfall variability has major implications for the economy. Drought in 2005/6 contributed to low water levels at key HEP installations and led to severe power shortages throughout the country and is reported to have reduced GDP growth by 1 to 2%<sup>12</sup>. An indirect consequence of these climate impacts is increased pressure on other natural resources such as fisheries, wetlands and forests, the latter suffering from encroachment and deforestation leading to increased soil erosion as people turn to charcoal, fuelwood and agricultural expansion as coping strategies.

## 2.2. Climate trends and future scenarios

Within the noise of naturally variable climate, scientists have detected a gradual warming and wetting trend in East Africa over the past 100 years 17 of about 0.5 °C and 10-20% respectively. Exceptionally wet years at the beginning of the 1960s are largely responsible for this increase in average rainfall and these changes cannot be attributed to human induced global warming with any certainty.

Future climate scenarios have been developed based on

<sup>10</sup> International Federation of Red Crescent and Red Cross Societies 2010 <http://www.ifrc.org/docs/appeals/10/MDRT2010EA.pdf>  
<sup>11</sup> Pers comm.. Director of Planning, Department of Livestock  
<sup>12</sup> ECA 2009

the results of modelling which attempts to predict future climate based on historical behaviour with adjustments made to reflect various green house gas (GHG) emission scenarios. There are few regionally downscaled models for East Africa or Tanzania and those that exist have embedded uncertainties, in part because of the limited temporal and historical coverage of climate observations. There is an increasing demand for regional scale seasonal forecasts and decadal scenarios from decision makers but care should be taken in communicating the uncertainties in these products. The latter are often inferred from models operating over much longer time scales which inadequately capture decadal variability<sup>13</sup>. As well as highlighting a need for scientists and decision makers to be able to communicate and work under uncertainty this flags the importance of improving the coverage and quality of the hydro-meteorological data sets needed for regional modelling.

Available studies and climate models give variable results for future rainfall trends but there is certainty in the picture they provide for future temperature. The IPCC Fourth Assessment Report provides a comprehensive review of climate model projections for different regions in Africa<sup>14</sup> focusing on the change in climate between the period 1980–1999 (to represent the current climate) and 2080–2099 (to represent the future)<sup>15</sup>. Table 2 draws from this assessment and summarises the main changes in temperature and precipitation between present and future periods for the East African region. Results are presented as changes in mean temperature and precipitation for the mean of all the climate models and their range.

These climate models show a consistent response in both mean annual and seasonal temperature change in the region, projecting warmer conditions of +3.2°C for East Africa by the 2080s. If global GHG emissions remain high then we are more likely to see temperature increases in the top end of the range shown, up to +4.3°C. There is also consistency amongst models in projecting

<sup>13</sup> Conway 2010

<sup>14</sup> Based on a set of 21 models from their Multi-Model Data (MMD) set using the A1B emissions scenario Emissions scenario A1B represents a mid-range emission profile for a future world scenario characterised by rapid economic growth, a global population that peaks in the mid-21st century with a balanced use of fossil and non-fossil fuel energy sources (Nakićenović & Swart, 2000). Although A1B has been chosen as a "best-guess" scenario, by 2007 there were indications that we had already exceeded both this and the higher emissions scenarios used by the IPCC (Raupach et al., 2007).  
<sup>15</sup> Christensen et al. (2007) in Goulden et al. 2009.

wetter conditions in East Africa, by as much as +7% by 2080<sup>16</sup>. However more recently produced scenarios using downscaled models for East Africa suggest that Central Tanzania may see a drying trend<sup>17</sup>, but the uncertainties in these models are believed to be large. Table 2 has been supplemented to provide some best estimates of how temperature will change by 2020, and although the models point to an increasingly wet climate, cautiously no predictions are given for the magnitude of mean precipitation increase over this timescale.

There is also uncertainty as to how climate change will influence extreme events - floods, droughts, heat waves, and storms in the tropics<sup>21</sup>. The climate drivers for inter-annual and decadal rainfall variability in ENSO events and Indian Ocean dynamics and models do not show clear tendencies for these events<sup>18</sup>. However Huntingdon et al. (2005) using four Global Circulation Models (GCMs) suggests that the number of extremely dry and extremely wet years will increase, and some models suggest that we will see a 20-30% increase in extreme wet seasons at a medium CO2 emission scenario.

The seasonality of rainfall could also change in the future though it must be emphasized that there is already considerable variability in seasonal rainfall totals, much of which is linked to ENSO.

**Table 2. Changes in mean temperature and precipitation between present day and 2020s and 2080s for East Africa showing multi-model means and model range (from Goulden et al. 2009).**

East Africa (12°S, 22°E to 18°N, 52°E)	Temperature		Precipitation	
	Annual (inter-model range)	Seasonal *	Annual (inter-model range)	Seasonal *
	+3.2°C (+1.8 to +4.3°C)		Warming in all seasons: +3.1°C (DJF, SON) to +3.4°C (JJA)	Increase of 7% (-3 to +25%)
	+0.7 °C to 1.5 °C			Likely increase

<sup>16</sup> Goulden 2009

<sup>17</sup> See Funk et al. 2008, and information by Climate Systems Analysis Group. Expert opinion is being sought to objectively interpret these scenarios.

<sup>18</sup> Conway et al. 2007

2080s	+3.2°C (+1.8 to +4.3°C)	Warming in all seasons: +3.1°C (DJF, SON) to +3.4°C (JJA)	Increase of 7% (-3 to +25%)	Increase in all seasons: 4% (JJA) to 13% (DJF)
2020s	+0.7 °C to 1.5 °C		Likely increase	

\* DJF: December, January, February; MAM: March, April, May; JJA: June, July, August; SON: September, October, November.

Climate change impacts are likely to be felt through changes in variability rather than the long term shifts in average conditions so this uncertainty around changes in extreme events brings uncertainty in the extent of impacts. That said we can be fairly certain that over the next 20 to 100 years mean annual temperatures will rise at a rate which has been unprecedented over the last 10 000 years. Over this period, sea level will also rise by between 0.1 and 1 metre bringing inundation and flooding to coastal areas, particularly problematic in low lying but densely populated areas in Dar es Salaam and Zanzibar.

In summary, temperatures are likely to increase in Tanzania by up to 1.5 °C in the next 20 years and by up to 4.3 °C by the 2080s. Changes in rainfall patterns, total annual rainfall amounts and rainfall intensity are expected but there is less certainty here.

## 2.3. Impacts, vulnerability and adaptation priorities

Climate change is likely to have a wide range of interrelated impacts for the environment, economy and well-being of the Tanzanian people. These impacts and their mechanisms, identified in existing literature are collated in Table 3, where based on a qualitative assessment, the most severe impact areas have been marked in red. Whilst these effects are negative, there may also be beneficial outcomes such as increased grazing area for livestock with increased rainfall, or opportunities to grow more profitable crops. Indeed, given its reliance on rain-fed agriculture, on first reading



the increased rainfall predicted for the region may seem positive, but, additional recharge and run-off may be offset by the greater evaporative losses brought by higher temperatures. Future changes in precipitation have the potential to bring heightened flood, landslide and health risks, increased soil erosion and crop damage.

Flooding during wet season rains is already associated with annual cholera outbreaks in both urban and rural settings because pit latrines, the sanitation option for most Tanzanians, are washed out with foul flooding of residential areas<sup>19</sup>. It is well understood that a key factor in low food productivity in Africa is low soil nutrient content exacerbated by soil erosion. Soil nutrient loss across Africa is estimated at 22 kg of nitrogen, 2.5 kg of phosphorus, and 15 kg of potassium per hectare of cultivated land over the past 30 years, equivalent to losing US\$4 billion in fertilizer per year<sup>20</sup>. Increased rainfall in the future is likely to heighten the waterborne disease burden and problems of soil and nutrient loss.

Tanzania's staple subsistence food crop, maize, provides a third of the nation's daily calorific intake and is grown by half of all farmers for domestic consumption. Maize could be particularly affected by climate change with studies suggesting that yields will be reduced by 20% by 2075 and much as 80% in central Tanzania<sup>21</sup>. Cash crops, including coffee, tea, cotton, tobacco, cashew nuts, sisal, cloves, and pyrethrum, account for the vast majority of export earnings and they and their production systems are also vulnerable to predicted climate change.

Fisheries provide an important livelihood, food source and income generating activity in coastal areas and adjacent to the major lakes of Victoria, Tanganyika and Lake Malawi. Although there is a need to improve understanding about how fisheries will be affected, disturbed habitats, coral bleaching, changes in nutrient cycling and increased domestic demand brought by climate change also poses risks here.

Tanzania is particularly vulnerable to climate change impacts on water resources. Beyond its reliance on water for energy and agricultural production, the burgeoning mining sector and the fledgling manufacturing sector 19 Pers Com. Mary Mbowe, 2007, Medical Officer, Dar es Salaam City Council Pers Com. Mr Dia, 2008, District Medical Officer, Kilombero, Tanzania  
20 Sanchez and Swaminathan 2005  
21 Paavola 2003

are almost entirely reliant on reliable water availability to support processing.

Tourism accounted for 17% of the GDP in 2007 and nearly 25% of total export earnings<sup>22</sup> and this income and the rich biodiversity and wildlife upon which much of it is based is also vulnerable, both through disruption to infrastructure, energy production and associated reputational issues and the closing out or shifting of habitats and disease.

Modified resource management, introduction of new varieties and changes in husbandry techniques may sustain crops and industries based on them, and interventions to build resilience within infrastructure, water management, energy production, industry, tourism and ecosystems are possible but such adaptation options need to be explored and planned for. The impacts of climate change are likely to be significant for the future development trajectory of Tanzania and economic valuations of climate change impacts can be useful in heightening the political priority afforded to adaptation planning.

The economic costs of climate change for Tanzania have been estimated at between 1.5 to 2% of GDP by 2030, a total of \$270 million each year<sup>23</sup>. Major new studies are ongoing to refine these figures - in separate studies by Stockholm Environment Institute (SEI) funded by the UK Department for International Development (DFID) and by the International Institute for Environment and Development (IIED), with publication due in late 2010. Notwithstanding the results of these studies, climate change is likely to have far reaching effects on human health and wellbeing, on social development and economic growth. However, a detailed assessment of the geographical, demographic and sectoral vulnerabilities upon which to base adaptation planning is an outstanding task.

*Adaptation is defined as adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts. It refers to changes in processes, practices, and structures to moderate potential damages to or benefit from opportunities associated with climate change<sup>24</sup>. Ability to adapt at country, community or household level is characterised as adaptive capacity and is related to the assets that one has access to (financial, natural resource, human and social capital) and how well these are used.*

22 Perez 2010

23 UNEP/ Stockholm Environmental Institute, AdaptCost project 2009

24 IPCC, 2001

Table 3. Impacts of climate change in Tanzania by sector and effect highlighting likely impacts based on a review of available literature<sup>25</sup>

Effect	Higher temperatures	Increased drought	Increased rainfall & shift in seasonality	Sea level rise	Impacts
Sector					
Human health	Shifts in disease vector habitats / incidence of malaria; respiratory problems	Increased risk of water related disease; food shortage; water conflict; famine. 2 M affected by food shortages in 2006/7; 3M in 1996/7	Increased risk of waterborne disease; flood/ landslide risk	Inundation in low lying coastal areas; possible elevated salinization of coastal aquifers	Conflict; health burdens and risks; economic costs; poverty; inequity
Agriculture & food security	Shifts in the viable area for coffee and cash crops; reduced maize output; higher evapotranspiration losses	Crop failure; reduction in grazing lands and stock loss	Elevated erosion, land degradation crop loss; change in crop yields/ disease	Limited to potential impacts on marine coastal fisheries	Food insecurity; economic shocks; loss of incomes and livelihood options; poverty
Infrastructure & settlements	Increased evaporative losses; damage to roads; cooling costs	Significant implications for HEP; water shortage	Flood damage to infrastructure, transport, communications and settlements. Only 3% of roads are sealed	Coastal inundation and modification to port facilities- US \$ 85 M damage in Dar es Salaam with 0.5m rise1	Economic loss and growth volatility; reduced reliability of HEP; migration
Environment & biodiversity	Biodiversity loss as niches are closed out; changing ecosystem dynamics and production	Additional pressure on natural resource use (forests & fisheries)	Shift in habitats and growing seasons	Potential impacts on marine coastal ecosystems	Impacts on biodiversity and agro-ecological systems; fishery productivity deforestation

Limited financial capacity, infrastructure and equipment; dependence on rain-fed agriculture, primary production and natural resource use; poverty, low income per capita, low income and livelihood diversity; HIV/Aids; insecurity and weak institutions are all key factors in heightening Tanzania's vulnerability, lowering its resilience and its adaptive capacity. In planning interventions around climate change it is vital to consider these underlying issues and their often unequal distribution as well as direct sectoral impacts.

In particular, governance problems and institutional performance issues contribute to vulnerability in Tanzania. For example, the power outages which lead to the drop in GDP growth in 2006 could be linked to

inappropriate operating contracts with the managers of Hydro-Electric Power (HEP) plants and uncontrolled water use upstream, as well as drought. It has been reported that operating contracts for Hydro-power stations have in the past included a bonus payment for attaining maximum monthly output and that this could provide disincentives to conserving water behind hydro-electric dams in months leading up to drought<sup>26</sup>. In addition the emergency power generation contracts which followed reduced HEP production are still shrouded in controversy. The 'Richmond' case, has seen senior politicians implicated in the payment of around US \$30

26 Pers. comm.. TANESCO employee

million per month from the public purse for the hire of emergency generators, which subsequently never arrived in Tanzania, from a 'fake' company. Such institutional and governance failures contribute significantly to the nation's vulnerability to climate change.

Although care should be taken to avoid prescriptive adaptation 'solutions' in the absence of detailed contextual analysis, based on the climate change science and broad assessment of vulnerability in Tanzania, the following adaptation priorities emerge:

**Agriculture and food security** - support for autonomous adaptation through improving market access and inputs, decision options and economic/livelihood diversity; outreach activities to enhance management practices; adjustment to cultivars; enhance irrigation efficiency and/or expand irrigable area; enhanced pest and disease forecast and control; seasonal forecasting.

**Water resource development and management** - increase water storage and supply; demand management; effective systems of allocation within integrated river basin management; drought and flood warning and management.

**Infrastructure and energy supply** - plan in resilience to climate shocks and change in the country's road, transport and communications infrastructure; plan for energy security in energy mix and design, operation and maintenance of plant.

**Diverse and resilient livelihoods** - build human capital (skills, education, opportunity); health (including planning and response to CC induced disease shift); technological alternatives; increase levels and sources of income; enhance equity and social capital.

**Effective institutions and governance** - institutions capable, with resources, reach and incentives to plan for and deliver these services and adaptation responses, including undertaking research and development, forecasting and communications and implementing policy and law.

In the next section, a review of the current state of climate change adaptation preparedness begins with a review of existing plans and policies relevant to climate change. Prior to this, a recent published report which attempts to refine understanding of key vulnerabilities and adaptation priorities in Tanzania is reviewed

and the insights generated are carried through to recommendations in the concluding chapter.

### Reflections on a recent assessment of climate vulnerabilities in Tanzania<sup>27</sup>

This work by the Economics of CC Adaptation Working Group, (a collaboration between the Climate Works Foundation, GEF, European Commission, Rockefeller Foundation, McKinsey and Co., Standard Chartered Bank, and Swiss Re) draws on analysis of eight global case studies to frame the economic impacts of climate change scenarios and proposes adaptation options based on a cost benefit framework. One of the case studies considers impacts on human health and power production in the central region of Tanzania.

The analysis draws on existing data and expert testimony and uses three scenarios (current climate, moderate change, high change) of 2030 climate, based on ten downscaled models compiled by the University of Cape Town to assess future impacts. It uses Regional Circulation Models (RCMs) on the basis that they allow greater granularity than Global Circulation Models (GCMs), and suggests that rather than the greater annual rainfall suggested by the GCMs, central Tanzania will exhibit a drier climate and greater variability by 2030 (by 10% and 25%, 20% and 50% under moderate and high scenarios respectively). It then uses current data relating to health and nutrition indicators and rainfall and power production to extrapolate financial implications of climate change and adaptation responses. The results are limited to those quoted in Table 4.

<sup>27</sup> ECA 2009

Table 4. A summary results quoted in ECA (2009) test case on Tanzania

Situation in Central Region in 2030	Percentage of population which will suffer hunger from poor yields	Percentage population suffering from Trachoma	Cases of cholera, dysentery and diarrhoea	Energy reserve margin (<15% considered a risk)	Expected economic losses due to climate change induced drought
Current climate	5%	5%	200 000 of under fives suffering diarrhoea	26%	-
Moderate scenario	60% increase in the proportion of the population affected by food stress	Trachoma could be doubled	Significant increases in the number of cases of cholera and dysentery	12%	0.7 % decrease in National GDP
High scenario	Worse impact particularly for trachoma			0%	1.7 % decrease in national GDP

Whilst the report stresses the need for 'no regret' adaptation interventions and flags the difficulties of separating out adaptation actions from other development interventions in the health sector it goes on to recommend a set of prioritised intervention options based on cost benefit analyses, promoting Tanzania as being 'well positioned to plan for climate change' and with 'better cooperation between government and civil society'.

- On critical review of the information provided the study is found to be flawed in the following areas and as is discussed this has significant implications for its value and positive impact of the work.
- It provides only selective results and presents outcomes in a rather sensationalist manner. For example a "60% increase in the proportion of the population affected by food stress" although a grave outcome, sounds much more severe than a rise from 5% (current) to 8% (a 60% increase) of the population under 'food stress';
- Definitions of terms such as 'drought' and 'food stress' and a transparent, replicable methodology are not provided - in fact the 'exhibits' - data analyses - seem deliberately obscured to prevent close scrutiny;
- The report underplays the fact that drought is a regular feature of 'normal' climate in East Africa and

fails to stress the uncertainties in predictions that Tanzania will face increased drought - rather this is presented as a certainty;

- Although the lack of transparent methodology introduces uncertainty as to the analytical process it appears that there is confusion or at least over simplistic handling of the linkages between extreme events and water born disease. i.e. Cholera outbreaks in Tanzania tend to be associated more with heavy rainfall than with droughts yet the report infers the opposite;
- The use of regionally downscaled models over timescales of a few decades, in particular for rainfall and in regions such as East Africa where data availability is limited in both geographically and temporally are warned against by leading climate change researchers and advisors because of their inherent uncertainties<sup>28</sup>.
- In particular, the use of such models to calculate economic outcomes and cost benefits of adaptation responses are epistemologically questionable because of doubts about their accuracy and their experimental nature. As such, the conclusions drawn from these models should not be presented as conclusive and conversely, the milieu of response

<sup>28</sup> Conway 2010

options chosen should be carefully evaluated before implementation. This is a routine scientific precaution because of the embedded uncertainty emanating from the use of such data, and the inherent need to carefully factor in all the other considerations which may override climate risk. At the same time the 'positivist' outcomes of such analyses appeal to decision makers with the consequent risk of guiding mal-adaptation.

- In its analysis of the relationships between rainfall and power production at HEP stations the work oversimplifies the contextual realities of the Rufiji basin where upstream use and HEP operating policy play very significant roles and add complexity. Further, in its prioritisation of adaptation responses efficiency measures are followed by 'reducing spillage at HEP stations' as an almost zero cost method for improving the load factor of HEP. Such a recommendation, whilst well-meaning, ignores the caveat cited above about drawing conclusions from inconclusive data within the complex physical and social dynamics of river basins. In particular, the provision of 'spillage' through maintenance of environmental flows downstream of HEP installations in the Rufiji is a much needed but highly contested operating condition for habitat protection, livelihood maintenance and climate resilience downstream.

In summary, whilst the work flags the obvious - that a changing climate and variability will have implications for power production and human health - it fails to attach sufficient levels of caution to its results and is over simplistic in its analysis. The slick packaging of the report will no doubt appeal to decision makers but as a contribution to the rational preparation for climate change in Tanzania, it falls short. The prevalence of non peer-reviewed analyses of this kind, particularly in the form of saleable products and methodologies vended by the private sector is a hazard which needs to be flagged.

## Three: An Analysis of the Climate Change Adaptation Policy Response

In this section the policy framework, strategies and plans in place to support Tanzania's adaptation to climate change are reviewed. In particular the contents and genesis of core documents supporting these initiatives are considered in turn. The handling of adaptation needs within national development plans is also considered.

Specific questions are posed as to whether existing plans represent current knowledge about national vulnerabilities and adaptation needs and whether recommendations and actions are adequate and realistic. The extent to which the challenges of climate change adaptation have been mainstreamed throughout the work and policy of ministries and other institutions is also evaluated. The chapter draws on the testimony of key informants to conclude with a reflection on the degree to which Tanzania is prepared for the challenges of climate change at this policy level.

### 3.1. Policy genesis and content analysis

#### *UNFCCC response and climate change specific policies and plans*

##### *Tanzania's initial communication under the UNFCCC (2003)*

Tanzania ratified the United Nations Framework Convention on Climate Change (UNFCCC) in 1996 and submitted its 'Initial National Communication on Climate Change' in 2003. This report is a comprehensive and authoritative account of climate changes in Tanzania<sup>29</sup>. The report is divided into six themes:

29 Danida et al. 2009

- Inventory of greenhouse gas emissions and removals: Much of the basic data was missing and had to be estimated. The result showed that around 60% of all GHG emissions could be attributed to deforestation and land use changes, 13% to agriculture and only 12% to burning of fossil fuels.
- Mitigation study: Options for the mitigation of greenhouse gases in Tanzania were identified.
- Impact of climate change and vulnerability assessment: The consequences were predicted of an average annual temperature increase of 2-4°C along with increased variability in rainfall. Impacts included decreases in crop yield and shifts in the viable growing areas for traditional crops.
- Policies and adaptation measures: It was acknowledged that, at that time no specific measures to address climate change were in place.
- Ongoing research and available data: It was acknowledged that the capacity for monitoring climate trends was lacking and that analysis of climate change came from Europe and North America.
- The institutional framework for implementing a climate change strategy: The main institutions were identified as the Department of Environment (DoE) in the Vice President's Office (VPO), and Tanzania Meteorological Agency (TMA), as well as key sector entities (in energy, natural resources, agriculture, industry). A National Climate Change Steering Committee with the Centre for Energy, Environment, Science and Technology (CEEST) as secretariat was attributed a major role.

#### **Tanzania's National Adaptation Programmes of Action (2007)**

The Tanzania National Adaptation Programme of Action (NAPA) was prepared in 2007 to identify immediate short-term priorities that could be addressed by the UNFCCC LDC fund for adaptation to climate change effects. The NAPA ranks sectors according to priority and identifies 14 priority actions (see Table 5).



Table 5. National priority actions identified in Tanzania's NAPA

1. Increase irrigation by using appropriate water-efficient technologies to boost crop production in all areas.
2. Introduce alternative farming systems and relocation of water sources, including wells along low-lying coastal areas.
3. Develop water harvesting and storage programmes for rural communities particularly those in dry lands.
4. Launch community-based water catchment, conservation and management programmes.
5. Explore and invest in alternative clean energy sources, e.g. wind, solar, bio-diesel, etc.
6. Promote application of cogeneration in the industrial sector.
7. Conduct forestation programmes in degraded lands, using more adaptive and faster-growing tree species.
8. Develop community forest-fire prevention plans and programmes.
9. Establish and strengthen community awareness programmes to address major preventable health hazards.
10. Implement sustainable tourism activities.
11. Enhance wildlife extension services and assistance to rural communities in managing wildlife resources.
12. Introduce water harvesting and recycling.
13. Construct artificial structures, e.g., sea walls, artificially placing sand on the beaches and coastal drains, beach management system.
14. Establish a good land tenure system and facilitate sustainable human settlements.

These have been translated into six high-priority project proposals encompassing food security and

water availability in drought-prone and inundated areas; reforestation; mini hydro schemes and a health project on malaria control.

Almost no funding has materialized for the proposed projects, although some GEF funding has recently been committed.

Activities related to climate knowledge and forecasting, research, mainstreaming and capacity development are outside the scope of the NAPA. The NAPA does not consider how climate change adaptation can be integrated into national and sector policies, plans and activities; and the projects proposed in the NAPA have not been included in the sector plan and budgets by the institutions responsible for each sector. The NAPA itself acknowledges that more comprehensive analysis is needed and discussions are currently ongoing within the VPO to expand the NAPA into a more comprehensive national plan<sup>30</sup>.

#### Second national communication

Studies are ongoing to prepare the Second National Communication for the Vice President's Office to enable the United Republic of Tanzania to fulfil its obligations under the UNFCCC. Studies were initiated in September 2006, as a three year project, which ran up to July 2009 on the following:

- Climate change scenarios;
- Inventory of GHG emissions;
- Technologies for GHG mitigation, their capacity to mitigate and associated costs.
- Assessments of vulnerability and adaptation priorities in energy, agriculture, land use and forestry, tourism, water resources, coastal resources, livestock and industry.
- Review of systematic climate observations.

It has not been possible to include the findings of the studies, as a consolidated draft of the second communication is not available either in Tanzania or on the UNFCCC website.

<sup>30</sup> Danida et al. 2009

## National development plans and sectoral strategies

### MKUKUTA I and II

Tanzania has been at the forefront of efforts to harmonize aid and improve the coherence of support from donor partners. This has culminated in the production of a Joint Assistance Strategy<sup>31</sup> and associated direct general budget support for implementation of the National Strategy for Poverty Reduction and Economic Growth, more commonly known as MKUKUTA.

The initial MKUKUTA ends in 2010 to be replaced by MKUKUTA II. The first MKUKUTA made no mention of climate change and whilst 'environment' was said to be mainstreamed into the plan, the indicators used were poor and very little was achieved within the plan to support more sustainable natural resource management in the country. The opportunities look more promising for MKUKUTA II with some sectoral studies underway to examine how climate change adaptation can be integrated, and a designated consultation process organised by an Informal Discussion Group on the Environment (IDGE) to champion a focus on environment in this next five year plan<sup>32</sup>.

### The Water Sector Development Programme and Strategy 2006-2015

The water sector is the focus of significant reform and investment with support from a US \$800 million basket fund to implement the Water Sector Development Programme. The programme focuses on infrastructure investment and provision for urban and rural water supply and sanitation alongside implementation of a reformed water resource management regime. This will see the operationalisation of new water resource law through nine Basin Water Offices, charged with the difficult task of allocating water to multiple sectors and controlling water resource development impacts including pollution.

Tanzania's National Water Policy and legislation is progressive and the successful implementation of the Water Sector Development Programme will undoubtedly

<sup>31</sup> JAS 2006

<sup>32</sup> Meeting Report, Informal Discussion Group on Environment (IDGE), Discussion Topic: MKUKUTA Review Update with focus on Environment Related Indicators, 20 January 2010 \* IUCN Conference Room \* 10:00 – 12:00

improve resilience to climate change there is little explicit attention to climate change impacts within the strategy or the sector. The Water Sector Development Strategy (WSDS) documentation confines discussion of climate change and extremes and their management to only two of thirteen chapters. The first focuses on the development of alternative resources (rainwater harvesting, wastewater reuse, desalination and inter-basin transfer) to supplement during times of scarcity. The second, relating to disaster management, recognises that disaster mitigation has been based on remedial not preventative measures, and targets future efforts on the provision of early warning systems and contingency planning. However, review of the WSDS implementation plan (2005-15) reveals an absence of timetabled targets for such preventative management provisions, with just a cursory target for two alternative resources to be researched and promoted by 2009.

The absence of robust prioritisation of drought and flood management in the water sector, the use of fixed level abstraction permits rather than conditions proportional to flow, and difficult barriers in the implementation of water resource management reforms (revealed during the Joint Water Sector Review of 2009) means that vulnerability to climate variability and change through water based impacts will persist, particular within poor communities, and that inequitable resource access will continue.

### Agriculture and food security

Sectoral development plans including the Agricultural Sector Development Strategy (ASDS), the National Irrigation Master Plan (NIMP) and more recently Kilimo Kwanza (Farming first - launched 2010) promotes significant expansion of irrigated land in Tanzania to unlock rural and national development. Plans are based on analysis in the National Irrigation Master Plan of 2002 which suggests that Tanzania has 29.4 million hectares suitable for irrigation whereas irrigation currently supports only 310,745 hectares - equivalent to only 1 per cent of the alleged total potential area.

Whilst expansion of irrigation is undoubtedly a major strategy for enhancing Tanzania's resilience to climate change, there is sparse consideration of future climate change within these planning documents and the estimates of irrigation potential are technically

inadequate. Further, the pre-appraisal process for new irrigation schemes is weak and is unlikely to incorporate assessments of future water availability, changes in evapotranspiration, and the need for equitable allocation and use under a modified climate.

Of particular concern is the lack of any mention of climate change within Kilimo Kwanza through which US \$ 76 million has recently been allocated by government for implementation of irrigation projects and capacity building<sup>33</sup>. Although climate change is mentioned by senior government figures as a guiding rationale for investment, there is little evidence of prioritised investment or climate proofing of plans. That said the potential offered by this new political and financial focus on agricultural support to contribute to adaptation is apparent - with the government planning to employ an additional 2500 agricultural extension officers every year<sup>34</sup>.

#### Disaster management

Tanzania has endorsed the Hyogo Framework of Action, and the African Union Regional Disaster Reduction Strategy, which clearly commit countries to addressing disaster risks in a proactive and participatory way.

The National Disaster Management Policy (2004) and the National Operational Guidelines for Disaster Management (2003), set the policy framework for coordination and cooperation for comprehensive disaster management among key players at all levels. Its goal is to mainstream disaster management activities as an integral part of development programmes in all sectors. As in other sectors the translation of policy into action is a problem and the efficacy of this policy is considered by examining the work of the Disaster Management Department of the Prime Minister's Office in the next chapter.

<sup>33</sup> Daily news, 22nd December 2009 <http://www.dailynews.co.tz/home/?n=6280&cat=home>

<sup>34</sup> Minister Ms Kombani. Daily news, 22nd December 2009 <http://www.dailynews.co.tz/home/?n=6280&cat=home>

### 3.2 Concluding remarks on climate change preparedness at policy level

*The NAPA is just a wish list with no basis on reality. It's not good - as an author I know. We need a new NAPA - not based on chatting but on scientific analysis.*

**Senior Academic**

*The NAPA is worthless and generally recognised as such. There are discussions about a new NAPA but these are not yet concluded.*

**Development Partner**

*The existing NAPA is not bankable- it's just a wish list of ideas... There is nothing to guide Tanzania's or the development partner's response to climate change. A full climate change policy is urgently needed*

**Development Partner**

There is a widely held view that Tanzania's NAPA, whilst setting down some useful information, is an inadequate basis for planning and delivering the robust response to climate change that Tanzania needs to secure growth and poverty reduction. At the same time, climate change receives sparse attention in both sectoral strategies, policies and plans and the previous national development plan - MKUKUTA. This lack of proactive consideration undermines Tanzania's preparedness for climate change. For example Tanzania's Energy Strategy has no mention of climate change or of contingency plans in the event of a drought, despite the country's reliance on HEP.

Significant investment is being channelled into the agriculture and water sectors - and action here will do much to build Tanzania's resilience to climate change. However, explicit focus on climate change implications within these sectors is absent and this threatens maladaptation and missed opportunities.

The likelihood of climate change being woven into sectoral and national plans over the next 5 years through incorporation of climate change into MKUKUTA II are unknown but prospects aren't promising for the following reasons. Firstly, the IDGE meeting on developing environmental indicators for MKUKUTA II in January 2010 paid cursory attention to climate change and even then there were doubts as to whether the group could influence the process and plan which is to be finalised in

March 2010. Secondly a national objective assessment of priority vulnerabilities which could underpin delivery of adaptation through MKUKUTA is not available.

However, despite this inadequate embracing of climate change at a policy level there is momentum within the government, CSO and development partner communities to redress the lack of a formal government 'line' on climate change through either a deeper and broader 'NAPA' and the development of a national Climate Change Policy. Whilst the potential lack of climate change mainstreaming in the MKUKUTA II may delay Tanzania's adaptation response in the next five years, a considered and well informed national policy may be more useful in the medium term. Priority should therefore be targeted here. In the next section, the range of actors on cc are considered and their capabilities to develop and deliver robust policy on CC critically appraised.

## Four: Climate Change Adaptation Institutional and Actors' Analysis

The cross-cutting impacts of climate change and the imperative for an integrated response means that a formidable set of institutions and actors are, and should be engaged in Tanzania's response. Equally, however it means that effective coordination and decisive, influential and accountable leadership are imperative. Key actors in government, NGOs, development partners, the private sector and research institutions, their capabilities and ongoing and planned activities are appraised in order to assess whether effective action is ongoing in place of coherent policy, and whether this leadership exists or is emerging.

### 4.1. Government of United Republic of Tanzania

The Vice-President's Office is the Designated National Authority in relation to UNFCCC and is responsible for coordinating the national response, whilst the Tanzania Meteorological Agency is the contact point for the IPCC. Other key ministries and departments include a Disaster Management Department within the Prime Minister's office, the Food Security Department within the Ministry of Agriculture and Food Security, the National Environment Management Council and the Water Resources Department in the Ministry of Water and Irrigation.

*Division of Environment, Vice Presidents Office*  
As the Designated National Authority and contact point for UNFCCC, the VPO has responsibility for policy development, coordination and monitoring, for

approving CDM projects, guiding mainstreaming in the sectors, and participating in international negotiations and the implementation of UNFCCC.

The VPO is performing a key role for Tanzania in international negotiations on climate change. However development and implementation of a domestic climate change response has not progressed far. In addition to the NAPA produced in 2007, guidelines on the CDM have been prepared, and one CDM project has been approved. Studies are thought to be ongoing to prepare the Second National Communication to the UNFCCC for the Vice President's Office.

The focal point for climate change in Tanzania has recently been promoted to manage a small team to coordinate Tanzania's national response to climate change. The technical qualifications and understanding of the international climate change negotiations held by this team in the Division of Environment are said to be impressive. However, according to several stakeholders its ability to coordinate an effective domestic response is hampered by a lack of personnel and financial resources, and a lack of political influence across government. What capacity does exist tends to be focused on servicing the needs of the UNFCCC and international meetings with little tangible benefit for Tanzania.

#### *National Climate Change Technical Committee (NCCTC)*

A National Climate Change Technical Committee, providing a forum for national dialogue across government was established to produce the Initial national communication. In 2009 it was reported that this body's last meeting was held in 2003<sup>35</sup>, although there have been recent attempts to re-establish its role. However, the consensus among informants was that this group was not functional. It was reported that there has been one recent meeting before COP 15 but since then there has been no follow up.

#### *Tanzania Meteorological Agency / Food Security Department*

As part of a stocktaking exercise on climate change in Tanzania by the Development Partner Group - Environment (DPG-E) in 2009<sup>36</sup> a supplementary report was prepared to examine the work of the Tanzania Meteorological Agency and the Food Security

<sup>35</sup> DANIDA et al. 2009

<sup>36</sup> DANIDA et al. 2009

Department<sup>37</sup>. The main findings were:

- There is a clear perception within communities that rainfall has decreased and temperature has increased in the past 20 years;
- That the decline in rainfall has led to a decline in crop productivity (though there are no references or data cited for these inferences);
- That constraints to systematic monitoring of climate include: inadequate financial resources with a 3.1 Billion TSh shortfall in requested budget for 2009; low network coverage; equipment shortage; poor telecommunication facilities; lack of O& M and calibration.
- Capacity building, institutional resourcing, and adaptation strategies should include:
  - incorporating indigenous knowledge (IK);
  - strategies of growing of fast maturing crop varieties, drought tolerant crops;
  - irrigation and wetland cultivation;
  - storage facilities for excess food during good seasons;
  - afforestation and reforestation processes as well as promotion of sustainable livestock keeping to be encouraged countrywide;
  - subsidies for agricultural inputs on seeds, pesticides and fertilizers;
  - awareness campaign to encourage farmers to use locally available manure;
  - enhancing irrigated farming and avoid the fluctuating climate.
  - Extension services were reported as inadequate and under capacitated to provide education on better agricultural practices;
  - Support on micro financing was found critical to with the establishment of credit facilities such as SACCOS and non-restrictive agricultural loans from banks.

The TMA again has reasonable technical capacity but due to resourcing issues struggles to maintain its observational network and to communicate in ways which could benefit those vulnerable or able to act on weather events and climate change. Its inclusion with the Tanzanian universities in the consortia managing a \$18 million Norwegian funded research programme on climate change could unlock latent capacity, but

<sup>37</sup> Mwakifwamba 2009

equally there is a risk that this research focus could divert attention from less lucrative operational duties.

The Food Security Division is jointly with TMA managing several weather stations. Further they prepare yearly vulnerability assessment in relation to food security in close cooperation with its Development Partners, NGO's, national and local institutions. A detailed assessment of the performance, capabilities and development needs of the Food Security Division was not possible within this current study.

#### *Prime Minister's Office - Disaster Management Department*<sup>38</sup>

The Prime Minister's Office seeks to be a centre of excellence, performing the role of arbiter between sector ministries and also be a leader of government's democratic development. Its functions include the coordination, monitoring and following up of implementation of sectoral activities; information policy; disaster preparedness and management of civic contingencies; capital transfer and development.

The Disaster Management Department (DMD) was established in 1990 by the Disaster Relief Coordination Act No. 9 of 1990 with regulations laid down in 1991. The functions of DMD are coordination and operations, planning and research in respect of disaster management. It is guided and reports to the Tanzania Disaster Relief Committee (TANDREC).

TANDREC is made up of Permanent Secretaries from Government Ministries or any other agencies determined by the Prime Minister as having a key role in disaster preparedness and response. The Permanent Secretary in the PMO chairs the Committee. Its functions are to: oversee and coordinate the activities of the Government designed to secure the effective prevention of disasters; oversee the preparedness and operation of affairs in the event of a disaster; and to guide, direct, approve and control the activities of the Disaster Management Department as well as activities of the Sub-Committees.

From the National level, the Disaster Management Structure in Tanzania goes down to the region, district, ward and village with a disaster committee at each level.

<sup>38</sup> <http://www.tanzania.go.tz/government/disaster.htm>

Functionality for disaster preparedness is currently the focus of support under the 'One UN Joint Programme' - Strengthening National Disaster Preparedness and Response Capacity.

This two-year programme of assistance could lead to a larger long-term programme through mainstreaming of disaster risk management into national strategies and the funding of disaster risk management activities through the direct budget support mechanism. Its goal is to enhance national capacity to reduce vulnerability and mitigate disasters by strengthening institutional, organizational and individual capacities in disaster preparedness through<sup>39</sup>:

- Support in assessment of risks and immediate capacity needs;
- Capacity development and coordination of disaster preparedness and an institutional framework for disaster risk management;
- Strengthen inter-sector coordination and mainstreaming;
- Strengthening disaster preparedness and response at District and Community levels and public awareness programme;

Historically the primary focus of Disaster Management in Tanzania has been on response rather than prevention and like many Tanzanian institutional arrangements reaching from national to local level, resources tend to be limited and not concentrated towards the local level where action has greatest potential.

#### *National Environmental Management Council (NEMC)*

NEMC is the leading technical advisory, co-ordinating and regulatory agency responsible for the protection of the environmental and sustainable use of the natural resources in Tanzania. Its functions are to advise government on all technical matters for effective environmental management; co-ordinate the technical activities of all bodies concerned with environmental matters; enforce environmental regulations (norms, standards, guidelines and procedures); assess, monitor and evaluate all activities that have impact on the

<sup>39</sup> [http://www.tz.undp.org/un\\_proj\\_un\\_disaster.html](http://www.tz.undp.org/un_proj_un_disaster.html)

environment; promote and assist environmental information, communication and capacity building and to seek advancement of scientific knowledge on the root causes of the changes in the environment and encourage the development of environmental sound technologies.

NEMC has been in existence, at least on paper since 1983, but with the passing of the 2004 Environment Management Act, the organisation was finally given its regulatory mandate and enforcement powers. NEMC's effective operation will be a key determinant of sustainable development and climate resilient growth in Tanzania. However whilst the organisation grows and begins to explore its role, it suffers from inadequate funding and is politically weak. In addition it has been said to suffer in the past due to a conflict in authority between it and the VPO - Division of Environment, which ironically exists as its parent organisation and channel of funding.

Furthermore, the legislation sees NEMC implementing its regulatory role through local authorities (District-level Environment Officers) without providing for lines of reporting, command or funding for this.

Funding of \$2 million has been channelled to NEMC from DANIDA since 2007 to support implementation of the new environment act but there are few signs of progress in operationalising its role. NEMC can play an important role in Tanzania's response to climate change and if able to control major developments through the process of EIA and appraisal has the potential to influence climate resilience and low carbon development. This potential can only be realised if systemic problems of overlapping mandates and regulatory sovereignty, lack of political support and with funding, capacity and staff motivation are addressed

#### *Water Resource Management Division, MoWI*

As already mentioned in Chapter 3, the support from donors to operationalise the National Water Policy and the National Water Resources Act 2009 through the Water Resource Management function of the Ministry of water and nine semi-autonomous Basin water offices is extremely positive news for Tanzania. The law and policy are largely progressive, prioritising the needs of the environment and poor communities over water needed for industry and production.

Despite the significant financial support progress is very slow in most basins and the lack of implementation

of water resource management threatens to prejudice poor water users, particularly as demand increases and as the climate becomes more uncertain. Research in 2009 found that large commercial water users were obtaining water-use permissions but that poor farmers and villages were either unaware of the system or less able to access it. When conflict or scarcity arises in a basin it will be these larger water users whose use rights are protected over those of the poor. A fully functional system of water resource regulation and administration - including scaled responses to drought events which prioritise vulnerable users - is imperative if Tanzania is to be resilient to climate shocks. Efforts to prepare the country to climate change should therefore put particular focus on unlocking the many barriers to progress in the sector.

#### *Reflections on preparedness for climate change within the Government of Tanzania*

*There is no communication across sectors and no real government coordination. Government performance is poor - including on REDD and adaptation. There is not enough political currency or attention on the issue.*

#### **Development Partner**

*The President makes positive contributions on the environment and the Prime Minister does say sensible things about small farmers and climate change. But these intentions are not translated into action and there are risks of mal-adaptation. For example Kilimo Kwanza promotes a doubling of cultivated area which will mean deforestation and a massive increase in irrigation. No one asks about water resource availability. There is a real need for climate proofing of government policy.*

#### **Development Partner**

*The Vice President's Office could be the right place for coordination but they are simply not performing. The issues are ones of personality, capacity and resources. They primarily focus on international obligations and meetings because that's where the incentives are. There is a clear monopolisation of information and we have really struggled on the policy elements.*

#### **Development Partner**

*There is a problem with the ability to spend money and in handling big funds. Corruption in government is there. Wherever you work you need to install an external financial advisor or accountant on each project.*

#### **Development Partner**

*The VPO is not functional in its role. Adaptation will be hampered by the same problems that exist throughout government - lack of delivery, low capacity, lack of funds, capture by elites and wastage. A key area is to ensure that adaptation benefits the marginalized. For example, that small farmers are better served by extension services - at the moment support doesn't reach small farmers or women- we need to look at who are the beneficiaries. For example subsidies on fertilizer when half of small farmers don't buy it - or else capture by traders. Interventions need to be tangible and to adopt a vulnerability mindset. Resource capture by central government is a big problem in Tanzania. Analysis of benefit streams and the role of research and advocacy - budget tracking - will be vital together with raising the political voice of small farmers. Promisingly CSO groups are starting to track benefits of current interventions - Haki Ardhi, Pingo, FEMNET - TGNP, Daraja and Shahidi wa Maji*

#### **NGO**

*We need to relocate the job of planning for climate change - maybe give it to the Ministry of Planning and Finance, or develop an autonomous neutral body with cross cutting authority to support local level resilience*

#### **Senior Academic**

*The VPO have good technical understanding but are external facing. There's a big gap in the government response at the district level where planning and action are needed. We need a revised NAPA and a national CC policy but where is the power to coordinate this? The PMO or the Ministry of Finance and Planning? Or a new CC office, but where? We need to understand the failures of past government and donor efforts and implement the win-wins.*

#### **Development Partner**



These comments reflect some of the systemic problems with governance and development assistance in Tanzania which are already hampering the efficacy of the country's response to climate change. Capacity and finance are thinly spread and the incentives for focusing these resources on the needs of the most vulnerable are largely absent. Although the key sectors in any climate change response - such as agriculture, water resource management and disaster management - are receiving donor support, a lack of explicit focus on climate change in sector plans - and likely the MKUKUTA II - coupled with a continuation of systemic problems such as difficulties in recruitment and motivation, linked to low public sector salaries and weak leadership and low accountability.

Additional problems concern the lack of authority to coordinate the necessarily government-wide response. The Division of Environment in the VPO does not appear to command the convening power to affect change across the work of much larger ministries such as Agriculture and Energy. Informants were split on whether the VPO was the most appropriate location for the climate change coordination role and some recommended shifting the responsibility for the domestic response to the Prime Minister's Office or the Ministry of Finance.

A further missing part of the jigsaw for effective preparedness are the national-local linkages required to support adaptation at the regional, district and lower levels. Whilst the institutional arrangements for disaster management, environmental protection and, to an extent, water resource management offer the potential for this reach, there is little evidence that these architectures are operational or adequately resourced. Rather than setting up new national to local level institutions for climate change adaptation it will be important to better understand why existing structures struggle to perform and to unlock these barriers.

In order to support citizen agency and government performance, financial probity and accountability a number of NGOs are beginning to demonstrate the benefits of budget tracking and social accountability monitoring. As a strategy for improving preparedness for climate change, facilitating improved and equitable government delivery in this way is a promising and constructive route and will be particularly important should significant new funding come on line.

It would be easy here to simply conclude that continuing problems with government capacity and coordination will hamper Tanzania's response to climate change. However a window of opportunity is provided by climate change to examine in a more sophisticated way the root causes of systemic problems with public sector functionality and aid efficacy and to take a fresh look at how they can be overcome. Although this will entail a more rigorous and involved critique of current development practice and modalities than is possible here, problems which need to be aired include public sector recruitment, incentives and retention - and the role played by the brain drain to better paying NGOs, development partners and overseas research and consultancy bodies - and the efficacy and accountability of ODA and NGO spend and modalities.

#### 4.2. Development partners

Tanzania has been at the forefront of piloting new approaches for better coordination and more effective delivery of aid which sees most bilateral donors pooling their ODA into general budget support (GBS) or into basket funds attached to Sector Wide Approaches (SWAs). The majority of these now work in a coordinated way through the Development Partner Groups. Tanzania is also a pilot country in the 'One UN' initiative to better align and coordinate the activities of the UN family of organisations. A review of past donor engagement in and levels of support to the environment, water and agriculture sectors is provided as Annex 2 and its analysis reveals the major donors in these sectors, such as the Denmark, Germany, Norway, Sweden, USAID, Japan, Ireland, EU, IFAD, IDA (World Bank), UNEP/GEF and the UNDP. Despite commitments to coordinated and joined up development assistance, the stocktaking exercise of 2009 reveals that donors (and NGOs) are involved in over 100 different projects, programmes and initiatives associated with climate change.

The Development Partner Group on the Environment (DPG-E) is the forum for discussion and coordination between the donors on climate change and a new secretariat has recently been appointed from SEI to better deliver these roles. Co-hosted by the Royal Danish Embassy and the World Bank, the group has active membership from Finland, the Belgians, UK (DfID), USAID, CIDA, Denmark, and the World Bank. The group has been pro-active, commissioning a stocktaking study on donor cooperation on climate change in 2009<sup>40</sup>.

<sup>40</sup> DANIDA et al. 2009

This work, funded by NORAD, the EU and Danida and delivered by a consortium of European and Tanzanian consultants sought to review the climate change situation and response in Tanzania. The work aimed to support strengthening of donor coordination given that climate change is a new topic in anticipation that significant new

funding could come on stream. The main findings of this work are summarised here prior to a more detailed analysis of the activities and plans of the most active development partners on climate change and reflections on the overall response to climate change within the development partner community.

Table 6. Main Findings and recommendations of DPG-E's 2009 stocktaking report on climate change in Tanzania

<p><b>Climate information:</b></p> <p>Whilst there is some certainty around the increases in future temperature facing Tanzania, there is a great deal of uncertainty regarding the specific changes and impacts and the degree to which climate change is a priority when compared to other pressures such as land use. Monitoring networks of the TMA and WRMD are limited and in decline and there is limited capacity to collect and disseminate climate information.</p>
<p><b>Policy and institutions:</b></p> <p>Although climate change is attracting attention, it suffers limited understanding and priority within sectors, economic institutions and the private sector, and to a lesser extent development partners</p> <p>The response is necessarily an exercise in the management of uncertainty though vulnerability assessments and targeted building of resilience are important but outstanding first steps in adaptation. Adaptation to climate variability is not new.</p> <p>Most climate change related activities are about mainstreaming, and hence not within the implementation responsibilities of DPGE and VPO. Climate change is not being systematically mainstreamed in national development planning, such as the MKUKUTA, sector and local government plans and there has been limited consideration of the potential impact of climate change on growth and poverty strategies.</p> <p>The NAPA includes a good description of the main problems but there has been limited funding for the plan. The NAPA was not intended to address monitoring or forecasting of climate change and its impacts, research, capacity development, information exchange, awareness-raising or mainstreaming so the VPO is currently considering the preparation of a more comprehensive national strategy.</p> <p>There are weak links between institutions working with disaster management and food security, on the one hand, and entities involved in climate change, on the other. For instance, vulnerability assessments made in relation to food security are not used to substantiate the planning of climate activities, while the results of downscaling activities performed by research institutions are not fed into the work with food security.</p>

### Coordination and funding:

The funding landscape is complex, under developed and managed through disparate mechanisms. Market-based mechanisms are likely to emerge in the future. New funding is outside the UNFCCC system. Major focus areas for funding are forest management and technology transfer. It is uncertain how much of the funding will become available for adaptation.

This funding landscape and cross-cutting nature of climate change is a challenge to DPGE. Most members have resources tied to programme activities, and ability to influence international funding arrangements and carry out mainstreaming activities is limited. Major effort will be required to ensure that emergent funding and spend on CC is consistent with national priorities and plans, as prescribed by the principles of the Paris Declaration, and is channelled to the relevant sectors. Strengthening capacity of development partners and government for efficient coordination and maximum access to these emerging funds, and setting clear priorities should be considered.

It is difficult to paint a complete picture of DP funded activities on climate change as many climate activities are funded from outside Tanzania and DPGE have yet to define what they consider as climate change activities. Some donors focus on mainstreaming, e.g. SIDA and the Netherlands, while others, such as Norway, are channelling substantial funding towards undertakings explicitly labelled as climate activities. The "One UN" programme is advancing internal coordination among UN organizations, as well as with governments and other development partners. However there is a need to ensure coordination between this and other programmes, such as Danida's support for VPO/DOE. Several DPs support relatively uncoordinated capacity development within CDM.

Many climate change issues – such as forestry, renewable energy, food security, water resource and soil management, support for national institutions, including TMA, and research – are partly being addressed already by regular activities to address mandated responsibilities. They form part of sector plans, and are coordinated between responsible ministries and their respective DPs in accordance with the JAST.

There is no common understanding among DPs of what constitutes climate change activity. Nor is there agreement on whether DPGE should address specific climate projects only or ought to concentrate on the wider issue of mainstreaming. There is no clear plan for how to cooperate within DPGE, with VPO and with sector groups on the issue.

### Research and information sharing:

Several global, regional and locally-funded programmes are ongoing or planned by Tanzanian research institutions and foreign research institutions. The research covers issues such as local adaptation strategies, downscaling of climate modelling and assessment of impact on crops and markets. However, the exchange of research results between researchers and the dissemination to different user groups is very limited and conducted fairly independently of nationally defined priorities.

NGOs are increasing their climate work, mostly as mainstreamed activities, having several fairly effective coordination forums. Nonetheless, NGOs request greater involvement of the GoT and DPs.

### Summary of recommendations:

1. DPGE needs to decide to what extent it will focus on mainstreaming, versus. specific climate activities, such as support for an expanded NAPA, support for VPO and TMA, for pilot activities and research.

2. Strengthen information management and flows, from dissemination of weather forecasts to interaction around government initiatives, exchange of research results, and information-sharing among members of the DPGE.

3. DPGE should endeavour to influence regional and global funding arrangements for coordination and alignment of climate support for government policies and plans.

4. To strengthen climate interventions in Tanzania and DPGE coordination efforts:
- Support to prepare a new national strategy and for a core DP-funded programme;
  - mainstreaming climate change in Mkukuta and in the water and agriculture sectors;
  - a fund to upscale and test local adaptation strategies;
  - improved information exchange at all levels, particularly in relation to research,
  - support for TMA and monitoring of climate change.
  - Proposed that the DPGE contract a half-time academic secretary.

### United Nations Development Programme and other UN bodies

A UN Joint Programme on Environment and Climate Change has been established with a budget of US \$10.9 million to mainstream these issues through the UN's work though few details were available of this programme at the time of writing other than its delivery of training to Members of Parliament as part of preparations for COP15.

Separately to this programme the UNDP is engaged in two other major projects on climate change. UNDP supported a multi million dollar project 'Mainstreaming Climate Change into Integrated Water Resources Management in Pangani River Basin Tanzania' from 2007-9 through the IUCN's long term support to basin management in the Pangani and although no outputs were available to this study it is said to be a highly useful example of how adaptation can be mainstreamed in the water sector.

The UNDP has also developed a \$3million project under its international JICA funded 'Comprehensive Adaptation to Climate Change in Africa Programme'. To be executed by the VPO the objectives and activities of this work are summarised in Table 7.



Table 7. Objectives, outputs and activities of the JICA funded UNDP Adaptation Project in Tanzania

**Objective:** Mainstream climate change adaptation mechanisms in planning, market/fiscal/financial and implementation processes.

**Output 1:** Dynamic, long-term planning mechanisms to manage the inherent uncertainties of climate change introduced.

**Activity Result 1:** Climate Change information base expanded and recommendations integrated into long term national planning and decision making processes, such as MKUKUTA/MKUZA, local government and sectoral strategies and plans.

**Activity Result 2:** Strengthened capacities of TMA, NEMC, other research institutions and MDAs (Ministries, Departments and Agencies) in Climate Change data collection, analysis, dissemination and development of planning tools.

**Output 2:** Leadership capacities and institutional frameworks to manage climate change risks and opportunities in an integrated manner at the local and national levels strengthened.

**Activity Result 1:** Climate Change Adaptation national coordination framework and mandate expanded to include other actors at national, local government and community levels.

**Activity Result 2:** Climate Change coordination and communication platforms at national, local government and in pilot districts established and strengthened.

**Output 3:** Climate-resilient policies and measures in priority sectors implemented.

**Activity Result 1:** Fiscal and regulatory policies in Tanzania adjusted to enable investments in adaptation by the private sector.

**Activity Result 2:** Capacity for the receipt and management of large scale, phased and complex global Climate Change Adaptation funding expanded.

**Activity Result 3:** National and local government budgets adjusted to reflect adaptation priorities.

**Output 4:** Financing options to meet national adaptation costs at the local, national, sub-regional and regional levels expanded.

**Activity Result 1:** Fiscal and regulatory policies in Tanzania adjusted to enable investments in adaptation by the private sector.

**Activity Result 2:** Capacity for the receipt and management of large scale, phased and complex global Climate Change Adaptation funding expanded.

**Activity Result 3:** National and local government budgets adjusted to reflect adaptation priorities.

**Output 5:** Knowledge on adjusting national development processes to fully incorporate climate change risks and opportunities generated and shared across all levels

**Activity Result 1:** Knowledge Management system on Climate Change Adaptation established building on the UN Joint Programme.

**Activity Result 2:** Climate Change adaptation knowledge, lessons and experiences from the region are used to inform national and regional policies and Climate Change interventions at community level.

### Royal Norwegian Embassy

The Norwegian Embassy in Tanzania, through its 'Acting on Climate Change' project are undertaking a pilot component of the Norwegian Government's International Forest and Climate Initiative - a global commitment of US\$ 500 Million by Norway's Prime Minister to reduce deforestation which commenced in 2008. Funds available are US\$ 100 Million of which US\$ 10 M was spent in 2009 and US\$ 15 M in 2010 for projects to address climate change, primarily from a REDD perspective. Projects include:

**Climate Change Impacts, Adaptation and Mitigation (CCIAM)** in Tanzania research programme, a 5 year joint effort between Sokoine University of Agriculture, University of Dar es Salaam, Ardhi University, Tanzania Meteorological Agency and Norwegian research institutions. The total budget is 94 million Norwegian kroner (US\$18 Million).

The programme is intended to boost the capacity of research institutions in Tanzania and bringing them to the forefront of climate change research in the region. A special focus will be given to research related to a successful implementation of the REDD initiative and closed links to the other programmes funded by Norway under its forest and climate initiative. 17 PhD and 50 MSc students will be trained under the capacity building component of the programme which sees calls for research proposals under themes including REDD, land tenure, governance and carbon accounting.

The research component has the following specific objectives which are translated into thematic areas:

1. Development of appropriate climate change mitigation and adaptation strategies in forestry, other land uses, ecosystems and biodiversity management;
2. Assessment of climate change impacts and vulnerability on ecosystem services and livelihoods under REDD initiatives;
3. Policy and legal framework analysis of climate change adaptation and mitigation with emphasis on economic efficiency, ecological effectiveness and wider political legitimacy.

50% of the research projects to be funded shall address issues related to forests and ecosystem services with the remaining 50% shall be on crosscutting issues related to REDD initiatives, agriculture, and other land uses.

**REDD piloting with NGOs.** Funding the establishment of REDD pilots with a NGOs including Tanzania Forest Conservation Group (TFCG), Care / WWF, Mpingo, Jane Goodall Foundation and the Wildlife Conservation Society of Tanzania. US\$25 million has been earmarked for this work. The sixth of these pilots has recently been agreed with the Royal Norwegian Embassy signing a contract with CARE International worth US\$ 5.65 million dollars to help Zanzibar prepare for a new international climate change agreement involving forests. Over the next four years, this project aims to prepare local communities and government institutions for a future international climate change agreement that rewards reductions in the rate of forest loss and resultant greenhouse gas emissions. The primary partner on Zanzibar is the Department of Commercial Crops, Fruits and Forest (DCCFF) of the Ministry of Agriculture, Livestock and Environment.

**REDD Policy Development.** Institute of Resource Assessment (IRA) of the University of Dar es Salaam (UDSM) working as secretariat to support REDD policy development process by government.

**International Meetings.** Tanzania was selected by the African Union Commission (AUC) to host the 2010 African Union Environment Day on 3rd March every year. The theme this year was "African Resilience to Climate Change: Biodiversity Conservation and Enhancing Traditional Knowledge". The event held in Arusha was opened by the Vice-President of Tanzania for Ministers for Environment from African Union member states and Senior Officials of AUC, UNEP and Secretariat of the Convention on Biological Diversity. The Embassy of Norway in Dar es Salaam was one of the main sponsors of the event together with WWF.

Future work under the initiative will also include training and capacity building for REDD and support for District Level Climate Partnerships. This later activity will see selected districts working in consortia with NGOs and the private sector following initial feasibility studies to pilot strategic responses to climate change including adaptation measures.

### UK Aid / Department for International Development

DFID is a major donor to Tanzania, delivering £120 million of aid in 2007-08 (with 80% of this to general

budget support) and the UK has played a leading role in establishing the new aid modalities seen in the country.

DfID have undertaken to take a leadership role within the development partners of Tanzania and since early 2009 a full time climate change advisor has been shared between DfIDs Tanzanian and Kenyan Offices. Activities and support include:

**Strategic Programme Review:** DfID Tanzania are piloting the UK's international response to commitments made under a White Paper on Climate Change which commits country programmes to identify strategic priorities for reducing vulnerability to climate change and to integrate adaptation and mitigation into future plans. Specific activities and analyses which contribute to the review include a political economy study to understand the 'drivers of change' within Tanzanian governance in response to climate change (not yet procured); a study of the economics of climate change in Tanzania (being undertaken by the Stockholm Environment Institute and EPMS); a study on key vulnerabilities to climate change in Tanzania; an analysis of low carbon future options for Tanzania; screening of DfID activities and programmes for opportunities to promote low carbon, climate resilient growth (including a screening of budget support).

In addition, DfID is also supporting:

**Tanzanian Civil Society Forum on Climate Change (Forum CC).** A one year package of support of £156 000 for a network comprising 40 active NGOs working on climate change. A break-down of the Forum CC budget provided by DfID in 2009 - 10..

Other activities include a review of climate change capability to influence governance on climate change through the DfID funded Accountability Tanzania programme managed; and the establishment of a Regional Climate Change Programme for SADC managed from South Africa.

#### USAID

With the change of leadership in the USA in 2009, USAID are in the process of redefining how they deal with climate change and a scoping paper prepared in March 2010 makes the following recommendations<sup>41</sup>:

1. Help the GoT revise and expand its approach climate change;
2. Help the GoT comprehensively rewrite NAPA;
3. Help develop, improve and spread information about climate change;
4. Consider direct assistance to mitigation efforts.

#### Reflections on donor response to Climate Change in Tanzania

There is no joint project or plan by the donors on climate change, the group is just a network of contacts. There is a lot of talk, ideas and words but not so much action. We need somebody to lead on agriculture and adaptation. It would be difficult for Norway to engage in that as there is not much capacity - it's a new area. We are comfortable with REDD but someone else needs to step up on adaptation, agriculture and bioenergy.

*The donor groups on Agriculture and Energy have not looked at CC- they are happy that the Environment Group are taking care of it. They do not see that adaptation takes place across the sectors - there is no focus.*

#### Development partner

*The French are rebranding everything they do in Tanzania as support on climate change*

#### Development partner

*Donors are willing to coordinate government on climate change but what about coordinating themselves? They are not. There is no plan to divide up or prioritise areas of intervention nor agreement between them on what should be done.*

#### Academic

Given the history of close development partner working in Tanzania there is a relatively greater level of coordination around the issue of climate change than in other parts of Africa. In particular the stocktaking work conducted by the DPG-E and the leadership emerging within DfID and Norad are positive steps. However, as indicated by the testimony above, the level of joined up thinking and action amongst the donors still falls short of that required to support a robust response. This analysis identifies the following problems and issues within donor support:

- Among the donors coordination and communication on climate change appears to be restricted to the DPG-E and its members and yet as they recognise, the ability and reach of this group is limited given that climate change adaptation will need to be coordinated across other sectors such as water, health, energy, finance and local government.
- Although the financial resources allocated by Norway are a very positive marker of the country's commitment on the issue, there is potentially a danger that such a large influx of funds may: a) divert limited capacity away from priority issues onto priorities of the Norwegian government. For example whilst REDD is an opportunity for Tanzania, the focus on REDD in such a huge funding commitment could draw researchers and political attention away from adaptation needs which are likely to be a more urgent priority for protecting vulnerable communities; and b) overload capacity within government to use the spend effectively and the capacity of the donors to distribute the spend effectively resulting in wastage of finance and its diversion towards non-essential activities (such as an expensive Africa Environment Day meeting in March 2010. The meeting cost US \$400 000 yet has played no obvious tangible role in strengthening the strategic response to climate change).
- Some donors are beginning to label 'everything they do' as climate change adaptation, but there is a danger in doing so, because it may fuel the potentially diverting debate about ODA additionality and attribution which could become an increasingly problematic barrier to agreement on international flows of new and additional finance for adaptation;
- Whilst the potential efforts and political priority promised by USAID's engagement on the issue, its traditional modalities of assistance lie outside pooling direct support to government. Diversity in donor support modalities can be useful but it also risks parallel initiatives, high transaction costs and overloading of limited government capacity;
- The JICA funded UNDP initiative in Tanzania on adaptation is attracting mixed reviews from other donors and government and is seen as cutting across attempts at genuine donor coordination around demand driven development. Whilst its activities are well intentioned there are doubts as

to both the adequacy of the funding, and the level of government ownership and commitment to this work which may undermine meaningful action on adaptation, particularly because this work threatens to 'fill the spaces' and duplicate the roles of any future genuinely government owned processes.

Some informants questioned the efficacy of current donor coordination and limited funding commitments towards adaptation in Tanzania. Whilst there is a widely held recognition that Tanzania urgently needs a revised and extended NAPA or alternative national policy on Climate Change based on a robust and objective appraisal of priority vulnerabilities, targeted effort by donors to fund and develop such initiatives, including reaching out across other government and development partner work areas is still outstanding, or at least have had little effect.

#### 4.3. Non-governmental organisations<sup>42</sup>

Both international NGOs and Tanzanian NGOs are increasingly oriented to the climate change agenda. Coordination efforts are underway through Tanzania Civil Society Forum on Climate Change - 'Forum CC' and some of the main actors are considered following an overview of the Forum and its work to date.

#### Forum CC - Tanzania Civil Society Forum on Climate Change

Oxfam Tanzania with support from DfID has supported the initiation and organisation of the Tanzania Civil Society Forum on Climate Change - 'Forum CC'. The Forum has received endorsement from a wide range of groups that agree on the need for more coordination, information sharing and engagement in particular with the government of Tanzania around its policies, positions and national implementation of responses to Climate Change.

The Forum's three main areas of engagement are advocacy, information sharing and capacity building for civil society. Given that community participation is often missed in national policy debates, the Forum aims to support community-based civil society organizations as well as CSO based outside of Dar-es-Salaam to participate directly in advocacy and information sharing. It brings

<sup>42</sup> Information in this section is drawn in part from the DANIDA et al. 2009 study

<sup>41</sup> Perez 2010

together development and environment organizations, those with technical skills and those with a more delivery and advocacy focus.

Since starting in October 2008, the Forum has convened a series of five national meetings and has representation in the governments National Climate Change Technical Committee (NCCTC). The Forum is in receipt of support from DfID to enable it to be the vehicle through which broader civil society involvement will be facilitated.

Forum CC's main areas of engagement:

- For CS in Tanzania to be influential in advocating for an effective response to climate change from the national to global level.
  - Develop and maintain media contacts and media profile for climate change issues.
  - Establish links with and ensure regular engagement with relevant ministries and departments of the Tanzanian government. This will include supporting CS representatives in the Nation Climate Change Technical Committee.
  - Develop CS positions on key climate change questions and share these with government as well as publicly and in international forums.
  - Support the participation of well informed Tanzanian CS representation in attending and lobbying at key international forums.
  - Work with members to create a platform for vulnerable people affected by climate change in Tanzania to share their experiences and views for public debate and input into negotiations and policy development processes.
  - Develop accessible materials for publication and songs and video and radio materials to raise greater public awareness and from this pressure on climate change.
  - Adding Tanzanian voices to global campaigns.
  - Tracking and sharing information on Tanzanian positions, policies and implementation of climate change initiatives among Members of the Forum and the broader public.

- Effective coordination and information sharing among CSOs in Tanzania on climate change issues.
  - Regular Forum meetings open to all and especially to allow for joint preparation and reports from key events.
  - Maintain and use email list and web site for dissemination of information.
  - Gather and disseminate information on the latest developments in particular on national and international level negotiations.
  - Gather and disseminate information on the impacts and responses to climate change with a focus on highlighting the impacts of climate change in Tanzania.
- Improved capacity of CS in Tanzania to respond to climate change in their programme and advocacy work.
  - Gathering and sharing case studies, best practices, examples, and experiences between forum members and from other countries.
  - Arranging of training on the incorporation of climate change into development programmes.
  - Keep members up to date with developments and opportunities such as availability of adaptation funding, and policies as well as international agreements on carbon trading.

The Forum is run by a Coordination Team selected by members who will set direction and oversee implementation. Tanzanian Natural Resources Forum (TNRF) runs the day to day operations and manages resources.

Prior to members attending the COP 15 event in 2009 the Forum organised the National Climate Change Hearings in Dar-es-Salaam where Tanzanians from around the country testified to the affects of climate change in their daily lives (see chapter 7). In March 2010 the Forum organised a review of COP 15 outcomes and discussion of the way forward for Tanzania. The event was very well attended by over 100 delegates, which indicates the level of interest in the issue in Tanzania. Future events include training for CSOs on what adaptation means in practice

*Other national NGO Networks:*

In addition to Forum CC three other NGO networks relevant to climate change issues are currently operating

or in the process of being constituted; 1) TNRF, Tanzania Natural Resource Forum, 2) IDGE, The Informal Discussion Group on the Environment, and 3) Tanzania Network on Water and Sanitation. The first one is well functioning and has a broad member base at national level, whereas the IDGE has recently been revitalized. The work of TAWASANET formed in 2008 by 23 CBOs working on water and sanitation is likely to be affected by climate change and variability though climate change currently has a low profile within their work and discussions.

#### *The Tanzania Natural Resource Forum*

TNRF is a national organization with it's main office in Arusha and a sub office in Dar Es Salaam. The Dar offices is used for holding meetings of the Tanzania Forest Working Group meetings and conducting other activities such as coordinating the awareness and communication campaign (Mama Misit) on forest governance based on TRAFFIC report on illegal timber trade in Tanzania. The campaign is an initiative of 18 CSOs and the project is funded by the Ministry of Foreign Affairs of Finland. TNRF has experience in communication, information sharing and networking in Tanzania with a diverse range of NGOs working on natural resources issues including climate change related work such as on carbon emissions and REDD.

TNRF has grown from a small, informal discussion group with a focus on wildlife issues in 2002, to a national natural resource advocacy and informational network of over 1,300 individuals and organisations in 2009. TNRF is funded by a diverse range of donors, such as international development partners, government and private funding. Representing an established forum with a 11-person secretariat, makes TNRF an appropriate structure for administering Forum CC.

#### *IDGE, Informal Discussion Group on the Environment*

The IDGE is a multi-disciplinary, broad-based discussion group concerned with national and international environmental and conservation issues. The group facilitates dialogue between civil society, development partners, and government. The IDGE works through a theme-based discussion programme on key strategic issues, such as the Tanzania Assistance Strategy, MKUKUTA II, the National Strategy for Sustainable

Development (NSSD) process, local government reform, to understand better the extent to which environmental issues are being mainstreamed in order to reduce poverty.

Established in November 2000, with IUCN as the secretariat meetings of a network of 45 members petered out in 2006 due to lack of resources and capacity. In late 2008, the network was revived and meetings have targeted mainstreaming environment into strategic processes though there is no evidence of how effectively this is being achieved

Details of selected NGOs relevant to climate change projects and programmes:

#### *CARE Tanzania*

CARE Tanzania was established in 1994 with the goal of poverty reduction and improvement of social justice. With the launch of the Poverty-Climate Change Initiative in July 2006, CARE International (CI) began adapting its worldwide programming to the climate change realities. Care Tanzania accordingly started planning an appropriate response to climate change, and positioned them strategically on the issue of climate change, undertaking mitigation, adaptation and advocacy activities. ([www.care.org](http://www.care.org))

#### *The International Union for Conservation of Nature (IUCN)*

The world's largest and oldest global environmental network with more than 1000 government and NGO members. IUCN's mission is to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable. As part of the new 2009-2012 programme, IUCN is working to include biodiversity concerns in adaptation and mitigation policies and practise, thereby linking biodiversity and climate change. ([www.iucn.org](http://www.iucn.org))

#### *OXFAM*

Oxfam International is a confederation of 13 organizations working together and with partners and allies around the world directly with communities seeking to influence the powerful to ensure that poor people can improve their lives and livelihoods and have a say in decisions that affect them. OXFAM is represented in Tanzania through their



representative office in the country, which is working within the vision of OXFAM Global Climate Change Campaign, aiming at responding to increasing numbers of serious droughts and floods in recent years, helping poor communities to adapt, such as through better flood defences or drought resistant farming techniques. Oxfam Tanzania are attempting to instil public and NGO activism on climate change in Tanzania ([www.oxfam.org](http://www.oxfam.org))

#### *Shahidi wa Maji*

A Tanzanian research and advocacy organisation working for greater accountability and better performance in the management of water resources and adaptation to climate change. Recognising that resilience to climate change will come through judicious water management, with partners in the water sector including WaterAid and TAWASANET, Shahidi is tracking performance and budgets and is attempting to bridge the gap between those working in the water sector and others working on climate change. Shahidi is particularly interested in the potential role of tracking budgets and performance in improving incentives and accountability for effective and pro poor climate change adaptation in the region. [www.waterwitness.org](http://www.waterwitness.org)

#### *Tanzania Forest Conservation Group (TFCG)*

The Tanzania Forest Conservation Group is a Tanzanian non-governmental organisation promoting the conservation of the Eastern Arc/Coastal forest biodiversity hotspot. For the last 19 years the Tanzania Forest Conservation Group has worked to provide sustainable solutions to the problems that have driven deforestation in this unique area, and has recently started planning REDD activities and capacity building with regard to the international negotiations. (<http://www.tfcg.org/>)

#### *Tanzania Traditional Energy Development and Environmental Organization (TaTEDO)*

For more than fifteen years, TaTEDO has been engaged in implementing different sustainable modern energy development projects and programmes in Tanzania. The overall objective of TaTEDO is to enable the majority of

the population, particularly women, to access sustainable modern energy technologies and services that contribute poverty reduction, sustainable development, climate change mitigation and adaptation. ([www.tatedo.org/](http://www.tatedo.org/))

#### *Wildlife Conservation Society of Tanzania*

A national NGO, engaged in advocacy issues towards promotion of sustainable and equitable use of natural resources. WCST is the national partner of Birdlife International. ([www.wcstonline.org](http://www.wcstonline.org))

#### *WWF Tanzania*

WWF, one of the world's largest independent conservation organizations has been actively involved in conservation work in eastern Africa since 1962. As part of an ongoing global structuring, the geographical concentration will be in coastal East Africa focusing at the coast from Kenya to Mozambique, which will cover 70% of WWF Tanzania's budget. This programme will combine conservation and climate change issues. In 2009 WWF Tanzania produced a documentary called 'Climate Witness' which traced how climate variability was impacting on livelihoods across Tanzania. The films were distributed across government and shown on Tanzanian television.

#### *Reflections on the efforts of NGOs*

There is a great deal of emerging activity on climate change by NGOs in Tanzania and with the support of Forum CC and others, communication and a level of coordination are being facilitated among them. Again whilst diversity in responses to the climate change challenge is healthy, the NGOs currently lack a coherent strategy behind which to rally their efforts, either their own or a nationally owned one.

*Whether Forum CC works will depend on the quality of the manager and whether it is done in correct spirit - for action rather than allowances. The aim is to develop a common policy, be the contact point for government, do research and development and develop common positions to inform advocacy. We need to develop a long term strategy and funding proposal.*

**NGO**

Grassroots activity of climate change adaptation is particularly limited beyond ongoing development activities which will contribute to greater resilience

NGOs have been successful in raising the profile of climate change at least within their project areas and in the media (of particular note are the National Climate Change Hearings and Climate Witness, both of which received a high level of media coverage and political attention). That said there is a need for greater care in communicating the uncertainties of climate change across all audiences. Although NGOs may be tempted to present a crisis narrative around climate change, to avoid perverse outcomes, it is important to delineate between 'normal' climate variability and human induced change, or problems which are not caused by climate change.

Activism and advocacy are relatively new themes for NGOs in Tanzania but promising results are born out from this approach in other sectors. Oxfam, WWF and Shahidi wa Maji in particular are keen to instil a sense of activism on climate change and to support greater citizen agency in holding government and donors to account on the way they allocate and spend funds on climate change. Enabling sophisticated levels of analysis and advocacy around an effective climate change response - turning the noise made by NGOs into targeted and effective voice - is likely to play a positive role.

*An objective climate change advocacy platform flagging bad science and tracking performance against spend would be a very good idea.*

**Development partner**

DFID through their ACT programme have recently invited expressions of interest from consultants to conduct research on how well placed civil society is to conduct sophisticated advocacy on climate change in Tanzania.

#### **4.4. Private Sector**

Beyond small scale Tanzanian consultancies there is little evidence that the private sector is engaged in Tanzania's response to climate change although DfID have recently announced a window of their Africa Enterprise Challenge Funds to stimulate innovation in adaptation and renewable energy.

That no private sector entities seem to be engaged in adaptation, neither in thinking about the vulnerabilities faced by business and the economy and actions required on resilient growth, nor in providing services to others to assist in building resilience is revealing.

Elsewhere in the region, agricultural micro-finance and weather index insurance is being piloted and promoted as a private sector supported response to climate change although no information on this kind of approach being tested in Tanzania could be found by this study.

Furthermore, large economic entities, particularly commercial farms, fisheries, factories and tourist facilities are likely to have valuable insights into the shocks which a variable and changing climate can impose on economic activity, and of the array of measures available to build resilience. No exercise has been attempted to bring that level of experience together or to formulate a business led response to adaptation.

Good levels of private sector consulting/research capacity on climate change issues are emerging, in particular:

#### *Centre for Energy, Environment, Science and Technology (CEEST)*

Ceest foundation is an independent research institution from 1992 whose objectives are to undertake research and studies in areas related to energy, environment, science and technology. Ceest is conducting and specializing in Environment, more especially in Climate Change Studies (Impact, Adaptation, GHG Inventory & Mitigation, and CDM), Environment Impact Assessment, Environmental Audits, Environmental Policy and Planning and Environmental Institutions, Energy and Natural Resources Conservation. ([www.ceest.co.tz](http://www.ceest.co.tz))

#### *Environmental Protection Management Service (EPMS)*

EPMS was established in 1997 as a professional environmental firm dedicated to work both at national and international level on issues related to environment and sustainable development. The key areas of expertise include Climate Change, EIA and other professional services as well as activities related to the implementation of the three post Rio Conventions (CBD, UNFCCC

and UNCCD), adaptation and mitigation project activities including activities related to identification and implementation of CDM projects and preparation of CDM Project Design Documents. EPMS is working with international partners such as IIED (International Institute for Environment and Development) and Stockholm Environment Institute. In February 2010, with IIED, EPMS hosted 180 participants from 35 countries at the Fourth International Conference on Community Based Adaptation to Climate Change in Dar es Salaam. EPMS are working with both IIED and SEI on initiatives to assess the economic implications of climate change for Tanzania. This included the commissioning of research by the University of Dar es Salaam on key vulnerabilities (see Chapter 2). ([www.epmstanzania.org](http://www.epmstanzania.org))

#### 4.5. Universities and research bodies

Research institutions with capacity and track record on climate change in Tanzania include:

##### *University of Dar es Salaam*

The Institute of Resource Assessment: Research on climate change issues, and offers doctoral and post-doctoral research fellowships on climate change related topics (under a DFID-funded programme and Norads new support). Major ongoing climate change related research includes:

- Modelling crop production under various climate scenarios
- Impact of climate change on agricultural systems
- Impact of climate change on rangeland production
- Impacts of climate variability on food production (in collaboration with the Department of Food Security)

##### *College of Engineering and Technology*

Greenhouse gas inventories, CDM and impacts. Has been involved in source/sink assessments since 1994. It conducts research involving windmills, landfill gasses, carbon cycle in bio fuels and use of CDM in sugar as well as pulp and paper industries.

##### *Ardhi University (formerly UCLAS), School of Environmental Science*

Conducts training and research in disaster management. In cooperation with the PMO, it has established the Disaster Management Training Centre. In 2002, it prepared a national vulnerability assessment. In May 2006, it published the study "Community initiatives in managing urbanisation and risk accumulation processes: lessons from Dar es Salaam". The school is currently following up the findings with the affected municipalities and communities.

*Department of Geomatics, Department of Urban and Regional Planning, and Department of Environmental Engineering.* These three departments all carry out some research within adaptation and mitigation. They are involved in cooperation with NASA and Purdue University on measurement of sea level rise, as well as in regional cooperation around Lake Victoria.

##### *Sokoine University of Agriculture*

Focuses on research and development in soil and water management, food security and household income for small-scale farmers. It has recently appointed a Team Leader dedicated to climate change. Much of its research agenda (watershed management, rain water harvesting, agricultural water-use reduction, agro-forestry) has now become eligible for funding under the heading of climate change. An ongoing study specific to climate change is an historical climatological study. This will analyse 50 years of climate data collected by TMA.

##### *Natural resources research institutions*

The government has established three institutes with an overall mandate of providing scientific information and advice to government on matters relating to the sustainable management of natural resources. These include Tanzania Fisheries Research Institute (TAFIRI), Tanzania Forestry Research Institute (TAFORI), and Tanzania Wildlife Research Institute (TAWIRI).

##### *MOAC Research Institutes*

There are at least 14 institutes under the MOAC that conduct research into agricultural or livestock issues (14 are listed in COSTECH's list of research institutions). Originally, most were focused on single crops (e.g. one each for coffee, bananas, coconuts, sugarcane etc.), but

they have recently increased their focus to encompass agricultural biotechnology and farming systems research. Their funds and research directions are decided centrally by the Directorate of Research and Training. Current research includes studies of crop resistance to climate variability and the potential for introduction of new crop varieties with greater resistance to drought.

Economic and Social Research Foundation, (ESRF). One of several independent non-profit institutions for research and policy analysis. It focuses on issues such as growth and development, globalisation, governance and social services, and quality of life. Recently, it has been involved in climate change in cooperation with University of Copenhagen Institute of Resource Assessment.

##### *Reflections of research institutions response to climate change*

Tanzania's research capacity on climate change is boosted by the presence of Professor Pius Yanda, an IPCC author who is Director of the Institute of Resource Assessment. Under his leadership the new research window supported by NORAD is likely to provide a major boost to the already reasonable research capacity and breadth on climate change in Tanzania.

Although Tanzania does not have the capacity to run climate models, close links exist with CSAG at the University of Cape Town. A senior academic flags the following concerns:

We still urgently need baseline information and work on impact assessment - we need to do spatial analysis showing where impacts will be and to produce a second layer of vulnerability irrespective of CC models. This will identify priority areas for intervention which will support agreement on planning and priority funding. Although there is a lot of research going on in Tanzania each approach is based on its own context and interests - there is no priority list of the research questions Tanzania needs to answer

In this regard, the Commission on Science and Technology (COSTECH) - whose mandate is to approve, track and disseminate all academic research in Tanzania - could play a useful role in working with IRA, government and others to prioritise international research effort to address the applied research questions most pertinent to the country's adaptation needs.

#### 4.6. Concluding remarks on climate change adaptation institutions and actors analysis

Across the actors landscape, in all except the private sector, interest, capacity and activity on climate change has grown quickly in recent years. Disparate activities to date have largely been led by external forces and developments, and across the board there is a need for greater co-ordination, leadership and demand driven focus so that the growing resources available to prepare for climate change are targeted to the needs and contextual realities facing Tanzania. That coordination is emerging among the donor partners and the NGO community although this needs to be strengthened with a focus on outputs, action and rational planning. Within government, as in other African countries, although interest is increasing, capacity to plan Tanzania's domestic response is overloaded by the demands of international agendas on climate change and the leadership and authority to coordinate and work across government is lacking.

At the same time there are systemic issues which undermine the ability of government to implement an effective adaptation response and the window of opportunity provided by the political focus on climate change should be considered as a chance to air and address these issues. They include widespread dysfunction of the public sector; the near absence of environmental protection, water resource regulation; disaster management; land planning and control; and agricultural extension functionalities.

Notwithstanding such efforts, an additional outstanding problem is land hunger, and relatedly, low land productivity which creates a driver for deforestation - climate change mitigation is not possible until this is tackled. There are strong links between the mitigation and adaptation agendas - additional climate stress will worsen deforestation. Rural people are forced to undermine resilience and expose unproductive land to erosion as they have no options for energy sources, land or income. Until widespread poverty, inequality and land hunger are addressed through more effective governance, and government becomes more accountable for serving the needs of citizens, vulnerability to climate change will persist.

# Five: Public Awareness of Climate Change

Climate change has been an area of increasing debate within Tanzania's media, with articles focused on the implications for Tanzania, radio and television giving airtime to the issue, particularly in the run up to COP 15. However the tenacity of this reporting could be improved to drive greater commitment and accountability, it tends to not have a good handle on uncertainty and there is a habit of the media reprinting articles which appeared in international or 'northern' media which is sometimes less relevant to the Tanzanian context. The Journalist's Environment Trust (JET) is playing a key role in improving the quality and coverage of media attention on environmental issues including climate change.

This debate and discussion is mirrored across civil society and political institutions, through for example WWF's and Forum CC's awareness raising work through their Climate Witness and National Climate Hearing initiatives respectively. The National Climate Change Hearings in Dar-es-Salaam in December 2010 saw Tanzanians from around the country testifying to the affects of climate change on their daily lives. The testimonies provided inputs for the negotiating team from Tanzania in Copenhagen. Hon. Dr. Batilda Burian, the Minister of State in the Vice President's Office (Environment) was the keynote speaker and lead panellist and the event was covered widely on radio and television in Tanzania.

However increased coverage and awareness doesn't necessarily translate to increased understanding or action within the groups most effected or able to affect change. Much depends on the quality, tenacity and modes of communication used and the socio-economic and

governance landscape against which it takes place.

As part of its Africa Talks Climate initiative the BBC World Service Trust, conducted research to explore public understanding of climate change in 2009<sup>43</sup>. The research saw twelve focus group discussions across Tanzania and 17 key informant interviews with religious leaders, government, civil society, business and media people to explore how people perceive and think about the issue. The full report is a useful resource for those working on the issues and its findings and recommendations are summarised in Table 9.

Within the emergent debates in Tanzania there is a conviction that recent variability and extreme events are a result of climate change. NGOs in particular appear ready to label any weather event or weather induced problem as the result of climate change. However, as established in Chapter 2 there are no clear trends identified in peer reviewed journals to verify such claims and extreme events can be the norm in East Africa. There are hazards here - such as muddling the lines of responsibility between government and developed country donors for acting on disaster risk reduction. It is vital within the recent frenzy of activity and interest around climate change, that uncertainty and background natural variability are reported and communicated intelligently and responsibly.

<sup>43</sup> BBC World Service Trust 2010, *Tanzania Talks Climate: the public understanding of climate change*, Research Report, British Council, [www.africatalksclimate.com](http://www.africatalksclimate.com)

Table 8. Summary of key insights and recommendations emerging from the BBC World Service Trust (2010) research on climate change awareness in Tanzania

KEY INSIGHTS:
<ul style="list-style-type: none"> <li>• Tanzanians have noticed changes in the weather, seasons and drought but most have little understanding of the relationship between these issues and climate change.</li> <li>• Most Tanzanians are unfamiliar with the concepts of climate change and global warming.</li> <li>• Most believe that humans are to blame but point to local deforestation and local pollution as the primary causes of the drought and environmental degradation and hold themselves individually or collectively responsible for local changes</li> <li>• Swahili translations for climate change terminology do not effectively convey the causes or global nature of the issue.</li> <li>• Many look to the government for help but feel that it has done little to address local problems. government representatives say their efforts are limited by inadequate resources.</li> <li>• Many Tanzanians familiar with climate change learned about it through the media. The Tanzanian media says it is struggling to cover the issue and feel daunted by the complexity of reporting on it.</li> <li>• Local leaders are well positioned to take action on climate change adaptation but tend to be the least informed, among opinion leaders, about climate change and its long-term impacts.</li> </ul>
RECOMMENDATIONS:
<ul style="list-style-type: none"> <li>• The information and communication needs of Tanzanian citizens need to be at the heart of any national response to climate change;</li> <li>• the ability of Tanzanians to respond effectively to climate change will be determined by the accessibility and quality of the information available to them.</li> </ul> <p>Three specific recommendations:</p> <p><b>Provide information</b></p> <ul style="list-style-type: none"> <li>• Be mindful of people's existing frames of reference</li> <li>• Invest in efforts to develop and test appropriate climate change terminology in Swahili and other languages.</li> <li>• practical ways to adapt to climate change and prepare for extreme weather events.</li> <li>• Pay particular attention to the needs of information-poor rural communities.</li> <li>• Provide local leaders with access to information on climate</li> <li>• Increase opinion leaders' understanding of global climate change so that they can communicate confidently on the issue</li> </ul> <p><b>Facilitate policy and public debate</b></p> <ul style="list-style-type: none"> <li>• Support more effective public debate on climate change in Tanzania.</li> <li>• Draw on a range of Tanzanian voices and experiences to discussions and debates: engage citizens, local interest groups, civil society actors, religious leaders, and policymakers from all levels of government.</li> <li>• Harness Tanzanians' understanding and experience of their changing weather and environment to create a relevant discourse</li> </ul> <p><b>Encourage accountability</b></p> <ul style="list-style-type: none"> <li>• Develop mechanisms which enable Tanzanian citizens to move climate change on to the political agenda; and to exert pressure on their own governments with respect to climate change policies, adaptation funding, technology transfer, emissions reduction and other response strategies.</li> </ul>



## Six: Regional and International Actions

Tanzania is active in the global negotiations on climate change, as well as preparatory forums such as the Least Developed Countries group and the African Environment Ministers Conference. Support has been provided by Norad and other donors for attendance at these events and Richard Muyungi from the national focal point is supported as chair person of the Adaptation Fund Board.

At COP 15 in Copenhagen 20 delegates from GoT attended along with a number of Tanzanian NGOs. Negotiations on the main issues were led by VPO and the GoT aligned with that of the CSOs, and were aligned with the Africa Groups Negotiation Text. Key elements of this position on adaptation were:

1. Objectives, scope and guiding principles: to establish an action-oriented adaptation programme based on the NAPA;
2. Implementation of adaptation action:
  - a. prioritise the short term adaptation needs
  - b. adequate, predictable and sustainable finance for adaptation
  - c. distinct scaled up finance from ODA
  - d. engagement of all stakeholders
3. Means of implementation
  - a. commitment from Annex 1 parties should be legally binding with reporting and verification mechanisms
4. Risk reduction, management and sharing
  - a. public private partnership to catalyse engagement

- b. multi windowed mechanism for risk reduction in line with country driven approaches to support vulnerable regions, groups, sectors and ecosystems
5. Institutional arrangements
  - a. predictable and adequate financial resources, technology transferred capacity building to developing countries
  - b. existing institutions be enhanced
  - c. new adaptation committee be established as a clearing house for information dissemination
  - d. national and regional coordinating centres be established
  - e. adaptation centres be established
6. Monitoring and review of adaptation and support established to ensure compliance in meeting commitments under Article 4 (para 4.3, 4.4, 4.5)

At a multi-stakeholder 'post COP' meeting in March 2010 to discuss outcomes and way forward, disappointment was expressed at what was considered the lack of any outcome. The following points were made by stakeholders:

- there was a feeling that Meles Zenawi, Prime Minister of Ethiopia and Lead Negotiator for the Africa Group had 'sold Africa out' by developing a separate deal with the French rather than championing Africa's stance.
- China had wavered between the developed countries and LDC blocks which had weakened Africa's position
- that the Copenhagen Accord was developed through an undemocratic process and has little legitimacy; is a step backward on emission control; establishes a temperature target which will result in widespread impacts and is not achievable on current pledges
- in addition the financing provisions - said by many to be the most successful part of the Accord - have unclear operationalisation provisions which will pose serious problems for developing countries and are insufficient.
- Recognition that the negotiations on finance and the difficulties in differentiating development assistance from adaptation assistance would be problematic.
- Although there was alignment between NGOs and government in the run up to COP 15, this

might be more difficult in future discussions of how adaptation funds are spent.

However, these are not necessarily the views of the Tanzanian government. Indeed the NGOs at this meeting suggested that African governments were happy with the Accord because it would mean 'new money' but doubted the ability or willingness of government to target these resources at the most vulnerable groups. It is reported that at a meeting in January the OAU, after some wavering and criticism, made a renewed commitment of support to Meles Zenawi's role as lead negotiator within the Africa Group and the High-level Panel on funding. The outcomes of this latter groups work in 2010 seem to be critical for the efficacy of adaptation action across Africa.

## Seven: Gender Analysis

For efficiency and completeness, a review and analysis of the gender dimensions of climate change vulnerability and response in Tanzania has been included as a discrete section here, rather than as bolt on comments in earlier sections.

Recent work has done much to elucidate the rationale and modalities for improved integration of gender equity across the climate change agenda<sup>44</sup>. In part these efforts respond to a UN CSD 2006 meeting on the issues which concluded that:

- women, because of social roles, discrimination and poverty are affected differently by climate change and extreme weather events;
- women are not sufficiently represented in decision making processes or in the development of adaptation or mitigation strategies;
- women should contribute not because they are 'vulnerable' but because they have different perspectives and experiences to contribute.

Because of the differentiated and often unequal roles between men and women within society and local communities, women have the capacity to be impacted in an unequal manner and be primary arbiters of adaptation. Without a robust handling and integration of gender issues and equity within the climate change response there is a risk of lost opportunities and that unequal impacts and deepen gender inequity may result. The UNDP resource guide on gender and climate change concludes that: improved understanding and analysis

<sup>44</sup> UNDP 2009, Rodenburg 2009 and collated by Terry 2009

of gender and climate change must be integrated into examining the issues and response; information must be gathered, documented and effectively communicated; that international and national policies and plans must be influenced to integrate gender issues; and gender issues should be incorporated and women should participate when developing strategies, creating awareness and building capacity.

As well as quantitative assessments of the number of women involved in climate change activities, qualitative analysis are needed to appraise whether this engagement is meaningful. Rodenburg (2009) provides a set of qualitative criteria for screening policy instruments. A combination of these approaches is applied here to appraise where, how and how effectively the response to climate change in Tanzania has integrated gender equity considerations. Specifically, based on a review of key documents, secondary data and key informant interviews a qualitative assessment has been made of the level of gender inclusivity and the level to which gender equality is embedded within the various aspects of Tanzania's response to climate change. The key distinction between gender inclusivity and gender equality is that the former refers to the involvement of women in decision making and debate whilst the latter considers whether this translates into genuine equal rights, responsibilities and opportunities of women and men<sup>45</sup>. A brief text justifies the indications provided in Table 6, however these judgments are not equivocal and invite discussion and debate.

<sup>45</sup> 32 UNDP Gender Equality Strategy 2008-2011

Table 9. Analysis of degree to which a gender inclusive approach and gender equality are embedded in aspects of Tanzania's response to Climate Change

Y - Yes N - No ? - Inconclusive	Gender inclusive approach	Gender equality embedded
Gender equity in Tanzania	?	?
The gender analysis provided in Table 7 demonstrates that although Tanzania is making progress nationally on the representation of women in key positions, with around a third of ministers, MPs, technical and professional staff, legislators and senior managerial positions occupied by women and near equity in school enrolment levels. However, disparities in income levels, adult literacy and the gender empowerment measure indicate that Tanzania is some way off from genuine gender equality.		
Gender in CC Policy and Development	Y	?
In international analysis the Tanzanian NAPA has singled out as paying particular regard to gender empowerment issues in its genesis and focus. It pays specific reference to the differentiated impacts of CC on women - for example, citing that dowry payments are sought to enhance resilience to drought which leads to girls marrying at a young age and being exposed to STDs. Policy appears gender inclusive but there is a lack of detailed information available on how gender will be differentiated in policy implementation.		
Gender and CC actors landscape	Y	?
Women are increasingly well represented in the actors landscape on CC in Tanzania, particularly within NGOs and CBOs, the donor community and senior levels of government working on the issues. The Minister for State for Environment is female. Because of this inclusion it is unclear whether women have equal opportunities to participate in the CC agenda particularly at a village level.		
Gender and CC awareness	Y	?
Gender considerations feature prominently in much of the awareness raising literature on CC in Tanzania (see WWF 2010, BBC-WST 2010 etc) and testimony of stakeholders suggests that there is equitable representation in awareness raising and capacity building events, thus in terms of the content and recipients, at a professional level there appears to be a level of equity. However given differences in literacy levels and access to information at a community level it is unlikely that there is equality in terms of awareness		
Gender and International negotiations	Y	Y
According to informants, Tanzania was well represented by women at international negotiations (making up 1/3rd of delegates at COP15) and were represented in the most senior positions within the delegation where they play a critical role in embedding gender equality in an African context within those debates and decision making processes.		

Gender focused action on CC Adaptation

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The lack of gender inclusivity and equality within concrete action on climate change adaptation is because to date there has been very little action at all. Although the INGOs and CBOs have established or are establishing pilot projects for adaptation, there is little evidence that poor communities of either gender have benefited to date.

Table 7. A snapshot of gender inclusion and equality indicators for Tanzania and Germany<sup>46</sup>

Country	% female adult lit. rate	% male adult lit. rate	Female combined gross enrolment ratio %	Male combined gross enrolment ratio %	Earned income ratio of female to male	Gender empowerment measure (GEM)	Seats in parliament (% held by women)	Legislators, senior officials and managers (% women)	Professional and technical workers (% women)	Women in ministerial positions (% of positions)	Year women received the vote
	1997-2007a	1997-2007a	2007b	2007b	2007f	2007	2008d	1999-2007e	1999-2007e	2008h	
Germany	..	..	87.5	88.6	0.59	9	31	38	50	33	1918
Tanzania	65.9	79	56.2	58.4	0.74	69	30	16	38	21	1959

The levels of gender inclusion in the climate change agenda in Tanzania are promising, in particular where this inclusion has been driven autonomously. For example the UNFCCC makes no reference to the need for a gendered response to climate change and yet Tanzania's response has emphasised the relevance of gender in its national response. Indeed Tanzania is singled out internationally for progressively prioritising gender empowerment in its adaptation response. However, as already explored, detailed plans, policies, and most of all action are lacking to translate this into genuine gender equity throughout the way Tanzania responds to the challenge.

It seems that whilst women have been included in activities and awareness raising around the issues, and there is recognition of the importance of the gender dimension of climate change, there is a wider failure to develop pragmatic and strategic plans to build resilience

<sup>46</sup> Human Development Report 2009

or act on the vulnerabilities. This not only threatens to reverse poverty reduction and economic gains in Tanzania, but because of the nature of climate change impacts and their differential implications for women and for men, boys and girls, to reverse gains in gender equity.

## Eight: Conclusions and Recommendations

This report traces how the elevation of climate change within the global development agenda has translated into heightened political interest and an escalation in the number of actors involved, and initiatives underway around the topic in Tanzania. In particular, political momentum has been demonstrated in the run up to COP 15, through the formation of a civil society platform (Forum CC) and associated awareness raising activities; and a broad array of research initiatives and a stocktaking exercise by donors working on the issue. This work, much of it funded and supported by development partners and NGOs, in particular the Government of Denmark; the UK Department for International Development; and Norad is commendable. However, this case study identifies outstanding issues and interrelated problems which threaten to undermine efforts to prepare Tanzania for climate change adaptation. These include:

- **Capabilities:** Pockets of technical expertise and competence to respond to climate change exist within Tanzanian government, line ministries, NGOs, research institutions and the private sector. However it is spread thinly and appears overwhelmed by the challenges of responding to a new, complex and cross-cutting challenge around which there is much uncertainty. Additionally, this limited capability seems drawn towards outward facing initiatives such as international negotiations and the demands of external actors, rather than focusing on the immediate domestic needs of Tanzania. The international support available on climate change to extend these capacities is not yet

reliable in terms of its quality and the adequacy of finance. However this latter issue is confused through problems with absorptive capacity, governance and unresolved political and practical arguments regarding adaptation finance.

- **Resources and finance:** The financial and technical resources available to Tanzania to adapt to climate change are very limited both because of a lack of prioritisation and finance allocation within the GoT and an apparent reluctance by the development partners to mobilise large scale adaptation finance. One reason for this may be the lack of 'bankability' of the Tanzanian NAPA (which is widely considered to be an inadequate basis for financial support) and the resultant vacuum in terms of government owned plans or policies to back financially.
- **Policy and process:** The current NAPA lacks robust technical basis and is unlikely to be funded but because it features in Tanzania's negotiating text as the proposed mechanism for delivering adaptation, it potentially represents a key barrier to progress. The forthcoming national development plan is also unlikely to adequately prepare Tanzania for the challenges of climate change. A national Climate Change policy and plan, based on objective and robust analysis of key vulnerabilities, and which supports an effective response across government sectors and at local government level is urgently needed. Given the inherent linkages between adaptation and mitigation in Tanzania any future plan should tackle both issues holistically. Ongoing and planned sectoral development plans and strategies, in particular the recent government initiative Kilimo Kwanza and the Water Sector Development Programme need to be screened with climate change in mind to capitalise on adaptation opportunities and to avoid mal-adaptation. Further there is a need for a national, regional and local land use planning and control mechanism, and for adequate finance and operational 'reach' at local government level for adaptation planning and action.
- **Coordination and leadership:** The level of leadership and coordination across and within government, development partners, research and NGOs still falls short of that required to adequately respond

to climate change. Although coordination within the development partners and NGOs is developing rapidly both require a strategic plan of action which assigns responsibility and prioritises needs for support. The DPG-E also seems to lack reach into the workings of donors in other sectors. Activities of the UN in particular seem to run counter to best practice in development assistance - with the imposition of an externally driven programme which is underfunded and 'fills the space' of a government owned response. Within government the VPO has not been able to effectively coordinate a cross-sectoral response and rather, it is tied up with international rather than domestic priorities.

- **Implementation:** Implementation of adaptation actions will be an enormous challenge. Lack of implementation and action is likely to promote further social and gender inequity as the most vulnerable are impacted by climate change. Lessons should be learnt from difficulties and any successes in existing policy implementation and service delivery - in agricultural extension, disaster management, environmental health, water and sanitation - to vulnerable communities.
- **Information and communication:** There is no detailed understanding or appraisal of strategic economic, environmental and social vulnerabilities. This is needed to prioritise and target action and funding. This will be of value irrespective of uncertainties in climate models, although improved hydro-meteorological monitoring should also be considered a priority. Greater care is needed in communicating the uncertainty attached to future climate scenarios in order to avoid potentially perverse outcomes.
- **Systemic issues:** Problems with the political governance and insidious systemic corruption in the public sector in Tanzania, like a lot of other developing countries, create a very challenging context for effective action on adaptation. These and other related public accountability and management issues hamper well meaning responses to climate change.

Above all, these problems flag the need for renewed urgency and global political commitment to control greenhouse gas emissions and to prevent further climate change. Given existing levels of poverty and vulnerability, particularly amongst the rural poor, and weaknesses in governance, the capability to adapt in Tanzania is critically low and the climate change already set in train and that brought by continued emissions will severely impact the poor. This point is important – the idea that poor countries, given financial support, can somehow 'adapt' to a changed climate could for some mean that a meaningful and binding agreement on controlling emissions is somehow less urgent. However, our analysis indicates the difficult obstacles to coping with climate variability and change which mean that further emissions will undoubtedly lead to significant hardship, irrespective of the financial commitment to adaptation in developing countries like Tanzania.

This doesn't mean that action on adaptation and addressing the difficult challenges presented above should be forestalled. Given the social and economic imperatives targeted and coherent adaptation must be attempted. The political interest and potential for finance on climate change need to be harnessed, and the challenge of adaptation invites fresh thinking on new models of finance and ways in which systemic problems with existing ODA can be overcome.

To support much needed progress HBF are presented with the following recommendations:

1. Tanzania needs and should be supported to develop a new National Climate Change Policy and Strategy or 'new' NAPA which includes the screening of current and future sectoral initiatives.
2. A national vulnerability assessment which delineates the geographical, sectoral and demographic priorities for support is required, ideally conducted with full ownership by the Tanzanian government and stakeholders. Irrespective of the uncertainties in climate change predictions this will provide an objective basis for planning, fund allocation and performance monitoring - and will be a key tool in shaping a revised NAPA or climate change strategy.
3. Coordination and leadership on climate change within and by the Tanzanian government needs to

be strengthened. To balance, on the one hand, the need for a sustained high level of political attention on climate change-related issues, with the need for sound technical input and more efficient coordination, the disaggregation of responsibility for international negotiations from domestic adaptation planning should be considered. Under such a scenario, the Vice President's Office could retain its role in international negotiations but with domestic planning mandated to some new entity or existing body with the required levels of authority and sufficient political influence to reach and drive change across government (such as the Prime Minister's Office or the Ministry of Finance and Planning).

4. The climate change response in Tanzania represents an opportunity to undertake much needed targeted research and advocacy on the systemic problems and contextual solutions to the 'implementation gap' between government policy and action on the ground – a problem which Tanzania shares with many countries in sub-Saharan Africa. Such work can provide innovative thinking about how existing institutional arrangements and architectures - for example in environmental protection, agricultural extension, land planning, natural and water resource management and disaster risk management - which will play a major role in building resilience can be better supported to deliver – particularly for poor communities.
5. A national or regional research, oversight and advocacy facility with the mandate to promote the responsible interpretation and use of climate science and change scenarios; track the costs, benefits, efficacy and outcomes of government, development partner and NGO effort and investment on climate change adaptation should be established and provided with financial and political support (or these roles conferred on existing organisations). Astute delivery of these functions is considered crucial within an effective response to climate change, to provide institutional incentives, promote integrity, transparency, and accountability, and to guard against overlapping, parallel or conflicting initiatives.
6. Effort is needed to unlock the current dilemmas within funding debates and to reconcile the disconnects between adaptation financing expectations within

government and donor communities. Compromise models which overcome the inadequacies of current Official Development Assistance (ODA) and innovative modalities of adaptation finance support mechanisms should be developed, deliberated and tested.

7. The Private Sector is yet to be meaningfully engaged on climate change issues in Tanzania, although this is a crucial element of any effective response. This could usefully be initiated through a national or regional conference on the opportunities and challenges facing the private sector presented by, for example, adaptation and 'green' technologies, climate finance investment and private sector support for weather indexed insurance.
8. Support is required to ensure that the climate change response in Tanzania moves beyond merely gender inclusion, towards gender empowerment through - and for - effective climate change adaptation, through for example by targeting work with women's groups, farming cooperatives, rural development, or economic empowerment initiatives.



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## Annex 2. Main CC activities of the development partners in Tanzania

The interventions of the development partners have shown increasing attention to climate change related activities with still limited, but increasing funding level. These activities are involving a wide range of partners, such as NGOs, research institutions, government bodies, civil society and private sector entities.

The tables below present DP activities based on information provided by DPs. As development partners have not agreed on a specific definition of what constitutes a "climate project", the team has included all projects as informed by the donors.

Source: DANIDA et al. 2009

### Projects funded through UN organisations

Donor	Project activity
<b>UNDP with FAO, IFAD, UNEP, UNESCO, and UNIDO</b>	<p>One UN pilot programme. Budget USD 7,5 million for 18 months. Undergoing planning. Expected to start in January 2009.</p> <p>Mainstreaming CC in sectors and LGAs. Building capacity for CDM and for accessing international funding for adaptation. Building capacity for adaptation and mitigation. Demonstration projects on mitigation.</p> <p>With focus on climate change, land degradation/desertification and NRM.</p> <p>With VPO-DOE, PMO-RALG, MOFEA, MNRT, MAFC, MLDF, MoWi, MEM, MTI, NEMC and TMA</p>
<b>UNDP, FAO, UNEP</b>	UN-REDD pilot project for Tanzania for reduction in deforestation and forest degradation. 35 mi. US\$ programme for initially 9 countries. In Africa Tanzania, Congo and Zambia are participating. Programme funded by Norway.
<b>UNDP</b>	<p>Biogas energy in prisons with the Ministry of Energy and NGOs, USD 150,000, 1 1/2 years.</p> <p>Mainstreaming Climate Change into integrated Water Resources Management in the Pangani River Basin. GEF, USD 2,575 million, 2007-2010.</p> <p>Transformation of the rural market for PV energy in Tanzania in cooperation with GEF, USD 2,250,000 USD, ongoing.</p>
<b>UNDP/UNEP</b>	Capacity building for CDM, USD 200,000 in the pipeline, 2008-2009 with Ceest and EPMS.
<b>UNEP</b>	<p>NAPA priority projects, implementation in collaboration with the VPO, USD 6,9 million USD (3,5 million from LDCF/SCCF and 3,4 million USD co-financing to be defined). In the planning phase, 2010-2014.</p> <p>Expedited financing for interim measures for capacity building in priority areas (Phase II), USD 100,000, 2007-2008 (18 months). GEF.</p> <p>Second National Communication in partnership with Ceest, USD 405,000 for three years ending in 2009.</p>
<b>UNIDO</b>	Best practices in energy management in the industrial sector.
	Rural Micro-Hydropower Development. Objective: to identify potential sites for the development of small and micro hydropower schemes in partnership with International Network on Small Hydro Power (INSHP), The Ministry of Energy and Minerals, TANESCO and TaTEDO.
<b>UNESCO</b>	Building knowledge and partnerships for reducing biodiversity loss and adapting to climate change (in five countries), USD 20,000, 2008-2009.
<b>UN-habitat</b>	Promoting Energy Efficiency in Buildings in East Africa, USD 231,000.
<b>FAO</b>	Bioenergy and Food security project, USD 400,000, 2007-2009.

Projects funded by bilateral and multilateral donors outside the UN

Donor	Project activity
<b>USAID</b>	TMA and Africa Hydronet training for RANET with WWF, USD 20,000, January 2008 Mainstreaming climate information into decision-making in natural resource management. Planned for 2009. Potential budget USD 4 million, 2009-2012.
<b>Netherlands</b>	Netherlands Climate Change Assistance Programme (NCAP) in cooperation with CEEST, DOE, Envirocare, TaTEDO, and Communities in Rufiji and Killimanjaro, EUR 200,000, 2006-2008. Capacity Development for Clean Development Mechanism (CD4CDM) in partnership with UNEP/Risoe Centre Denmark, CEEST, EPMS and DOE, EUR 2 million, 2007-2010.
<b>Norway</b>	Support for the UN REDD programme, up to NOK 20 million in 2009, disbursed through Oslo to UNDP HQ. Support for climate-change research programme. This is to be implemented by 3 Tanzanian universities and the Tanzania Meteorological Agency. Up to NOK 20 million annually, 2009- 2013. REDD activities: 1) Support for the national REDD strategy process in Tanzania, 2) NGO-operated demonstration programmes within the framework of REDD, 3) public-private partnerships with private sector partners, 4) REDD capacity-building programmes, 5) development of REDD demonstration areas and implementation of baseline studies, and 6) support for a national REDD fund. Up to NOK 60 million annually – still in the planning phase.
<b>Danida</b>	Capacity development, follow-up to NAPA together with the DOE, USD 1 million, 2007-2009.
<b>EU</b>	Renewable energy, EUR 8 million. Global Climate Change Alliance, EUR 2,5 million. Regional Dryland Research Project in collaboration with IRDC and SADC.
<b>Finland</b>	Recognizing the role of forest and water in climate change adaptation implemented with IUCN. Climate Change and Development (Zambia, Tanzania, Mozambique), EUR 2,8 million, 2008-2010. Southern/Eastern Africa CDM Capacity Development (Ethiopia, Tanzania, Kenya, Mauritius, Zambia, Mozambique), USD 1,5 million, 2008-2009, in cooperation with Spain/Sweden and UNDP. National Forestry and Beekeeping Programme of Tanzania in partnership with the Ministry of Natural Resources and Tourism and PMO-RALG, EUR 9,0 million, 2009-2011. National Forest Monitoring and Assessment of Tanzania (Forest Inventory) in partnership with the Ministry of Natural Resources and Tourism, FAO and WB, EUR 2,3 million, 2009-2011. Regional (SADC) capacity building Meteorological Project. Pipeline, 2009-2011, 800,000 Euro.
<b>DFID</b>	Regional Climate Change Programme for SADC (Malawi, Mozambique, Tanzania, Zambia, Zimbabwe, Angola), Climate Change Fellowship Programme for doctoral and post-doctoral studies in 12 African "Centres of Excellence", USD 2 million. Bioenergy/clean energy: a regional project, Tanzania funding is GBP 500,000 per year for 5 years.
<b>France</b>	Rungwe Environmental Science Observatory network (RESON) including: French Institute for Research and Development, Institute for Resource Assessment, University of Dar es Salaam, Ministry of Science and Telecommunications, Researchers from Belgium, Germany, Britain and France, USD 120,000, 2007-2010.
<b>Austria</b>	CDM in Africa (Uganda, TZ, Ghana, Ethiopia), EUR 2,5 million, 2007-2009.
<b>Germany</b>	Preservation of the mountain forests in the Eastern Arc Region in cooperation with UNDP and the Ministry of Natural Resources and Tourism, EUR 2,171,210 million.
<b>JICA</b>	A programme in 20 countries, each of which is allocated USD 2-5 million, carried out by UNDP from Pretoria (information from UNDP).
<b>SIDA</b>	The Environment for Development initiative (EFD). Objective: to support poverty alleviation and sustainable development through increased use of environmental economics in the policymaking process. In collaboration with Environmental Economics Unit and Resources for the Future. Global Programme supported from Sida Head Quarters, 100 MSEK for 3 years for the global initiative. Country desk at UDSM Faculty of Economics.

	Renewable energy programme, but not classified Climate change. Facilitates solar power market in 17 regions with Ministry of Energy and Minerals, SEK 27 million.
	Biofuel task force, "Strengthen Policy, Legal, Regulatory & Institutional Framework to Support the Development of a Sustainable Biofuel Industry in Tanzania" in collaboration with Ministry of Energy and Minerals, SEK 12 million from 2009-2010. (Norway is also supporting NOK 11 million, but Sweden is lead).
	CDM Capacity Building in Kenya, Tanzania, Uganda with the Swedish Energy Agency Designated National Agencies, 2007-2009, SEK 13 million.
	Research capacity strengthening at UDSM, ARU. Support to 1) Institute of Marine Sciences IMS (research on coastal & marine management), 2) College of Engineering and Technology: research on renewable energy, 3) Faculty of Sciences: research on solar radiation, molecular biology, national reference for GMO, and 4) ARDHI University, research in land and water management. Approximately SEK 50 million, 2004-2009.
	Regional support (10 countries incl Tza) to WIOMSA, Western Indian Ocean Marine Sciences Association, Marine and Coastal management for Science in collaboration with WIOMSA secretariat (Zanzibar). SEK 46,75 million from 2007-2010.
	Support to research capacity strengthening at various universities (UDSM, ARU 2009-2012). Planned approx SEK 25 million for research on integrated natural resources management and renewable energy.
<b>Belgium</b>	Technical Support to "Rungwe Environmental Science Observatory Network" (RESON) project through Belgium Universities in cooperation with the French Embas, sy.
<b>CIDA</b>	Water Resources Project – Climate Change Module (reducing vulnerability), USD 2 million a year – shared between four countries in the region.
<b>World Bank</b>	Development of a Policy towards Sustainable Charcoal; Woodfuel Action Plan (financed under TFCMP) and Forest Carbon Partnership Facility, US\$150,000~US\$1 million, mainly TA. Tanzania is not yet participant, but application is submitted.
<b>UNDP/World Bank</b>	Sustainable Management of the Miombo Woodland Resources of Western Tanzania (GEF Project, which includes a adaptations to Climate Change component), ~US\$7.5 million, is yet to be approved.



Selected development partner funded research programs.

Programme title	Partners	Funding	Comments
Enhancing African adaptation to climate change	Regional programme/IDRC in cooperation with Dar es Salaam and Sokoine Universities	DFID: USD 26 million in total for regional programme for 2006-08.	Focus on action research, capacity development and scholarships.
Climate research programme	Ardhi, Dar es Salaam, Sokoine Universities Tanzania Meteorological Agency.	Norway: App. USD 14.5 million for 5 years	Under planning expected to start in 2009
Climate Volatility and the Poor in Southern and Eastern Africa	The World Bank: University of Copenhagen in cooperation with Economic and Social Research Foundation in Tanzania.	World Bank USD 360,000 in total for 2008-10	Links local, regional and global CC models and applies results for land-use and economic modelling to Tanzania.
Regional coordination office	Stockholm Environment Institute in cooperation with Institute for Resource Assessment, Dar es Salaam University.	Core staff Shall generate own resources.	The office should support research and policy development within bio resources, environment and development
Environment for Development Initiative	University of Dar es Salaam Dr. Looking Gothenburg University	SIDA/SAREC	Capacity building in environmental economics
Strengthen research capacity for poverty reduction and sustainable development	University of Dar es Salaam	SIDA/SAREC Framework programme 2009-18	Broad support including climate change. Can support scholarships, regional and international cooperation and application of research. Has link to COSTECH.
Impact of climate change on water resources and agriculture – and adaptation strategies in Vietnam and Tanzania	Geological Survey of Denmark, Department of Geography and Geology, University of Copenhagen, Danish Meteorological Institute. Institute of Resource Assessment and Faculty of Engineering, University of Dar es Salaam and TMA.	Denmark Programme is still being planned and has yet to be approved. Tentative budget app. USD 2 million	Focus is on building research capacity and research alliances. Will include work to downscale climate models, hydrological modelling and analysis of drivers of adaptation

Selected activities on climate change by non-governmental organisations

African				
Contact: Sekai Maganda Chikwero Country Representative +255 22 296 7257 Ada Estate, Flat 116, Gala Street, P.O. Box 63187 schikwero@ahicare.org www.ahicare.org				
Current project activities related to CC	Budget and duration	Funding source	National coordination	Main elements
Ugalla Community landscape Conservation Natural Resource Management Programme	1,900,000 USD 1998-2009	USAID	CSOs, TaTEDO	Biodiversity conserved in targeted landscapes through livelihood driven approaches. (Tabora and Rukwa regions)  The project will be redesigned this year for the next phase, including specific climate change components such as adaptation for farmers through introduction of alternative crops and other income generating activities.
Carbon Tanzania Contact: Mari Baker Coordinator +255 0784 448 761 P.O. Box 425 Arusha mari@carbon Tanzania.com www.carbon Tanzania.com				
Current project activities related to CC	Budget and duration	Funding source	National coordination	Main elements
Arkarla Community-based Forest Management & Carbon Trading Initiative	Private buyers Long term duration	All start up work has been funded by Ecological initiatives Ltd, Tanzania. In addition to that, there have been contributions to the project from individuals and Tour operators, both in Tanzania and the U.K.	Village Council, Arkarla	This project aims to enable the community of Arkarla village, in northern Tanzania, to access the voluntary carbon credit market and, in partnership with Carbon Tanzania, to create and sell carbon credits based on community-based forest conservation and management.  This project is working with the local community to create carbon offset credits by protecting and restoring the natural montane forest, habitat which the community also relies on for water supplies, firewood, traditional medicines, and other products.
Care Tanzania Contact: Thabit Masoud, Sector Coordinator, Natural Resources and Environment, thabit.masoud@co-care.org +255 0777 456 843 +255 22 268 8061 Kinondoni Rd P.O. Box 32242				
Current project activities related to CC	Budget and duration	Funding source	National coordination	Main elements
Equitable Payment for Watershed Services: Phase I, Making the Business Case Global programme (Guatemala, Peru, Tanzania and Indonesia)	1.8 million Euro for Tanzania  4.1 million Euro total for the global programme  2008-2011  Ongoing	Danida is financing Tanzania, while the Dutch Government is financing the other three countries.  Buyers of ecosystem services: Coca Cola Tanzania Water Company DAWASCO	Internal coordination: National EPWS, PREM, WNT TPO, Care Ta, IED  External coordination: DAWASCO, Coca cola, Trust fund, Forest and Beekeeping Division, Water department, Communities	The Payment for Watershed Services (PWS) project aims to ensure a sustainable flow of watershed services to beneficiaries of these services into the future through the establishment of equitable payment mechanisms for watershed services in the selected watersheds/catchment areas in Uluguru and East Usambara in Tanzania.  The project will work with the upstream and downstream stakeholders to ensure substantial benefits to the poor and to ensure that resources are applied to the priorities and needs of the poor and that local values, knowledge and practices are incorporated into NRM practices, as well as ensure that women and marginalized groups directly participate in, and benefit, from the PWS mechanism.
Energy efficiency	Feasibility stage 2009-2015	CARE Austria	The final design is to be elaborated by TerraCarbon and Climate Focus	- Selling carbon credits - 30,000-100,000 stove types that are fuel efficient



Hilide Conservation Agriculture	L7 mill USD Feb 2009-Jan 2013	Howard Buffet Fund	District Adm. Managers, SUA, MVIWATA	Sustain and support the livelihoods of 4,400 households involving 20,000 underserved men, women and children in the South Uluguru Mountains of Morogoro. The project will enhance farmer's adoption of sustainable conservation agriculture practices and development of appropriate gender-sensitive support systems and infrastructure development. The project will introduce culturally and environmentally appropriate conservation agriculture practices, through establishment of farmer field schools and center for sustainable living, foster adoption of participatory technology development process; promote participatory variety selection scheme; develop village savings and loan scheme as well as mainstreaming gender in all interventions.
COP 15	2009	CARE Denmark	TFCG implementing partner and CARE Tanzania is coordinating partner	Bringing the voice of local civil society organizations into the COP 15.
<b>CEEST Foundation</b> Contact: Hubert Meena, Director Tel: +255 22 266 7569 hameena@yahoo.com Kaunda Drive No 17 P.O. Box 78301 www.ceest.co.tz				
<b>Current project activities related to CC</b>				
Netherlands Climate Change Assistance Programme (NCAP) in Tanzania	Euros 180,000 2005 - 2007	Government of the Netherlands / ETC	CEEST, TaTEDO, EnviroCare, VPO	Production of technical adaptation policy options based upon the vulnerabilities and adaptive capacities of local communities.
Second National Communication to the UNFCCC	USD 405,000 2006 - 2008	GEF/UNEP	CEEST, VPO	Prepare climate change scenarios for Tanzania Prepare GHG inventory Prepare GHG mitigation Undertake V & A studies Compile the final SNC report
(CD4COM)	2007 - 2008	UNEP/Riose	EPMS, VPO	- Provide technical backstopping local CDM investors - Awareness raising and capacity building - Conduct workshops for focused groups
Climate Change Technology Needs Assessment	USD 100,000 2004 - 2005	GEF/UNEP	CEEST, VPO	Identify adaptation and mitigation technologies in various sectors of the economy Prepare and publish final TNA project report
CDM Capacity Building Programme for Tanzania, Kenya and Uganda	2008 - 2009 Ongoing	STEM/Swedish Gov	CEEST, Cornland International, MEM	Provide learning by doing to local CDM project developers Assist the local project developers to prepare PDO
Project Catalyst on Adaptation Working Group	2008 - 2009 Ongoing	ClimateWorks	CEEST, Mckenzie International	- To facilitate on good agreement in Copenhagen COP15 IN 2009
<b>Environment Protection and Management Service</b> Contact: Euster Kilona Nkrumah, Lida building, room 128 Tel: +255 754 377475 eusterkilona@yahoo.com www.epmtanzania.org				
<b>Current project activities related to CC</b>				
Capacity strengthening in Least Developed Countries on Adaptation to climate change (CLACC)	15,000 GBP (1,000 for each activity) 2005-2008	International Institute for Environment and Development, RED	1. Institute for malaria 2. Local and national NGOs 3. City Council of Dar es Salaam	1. Awareness of climate change in the health sector of Tanzania: Malaria in Highlands (2005-2006). 2. Establishment of climate change resource center and NOD forum for climate change issues (2006-2007). 3. Climate change vulnerability assessment of the city of Dar es Salaam to feed into the City Council Strategy (2007-2008).
Enabling Poor Communities in Africa, Asia, Latin America to adapt to impacts of climate change under South-South-North Initiative.	1. phase: 15,000 Euro (seed funds) 2. phase: 60,000 Euro 2006-2009	The Dutch government	Local NGO: FAAPECO	1. phase: (2006-2007) Development of 3 PINs on adaptation Identification of hot spots Feasibility study on vulnerable areas 2. phase: (2007-2009) Full development of project on enhancing adaptive capacity of coastal community by shifting of shallow water walls affected by inundation of sea water.
Capacity building in CDM	80,000 USD (1. and 2. phase)	UNEP/Riose	DOE, Project developers	The 1. phase included identification of stakeholders within the CDM business and development of PIN and

	2007-2008 (1. phase) 2009-? (2. phase) 100,000 Canadian \$ 2008-2011			awareness raising and capacity building. 3 national and 3 mini workshops have been conducted with a broad range of sectors.  The 2. phase will include development of FODs.
Community based adaptation to climate change in Africa (Regional in 8 countries)		IDRC	Pastoral communities	Testing methodology initiated by the South-South-North initiative to develop adaptation projects.  Tanga was selected as pilot area based on vulnerability mapping of geographical areas in Tanzania
Scouting on Potential CDM Facilitator Candidates in Tanzania	4,000 USD 2008	Swedish Energy Agency through SSN Africa	-	Identification of candidates to train and estimation of CDM projects within water and pollution.
<b>IUCN</b> Contact: Issa Abdulrahman Country Director, issa@iucn.or.tz +255754-570234 IUCN Tanzania Office Box 13573 www.iucn.org				
<b>Current project activities related to CC</b>				
Climate Change and development Project Regional project including Mozambique and Zambia.	2 million Euro for the 3 countries Tanzania 1/3 2008-2010 Ongoing	Ministry of Foreign affairs of Finland	DOE, NEMC, Inst. of Resource Assessment, Sokoine University, TMA, TNRF forest group, Min. of Agriculture, Ministry of Energy, Rufiji District auth., Pangani water basin office.	Tanzania sites: Pangani River basin and Rufiji District. - Ensure climate change related policies and strategies lead to adaptation activities that emphasize the role of forest and water resources in supporting people's livelihood and associated farming systems through: Policy support capacity building Supporting vulnerability assessment and implementation of adaptation measures Promoting policy and practice of adaptation measures
Integrated Water Management - Pangani River Basin	4,750,000 USD 2009-2010	IUCN HQ: 22% EU: 60% UNDP/GEF: 13% Gov of Tanzania 300,000 USD	SNV World, Pangani water basin office, Pangani water board, DOE, NEMC, Ministry of Water and Irrigation, Pamoja Trust	Capacity building The climate change component entails vulnerability assessments and adaptation measures.
Livelihood and Landscapes (LLS) - Rufiji District	542,000 Euro 2009-2010	Government of Switzerland	District council, Rufiji district authority, Ministry of Forest and Beekeeping, TFCG	LLS is a global initiative that examines the rights and access of the rural poor to forest products in the context of the entire landscape in which people and forests interact.
<b>OXFAM</b> Contact: Marc Wegerff +255 764 931 896 Mhachens B Kiko Street Plot 270 P.O. Box 109952 mwegerff@oxfam.org.uk www.oxfam.org				
<b>Current project activities related to CC</b>				
Pan African Climate Justice Alliance	2008- long term	Private donors DFID Dutch Government	TANCO, Agricultural Non-state Actors Forum, Civil Society organizations	The alliance is a continental coalition of civil society organizations in the African continent, brought together by common agenda of promoting and advocating for climate-related and equity-based development that considers climate change as a key driver of sustainable development. - Advocacy on climate change in global negotiations - Polluters pay principle - Creation of forum on climate change for small organizations - Public awareness
<b>Tanzania Forest Conservation Group</b> Contact: Mike Duggan				

<p>Senior Technical Advisor Plot 323, Mkwani Village Old Bagamoyo Road P.O. Box 23410 +255 22 265 9007 hdaggar@fhi.org.tz www.fhi.org</p>				
Current project activities related to CC	Budget and duration	Funding source	National coordination	Main elements
Pilot REDD projects	3 million USD 3 year period Planning phase	Norwegian Embassy	Recoffc	<ul style="list-style-type: none"> <li>Capacity building for selling carbon emission reductions from the communities</li> <li>Reduction of deforestation</li> <li>Awareness raising at community level</li> </ul>
Participation in Pöranan COP 14	2008	CARE Denmark	CARE Tanzania	Preparation for the international negotiations.
COP 15	2009	CARE Denmark	CARE Tanzania	Preparation for the international negotiations. Bringing the voice of local civil society organizations into the COP 15.
<p><b>TaTEDO</b> Contact: Gileila A. Ngoo Manager Energy Environment Initiative Dept. Tel: +255 22 270 0438 E-mail: gngoo@yahoo.co.uk, Sinza off Shekilango Road energy@tatedo.org www.tatedo.org</p>				
Current project activities related to CC	Budget and duration	Funding source	National coordination	Main elements
Up-scaling access to integrated modern energy services for poverty reduction	2,5 million Euro 2008-2012	EU and HVOS (Dutch NGO)	VPO	Up-scaling of number of people using modern energy services and supporting development of small enterprises in rural areas
Integrated modern energy services for sustainable development and poverty reduction (Phase II)	2,9 million US\$ 2007-2009	Norwegian Embassy	9 Districts, local NGOs and CBOs, Faith based organizations, Villager govt., private sector, NMINRT, VPO, MEM, Ministry of Agriculture and Food Security, NEMC	<p>Contribute to sustainable development and poverty reduction by enhancing access to modern energy technologies and services for consumptive and productive needs in household, SMEs and social service centres:</p> <ul style="list-style-type: none"> <li>- solar</li> <li>- wood fuel</li> <li>- biofuel</li> <li>- tree planting</li> </ul>
Integrated sustainable energy services for poverty reduction and environmental conservation programme (SES-PRACP Phase II)	800,000 Euro 2006-2009	EU and HVOS	Districts, local NGOs and CBOs, Faith based organizations, Villager govt., private sector, NMINRT, VPO, MEM, Ministry of Agriculture and Food Security, NEMC	Increase income of the rural and urban population through reduced costs and increased efficiency for woodfuels utilization and production by adoption of efficient woodfuels stoves, ovens and charcoal production kilns.
Households efficient stone or brick made woodstoves in Nomba and Hi districts	200,000 US\$ 2008- long term	HIVOS	Districts, local NGOs and CBOs, Faith based organizations, Villager govt., private sector, NMINRT, VPO, MEM, Ministry of Agriculture and Food Security,	<p>Improvement of thermal performance of the wood fuels stoves in rural areas through replacing the tree stone fire places by efficient fuel wood stoves. In 2009, 6000 stoves were installed. Pilot villages have entered the voluntary carbon market calculating emissions from use of efficient firewood stoves.</p>

Fredrikorpset Exchange project	2000- no ending date	Fredrikorpset	NEMC	Exchange of staff with Norway and Brazil. TaTEDO has received 3 staff during the years and are now preparing their 3rd Tanzanian colleague to leave for Brazil.
Enabling access to sustainable energy (EAS)	Contract based 2000-	ETC and DGIS	VPO, MEM, Ministry of Agriculture and Food Security, NEMC	
<p><b>Wildlife Conservation Society of Tanzania</b> Contact: Leta Malaman CEO/Coordinator Garden Av. Plot 39 P.O.Box 70919 +255 22 211 2518 malamanleta@yahoo.co.uk www.wcsf.or.tz</p>				
Current project activities related to CC	Budget and duration	Funding source	National coordination	Main elements
Monitoring protected areas	100,000 USD 50,000 GPD 2006-2008	Darwin Initiative	Birdlife International, Cambridge University	Computer simulation model using birds as indicators for implications of climate change.
<p><b>WWF</b> Contact: Dr. Herman Mwaegeri Country Representative Tel: +255 22 277 5345 Cell: +255 0784 326 360 Plot 350, Regent Estate Mlacheni P.O. Box 63117 e-mail: hmwageri@wwf.or.tz www.panda.org</p>				
Current project activities related to CC	Budget and duration	Funding source	National coordination	Main elements
East Usambara Forest landscape Restoration Project	2006-2010: 615,000 Euro  (First phase: 1991-2005)  Ongoing	Executing agency: WWF TPO, WWF Finland, WWF International	Department of Forestry and Beekeeping, Tanzania Forest Conservation Group, District Councils of Muheza and Mkinga	Testing of approaches being advocated for improved forest conservation: Community based forest management Joint forest management Land-use planning Fire management
Conservation and Management of the Udungwe Mountains	8,811,935 NOK 800,000 SEK 70,000 USD 30,311,000 Tanzanian shillings  (Started in 1991) Fourth phase: 2006-2008+  Ongoing	The Norwegian government WWF Norway WWF Sweden CEPH IAMCEF  Executing agency: WWF TPO in collaboration with TANAPA, District councils and local communities	The government, local authorities, NGOs, CBOs, the private sector and researchers	To ensure long-term sustainability and health of forest and freshwater ecosystems through: Strengthening TANAPA Reducing pressure on and improve utilization of forests, water and land resources Restoring connectivity for fragmented forest patches Improving community conservation Establishing locally based ecological research and monitoring
Rufiji-Mafia-Kiwa Seascape Programme	Annual funding of 350,000 GBP from WWF UK  2005-2010 +  Ongoing	WWF UK JSDP The Norwegian government GEF WWF Switzerland  Executing agency: WWF Tanzania Programme Office	VPO, NEMC, Fisheries Division of Ministry of Natural Resources & Tourism, Kiwa, Rufiji & Mafia Districts, Mafia Island Marine Park, Mangrove Management Project	The seascape programme is specifically aimed at improving socio-economic well-being of coastal communities in the Rufiji, Mafia and Kiwa districts of Tanzania through sustainable, participatory and equitable use and protection of marine and coastal natural resources
Valuing the Arc programme: Putting value on the Eastern Arc mountain ecology	2,000,000 USD 2007-2011  Ongoing	Leverhulme Foundation (UK-based) WWF Science Unit USA  Implementing agency:	Natural Capital Project, Cambridge University, University of East Anglia, University of Leeds, University of York,	Map ecosystem services from the Eastern Arc Mountain and award an economic value to each economic system to inform stakeholder decision-making - as a pilot for feasibility of payments for environmental services

## About the Heinrich Böll Foundation

The Heinrich Böll Stiftung / Foundation (HBF) is the Green Political Foundation, affiliated to the “Greens / Alliance ‘90” political party represented in Germany’s federal parliament. Headquartered in Berlin and with offices in more than 25 different countries, HBF conducts and supports civic educational activities and projects world-wide. HBF understands itself as a green think-tank and international policy network, working with governmental and non-governmental actors and focusing on gender equity, sustainable development, and democracy and human rights. HBF’s Regional Office for East & Horn of Africa operates in Nairobi, Kenya, since 2001.

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		WWF Tanzania Programme Office	Cranfield University, Sokoine University of Agriculture, University of Dar es Salaam	
Africa and Madagascar Programme - Meeting the Challenge	150,000 US\$/year 2004-2009 Ongoing	Annual funding from WWF UK with additional funding from TPO	Civil society organizations, VPO, Ministries, departments and agencies, Care International, TPO	Meet the MKUKUTA targets and support the various Ministries and departments in meeting the MKUKUTA targets.
Reforestation in Uzungwe National Park	1 million USD/3 years 2006-2009	WWF Norway The Norwegian government	Implementing agency: WWF Tanzania	Reforestation in Uzungwe National Park
Equitable Payment for Watershed Services: Phase I, Making the Business Case  Global programme (Guatemala, Peru, Tanzania and Indonesia)	1,8 million Euro for Tanzania 4,1 million Euro total for the global programme 2008-2011 Ongoing	Danida is financing Tanzania, while the Dutch Government is financing the other three countries.  Buyers of ecosystem services: Coca Cola Tanzania Water Company DAWASCO	Internal coordination: National EPWS, PREM, WWF TPO, Care Tr, IED  External coordination: DAWASCO, Coca cola, Trust fund, Forest and Beekeeping Division, Water department, Communities	The Payment for Watershed Services (PWS) project aims to ensure a sustainable flow of watershed services to beneficiaries of these services into the future through the establishment of equitable payment mechanisms for watershed services in the selected watersheds/catchment areas in Utaguru and East Usambara in Tanzania.  The project will work with the upstream and downstream stakeholders to ensure substantial benefits to the poor and to ensure that resources are applied to the priorities and needs of the poor and that local values, knowledge and practices are incorporated into NRM practices, as well as ensure that women and marginalized groups directly participate in, and benefit, from the PWS mechanism.
Ruaha River Fresh Water Programme	800,000 US\$/year 2001-2009 (Starting new phase in 2009) Ongoing	WWF UK EU	Implementing agency: WWF Tanzania  District councils and Adm. of Water	The goal of this project is to achieve year-round flow in the Great Ruaha River by 2010 by using the "integrated river basin management" approach. (Adaptation options in a severely depleted catchment)
Matumbi/Kichi Hills Forest Landscape Restoration project	1,005,668 USD 2006-2010 Ongoing	WWF UK WWF Switzerland GEF Critical Ecosystem partnership Fund	WWF Tanzania, Department of Forestry and Beekeeping, Kilwa and Rufiji District Councils	Improve forest conservation, resource use, governance, community's access and livelihoods.
Coastal East Africa Network Initiative	2009-long term	WWF UK WWF Norway WWF Sweden WWF Denmark WWF International	In process of identifying new partners, but TCHO will be a partner.	Workplan is still to be submitted, but will entail climate change component.  Geographical concentration in coastal East Africa from Kenya to Mozambique. WWF is going through global restructuring and 70% of WWF Tanzania's budget will be placed within this programme.