ANNEXES (Optional)

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NATIONAL TASK FORCE FOR THE DEVELOPMENT OF NATIONAL REDD STRATEGY

WORK PLAN

Outputs	ACTIVITIES	TIME FRAME (MONTHS)								
		M	A	M	J	J	A	S	O	N
1: Facilitator for the National REDD Task Force for the REDD facilitation process established	1.1 Facilitate the National REDD Task Force									
	1.1.1 Appoint Lead Technical Expert and Program Management Team (according to approved staffing plan), and establish suitable office facilities									
	1.1.2 Develop facilitation staffing plan with job descriptions and propose to first meeting of Task Force for approval									
	1.1.3 Procure necessary support functions including transport, communication and office equipment based on Government of Tanzania procedures									
2: REDD demonstration projects to develop methodologies for Monitoring Reporting and Verification (MRV) developed and lessons learnt to contribute to UNFCCC CoP15	2.1 Review of NGO pilot project and in-depth studies proposals									
	2.1.1 Identify activities and sites for REDD piloting									
	2.1.2 Develop guidance material for institutions that intend to develop programmes for reduced deforestation									
	2.1.3 Establish a checklist of baseline studies and assist project holders in the process of designing baselines									
	2.1.4 Review and document internationally adopted methodologies for carbon measurement and monitoring relevant for Tanzania									
	2.1.5 Develop criteria and guidelines for proposal review and selection									
	2.1.6 Prepare and issue call for proposals for NGOs, Government and research institutions, private sector and other institutions									
	2.1.7 Review proposals and recommend for funding									
	2.1.8 Visit proposed project areas for verification of information provided in the proposal									
	2.2 Preparation for UNFCCC COP 15									
	2.2.1 Conduct one national consultative meeting on UNFCCC COP 15 in Copenhagen									
	2.2.2 Package successful project outputs for show case at COP 15 in Copenhagen, December 2009									
	2.2.3 Facilitate Dar es Salaam showcase									

Outcome	Activities
	2.3 Participate to UNFCCC CoP15 in Copenhagen
3: Knowledge base on climate change and REDD in Tanzania developed and disseminated	**3.1 Collate relevant information on REDD, climate change and natural resource management (including gender, equity and benefit sharing) at local, national, regional and global levels.**
	3.2 Dissemination of information materials on REDD to stakeholders
	3.2.1 Produce a quarterly newsletter on the implementation of REDD related activities and preparation of National REDD strategy
	3.2.2 Develop a web site as a portal for REDD related information
4: Mechanisms to coordinate and facilitate development and implementation of National REDD Strategy established and functional	**4.1 Coordinate other REDD related initiatives such as the WB FCPF and the UN REDD to ensure complementarity and optimal use of resources**
	4.1.1 Organise structured consultative processes to contribute to the process of establishing REDD strategy
	4.1.2 Prepare an organization structure to include other potential players
	4.1.3 Establish and operationalize partnership consortia and/or collaborations
	4.1.4 Establish a roster of independent experts
	4.1.5 Conduct National and zonal stakeholders consultative workshops on issues related to REDD Strategy
	4.2.6 Appoint National REDD Task Force and develop its TORs for coordination of all REDD related activities in URT
	4.2 Periodic task force meetings (15 meetings)
5: Conceptual Framework for National REDD Strategy and Action Plan prepared and discussed	**5.1 Prepare a Conceptual Framework for National REDD Strategy and Action Plan**
	5.2 Stakeholders meeting to revise Conceptual Framework for National REDD Strategy and Action Plan
6: National and local level consultation and awareness creation on REDD processes established and implemented	**6.1 Establishment and operations of partnership consortia and/or collaborations**
	6.2 Establishment of an advisory group and expert groups
	6.3 National and District level consultations
	6.3.1 Prepare a consultation and outreach plan, with specific aim to enable key players in strategy development and implementation to have adequate knowledge base of REDD
	6.3.2 Organise local and national level consultations on REDD initiatives in the

	country											
	6.3.3 Organise workshops and other meetings for the strategy development and ensure participation of all relevant public and private stakeholder groups											
	6.4 Awareness raising											
	6.4.1 Prepare and participate in public awareness activities using appropriate media, including the provision of opportunities for public input to the national REDD strategy development process											
7: Study tours in country and internationally to study experiences from programmes and initiatives to reduce deforestation planned and implemented	**7.1 In-country and international study tours**											
	7.1.1 Identify suitable sites for study tours nationally and internationally, and organise such visits for task force members and other key stakeholders											
	7.1.2 Conduct study visits within the country, in and outside Africa particularly to learn about establishment and management of National REDD Trust Fund											
	7.1.3 Participate in international climate change fora i.e SBs, climate change talk, Regional preparation meetings.											
	7.1.4 Develop reports with lessons learned from study visits and tours, and employ these in the subsequent process of developing the Tanzanian strategy											
8: A transparent and independent mechanism for a possible REDD fund and possible carbon market for Tanzania developed and operational	**8.1 Expert Group Meeting to Develop possible REDD Fund**											
	8.1.1 Assess options for REDD incentive mechanisms and their potential use in Tanzania, taking into account lessons from similar Funds and existing legal framework											
	8.1.2 Design and develop good governance formalities and mechanisms in the proposed REDD incentive mechanism											
9: Draft National REDD Strategy and Draft Action Plan prepared and discussed at all levels	**9.1 Draft National REDD Strategy and Action Plan**											
	9.1.1 Use lessons learned and results from interim assessments to assist the Task Force prepare a Draft National REDD Strategy, Draft Action Plan (including assigned responsibilities of different stakeholders for coordination and implementation, budget implications, and evaluation/review procedures) and any associated materials											
	9.1.2 Organize and facilitate stakeholders meetings to discuss and revise the Draft National REDD Strategy and Action Plan											
10: Special in-depth studies needed for the development and implementation	**10.1 In-depth studies**											
	10.1.1 Identify special studies needed and develop brief concept notes describing the rationale for each study proposal											
	10.1.2 Develop TOR, identify candidates and develop contracts for special studies											

of the REDD strategy planned and implemented	10.1.3 Engage follow-up study teams and facilitate the inclusion of their findings into the national REDD strategy development process										
11: Final Draft National REDD Strategy and Action Plan Prepared and submitted	**11.1 Production of Final Report**										
	11.1.1 Prepare a Final Draft National REDD Strategy and Action Plan										
	11.1.2 Promote the timely adoption of a National REDD Strategy and Action Plan through relevant high level meetings										

Annex 1b: Summary of Stakeholder Consultations Held So Far on the R-PP

INTRODUCTION

Background to the Consultations

The Intergovernmental Panel on Climate Change's Fourth Assessment Report documents the dramatic effects of human-induced climate change on ecosystems, productivity and the global economy. These impacts, which are expected to worsen in the coming decades, will fall disproportionately on the world's most vulnerable people and ecosystems. Poor communities often rely on natural resources but lack the reserves and capacity to cope with changes in their environment. Meanwhile, the ongoing losses of biological diversity threaten the ecosystems upon which all life depends.

Land use change is a major part of humans' impact on the world's climate. Greenhouse gas (GHG) emissions from deforestation, agriculture and other land use conversion activities are responsible for 30% of total human emissions. Population growth and economic development—and the inability of institutions to ensure adequate safeguards and enforcement—are the primary drivers of these significant and widespread impacts.

Although forest degradation in developing countries is believed to represent 15% of GHG emissions (Swallow, *et al.,* n.d.) avoided deforestation was not included in the Kyoto Protocal until the Stern Report and the efforts of Papua New Guinea and Costa Rica brought it back on the United Nations Framework Convention on Climate Change (UNFCCC) agenda. The 13th conference of the parties (COP13) decision is now to encourage capacity building for REDD readiness and demonstration of the general efficacy of REDD. Judging from interesting developments in the US and the prospects for its inclusion in the ETS, the ad hoc Working Group is hopeful that REDD will likely be included in a post 2012 regime.

It is believed that well designed land-based climate change mitigation activities such as REDD are an essential component of climate change mitigation, as they help reduce greenhouse gas emissions, while reforestation and agro-forestry activities can remove carbon dioxide from the atmosphere.

REDD turned into a key area of interest in the climate change debate in early 2007, with the publication of the UK government's *Stern Review on the Economics of Climate Change* (Stern, 2007). In his report, the ex-World Bank economist Sir Nicholas Stern recommended that 'avoided deforestation' measures should be included in the post-2012 commitment period under the UNFCCC.

It was at the COP13 of the UNFCCC that took place in December 2007 in Bali, that a coalition of countries headed by Costa Rica and Papua New Guinea (the so-called coalition of rainforest nations) formally proposed that REDD and forests be included in the official negotiation agenda for a post-2010 regime, whose key elements would be negotiated under the so-called Bali road map.

In parallel with the official UNFCCC negotiations, of which Tanzania is party to, several initiatives are being developed and undertaken to support a "pilot" project on REDD. Agencies like the World Bank and the UN have established international forest and climate initiatives to design REDD strategies.

The World Bank has set up several large climate investment funds, including a Forest Investment Programme (FIP), which is aimed at financing REDD reforms and investments identified through national REDD strategies and is due to start operation in 2009.

The World Bank's carbon finance unit has also established the Forest Carbon Partnership Facility (FCPF) that started operations in June 2008. It aims to provide financing for select countries to develop plans for adopting REDD strategies as well as

designing and implementing measurement and monitoring systems to enable countries to report on emissions from deforestation and forest degradation. It is envisaged that these funds would contribute to development of general economic policies and regulations such as taxation, subsidies, rural credit, certification, and law enforcement along with forest policies and regulations, forest management and rural development projects.

The impacts of climate change on sectors such as agriculture, water, health, energy and others were first recognized and articulated as the driving force behind many of the environmental problems for Tanzania by the Tanzania National Adaptation Programme of Action (NAPA). This document was prepared with the primary objective of identifying and promoting activities that would address urgent and immediate needs for adapting to the adverse impacts of climate change. The focus of the Programme was on adaptation needs in the agriculture, water, energy, health and forestry sectors.

Recently, however, it has been realized that deforestation and forest degradation is the cause of around 20% of greenhouse gas emissions responsible for global warming. According to Gibbs *et al,* (2007) the annual forest carbon emissions in Tanzania was between 2000–2005 was 37.6 MtC, while the average annual deforestation during the period 1990–2000 was 400,000ha which equals to around 1%. These statistics put Tanzania in the 4th and 12th positions, respectively, in forest carbon emissions and deforestation in the world.

In 2008 an assessment of climate change impacts in Tanzania was done (URT, 2009). The overall objective of this assessment was to reveal and document both the key locally based impacts of climate change and their cultural, socio-economic and environmental implications to the local communities and to the country as a whole. The assessment further sought to collect and consolidate pictorial and textural materials that could facilitate comparability of the past and present physical environment so as to reveal the magnitude of change where possible.

Results of that assessment reveal that temperature measurements from 21 meteorological stations in the country have shown a steady increase in temperature for the past 30 years. Severe and recurrent droughts in the past few years have triggered the recent devastating electricity power crisis. There have been dramatic drop of lake water levels in all lakes in the country. Lake Victoria dropped by 2.57m between 1965 and 2006. Lake Tanganyika, Lake Jipe and Lake Rukwa have also experienced significant drops in levels in recent years.

Elsewhere, 80% of the glacier on Mount Kilimanjaro has been lost since 1912 and it is projected that the entire glacier will be gone by 2025. The intrusion of sea water into water wells along the coast of Bagamoyo town and the inundation of Maziwe Island in Pangani District are other pieces of evidence of the impacts of climate change.

These impacts have already affected not only the local communities but also economic development. For example, it was initially projected that Tanzania's GDP would grow by 7% in 2006. Recent estimates show that the average growth rate has well been below 6%. This drop is attributed to severe drought that affected most parts of the country triggering food shortage and a power crisis. More telling are the reports that malaria prevalence has extended to include areas where it was not commonly found, as in parts of Kagera Region, Rungwe in Mbeya Region, Lushoto and Amani in Tanga Region.

Current global and national efforts to address climate change are, therefore, looking at measures to reduce deforestation and forest degradation, including the provision of incentives. REDD is a form of payment for environmental services and has the potential to not only help address climate change by reducing greenhouse gas emissions, but also

provide positive impacts on forest management, biodiversity and sustainable development, including poverty reduction.

In response to this challenge, Norway launched an International Climate and Forest Initiative in 2007, with a global commitment of around US$ 500 million annually towards REDD efforts at international and national levels. The Climate Change Partnership between Norway and Tanzania, which was signed in April 2008, is part of this global initiative. Tanzania is involved in this Norwegian initiative as a pilot country. Other African countries involved in the first round of FCPF include Kenya, Madagascar, Ghana, Liberia, DRC, and Gabon

During the last few months the Institute of Resource Assessment (IRA) has been facilitating a strategy development process coordinated by a task force comprising representatives from the Division of the Environment (Vice President's Office) and Forestry and Beekeeping Division (Ministry of Natural Resources and Tourism)[1]. The National REDD Strategy is expected to guide the coordination and implementation mechanisms required for Tanzania to benefit from a post-2012 internationally-approved system for forest carbon trading, based on demonstrated emission reductions from deforestation and forest degradation.

In the last three months a series of consultative meetings have been conducted nationwide involving national, regional, district and local level representatives. The consultations aimed at developing a consultation and outreach plan with the specific aim of enabling key players in the strategy development and implementation to have an adequate knowledge base of REDD.

This report presents a synthesis of the results of those extensive consultations. It includes discussions on key issues and lessons learned from experiences of other initiatives related to REDD, especially so for Participatory Forest Management (PFM) and Wildlife Management Areas (WMA), and presents suggestions on the way forward with regard to the establishment and implementation of the proposed national REDD strategy and activities in Tanzania.

1.2   The Consultative Process

1.2.1 Choice and Location of Consultations

As mentioned above the consultations were conducted in eight zones of Tanzania as shown in Table 1

Table 1: *Consultation Plan and Workshop Locations*

Zone	Regions	Dates
Northern Zone	**Manyara**, Kilimanjaro and Arusha	1st - 7th August 2009
Eastern Zone	**Tanga**, Morogoro, DSM and Coast	8th – 9th September 2009

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[1] The Division of the Environment (Vice President's Office) is responsible for climate change and is the national designated authority for UNFCCC. The Forestry and Beekeeping Division (Ministry of Natural Resources and Tourism) is primarily responsible for forestry policy and coordination matters and has started the process on developing a national REDD strategy.

Southern Zone	Lindi and **Mtwara**	16th – 17th September 2009
Southern Highlands Zone	Iringa, **Mbeya**, Rukwa and Ruvuma	24th – 29th October 2009
Lake Zone	**Mwanza**, Kagera, Mara and Shinyanga	30th – 31st September 2009
Central Zone	**Dodoma** and Singida	15th -21st August 2009
Western Zone	Tabora, **Kigoma**	6th – 7th October 2009
Zanzibar	**Unguja** and Pemba	19th – 20th October 2009

1.3.2 Consultations at Regional and District Levels

Consultations in the eight zones were conducted at a selected venue in one of the regional headquarters of the concerned regions in each zone. Participants were selected from a range of regional and district level stakeholders, including people related to Natural Resources Management, and especially so for forestry and other land-based resources. The participants included Regional Natural Resource Advisors (RNRAs), District Natural Resource Officers (DNRO), District Forest Officers (DFOs) and other participants from relevant government institutions and NGOs such as representatives from TANAPA, the Jane Goodall Institute (JGI), TACARE, et cetera. Representatives from other natural resources conservation programmes in the relevant regions were also invited.

1.3.3 Consultations at the Village Level

Meanwhile, one village in a selected ward was selected for village level consultations in each zone. Stakeholders at this level included local communities living adjacent to selected forest resources, villagers involved in PFM, extension staff, village leaders and environmental committee members. The criteria used for selection of villages for local level consultations included the abundance of forest resources, involvement in PFM and/or WMA activities, and the potential for undertaking REDD activities at that level.

1.3.4 The Consultation Team

The consultations were undertaken by a team comprising two intermittent National REDD Task Force members, alternating members from the REDD Secretariat and two facilitators. In some zones the consultations were also graced by the attendance of a representative from the Royal Norwegian Embassy.

The Workshops normally began by one of the Workshop Facilitators giving the welcoming remarks, followed by self introductions and a message from the Royal Norwegian Embassy representative where available. After these introductory activities an overview of the objectives of the Workshops was given by one of the Task Force Members who also invited the Guest of Honour, normally the RC for the host region, to give the official opening speech. The opening speech was followed by a Vote of Thanks and a presentation on the Background to REDD delivered by one member of the Secretariat. Finally, another Task Force member provided a brief presentation of the National REDD Framework in Tanzania.

These preliminaries accomplished, the invited participants were given the opportunity to present the experiences with REDD related activities of the institutions they were representing. Material from those presentations is summarized in the following sections.

I List of Participants

1.   NORTHERN ZONE

1	Mr. Anatoly A. Rwiza	Babati District Council
2	Mr. Kwantlema Khwantlax	Babati
3	Mr. Achumla Norbert Julius	RS – Arusha
4	Mr. Isaria Masam	RS – Kilimanjaro
5	Mr. Damson D. Ringo	DCFO – Moshi
6	Mr. Jonas, P.M	Siha District Council
7	Ms. Monica A. Kagya	FBD – DSM
8	Mr. Steven Kuruswa	AWF – Arusha
9	Natashoo Msuya	Monduli Game Officer
10	Ms. Yustina Kiwango	Lake Manyara National Park
11	Mr. Kevin Nkuila	Lake Manyara National Park
12	Mr. Abel R. Kiloo	FITI
13	Prof. P. Yanda	IRA – UDSM
14	Prof. C. Mung'ong'o	IRA - UDSM
13	Dr. E. Liwenga	IRA - UDSM
14	Ms. Shukuru Nyagawa	IRA – UDSM

AYASANDA VILLAGE

1	Mr. Daniel Cosmas	Forest Committee Chairman – BBT
2	Mr. Onesmo Bombo	Forest Committee Secretary
3	Mr. Ally Juma	
4	Ms. Sara Hante	
5	Mr. Ayubu Sani	
6	Mr. Peter Sagware	
7	Mr. Albert Masao	DV Forester
8	Mr. Dawson Byarugaba	DCFO

2.   CENTRAL ZONE

1	Ms. Zaina A. Kijazi	Singida
2	Mr. Luhaga C. Makunja	Dodoma
3	Mr. Saidi J. Mtoro	Singida
4	Mr. Charles Pallangyo	Iramba
5	Mr. Charles K. Tuyi	Bahi (Dodoma)
6	Mr. August Martin	Kondoa
7	Mr. Joseph Halamga	Mpwapwa
8	Mr. Charles Lenard	Mbuga – Mpwapwa
9	Mr. Gerald Kamwenda	DSM
10	Mr. Sanford Kway	Dodoma
11	Mr. Sekwao, F.Y.	Kongwa
12	Mr. Msangi, H.B.A.	Dodoma
13	Ms. Hamisi, Glory	Dodoma
14	Mr. Juma R. Mwangi	Dodoma
15	Mr. Hashim H.M. Kativo	Dodoma
16	Mr. Rojas D. Mwaluko	Manyoni
17	Mr. Patrick Lameck	INAOES - Dodoma
18	Mr. Julius Kiiza	Dodoma
19	Prof. C. Mung'ong'o	IRA – UDSM
20	Ms. Shukuru Nyagawa	IRA – UDSM
21	Ms. Neema K. Mukandala	IRA – UDSM
22	Mr. Gerald Alphonce	RUBEHO Cons. (Mbuga – Mpwapwa)
23	Dr. Emma Liwenga	IRA – UDSM
24	Mr. George R. Kafumu	VPO/DOE
25	Prof. Athanas K. Kauzeni	IRA – UDSM

SELEJI VILLAGE

1	Mr. Jobu M. Lesombe	Village Chairperson
2	Mr. Dickson K. Chiloya	KVEO
3	Mr. William Chalo	Member - Kongwa
4	Mr. Paulo Maile	„
5	Mr. Dickson Kunamila	„
6	Mr. John Simanjilo	„
7	Mr. Andrea, S.	„
8	Ms. Joyce Chisuse	„

9	MsJean Kunamila	Village Secretary – Kongwa
10	Mr. Amosi L. Mazengo	Forest Chairperson - Kongwa
11	Mr. Charesi J. Lemy	Member
12	Mr. Nkini E. James	District Forest Officer - Kongwa
13	Mr. Hemed A. Hemed	HADO – Kongwa
14	Mr. Emil Machaku	Kongwa
15	Ms. Shukuru Nyagawa	IRA – UDSM
16	Dr. Emma Liwenga	IRA – UDSM
17	Ms. Neema Mukandala	IRA – UDSM
18	Mr. George R. Kafumu	Vice President's Office/DOE
19	Prof. A.S. Kauzeni	IRA – UDSM
20	Prof. C. Mung'ong'o	IRA – UDSM
21	Mr. Hasim H.M. Kativo	Dodoma Forestry
22	Mr. Juma R. Mwangi	Publicity Office - Dodoma

3. SOUTHERN ZONE

1	Mr. Juma S. Mbulu	Ngome
2	Mr. Richard, Elibariki	Kilwa District Council
3	Mr. Makala Jasper	Mpingo Conservation Project
4	Mr. James Elikana	DFO – MASASI
5	Mr. Stanford Mahimbo	DFO – LINDI
6	Mr. Isaac Malugu	WWF
7	Mr. Frank R. Mshana	RS – Mtwara
8	Mr. Halifa Mwambe	DFO – Ruangwa
9	Mr. Senso Magessa	DCO – Kilwa
10	Mr. D.Y. Mkumbi	DFO – Tandahimba
11	Mr. Idrissa M. Tamu	CHAKUMATA
12	Mr. Mohamed Chimbuli	Lindi Town Council
13	Mr. Nambole S. Nanyanje	DFO – Mbinga
14	Mr. Elisha Malongo	Misitu Uenezi K/Kusini
15	Mr. Africanus Chale	DFO – Songea Urban
16	Mr. Casmir A. Patiu	DFO – Tunduru
17	Mr. Justin Mchau	DFO – Songea
18	Mr. Samwel W. Mgella	DFO - Namtumbo
19	Mr. Augustino Mwangosi	DFO – Mtwara

20	Mr. Nassoro A. Nzui	DFO – Liwale
21	Mr. Gaudens S. Kilasi	Forestry Ext. & Publicity, S. Zone
22	Mr. Jairos Mahenge	Mnazi Bay Ruvuma Estuary Marine Park
23	Ms. Bertha Baraka	Place FM
24	Mr. Kassim M.	TBC
25	Mr. Jimmy L. Mahundi	RADIO Maria
26	Mr. Modestus Mwambe	RADIO One/ ITV
27	Prof. A. Kauzeni	IRA – UDSM
28	Mr. C. Haule	Beekeeping and Forestry Division
29	Dr. Emma Liwenga	IRA - UDSM
30	Ms. Shukuru Nyagawa	IRA – UDSM
31	Ms. E. Kisanga	IRA – UDSM
32	Ms. N. Mukandala	IRA - UDSM
33	Mr. Cosmas Mungo	DFO – Nachingwea
34	Mr. Alfred Nchimbi	DFO – Mbinga
35	Mr. Ally A. Dadi	DFO – Tandahimba
36	Mr. Abeid Mandete	DFO – Liwale

VILLAGE PARTICIPANTS

1	Ms. Amina Rashid	
2	Mr. Salumu A. Mowa	
3	Mr. Frank R. Mshana	RS Mtwara
4	Mr. Ally M. Hashimu	
5	Mr. Augustine Mwangosi	DFO - Mtwara

4. LAKE ZONE

1	Mr. Emmanue Minja	MAFRAC
2	Mr. John Mwamhanga	ZEO
3	Mr. Charles Salehe	DFO – Chato
4	Mr. James P. Matekere	DFO – Mssenyi
5	Mr. Andrew Maregesi	DFO – Bunda
6	Mr. Juma Marcel	DFO – Bukombe
7	Mr. Ihuya Zephania	KIMKUMAKA
8	Mr. Mkilindi, E.J.	LGA - Sengerema
9	Mr. E.Y. Shuma	DFO – Geita

10	Mr. Hamza Omari	EPU – Lake Zone
11	Mr. John Masweta	MECO
12	Ms. Mary C. Makinda	African Self Employment (ASEIGODA)
13	Mr. Deogratias Justus	DFO Mwanza City Council
14	Mr. Madeo H. Maganga	DFO – Shinyanga City Council
15	Mr. Timotheo P. Maduhu	DFO – Meatu – District Council
16	Mr. Ngussa Maziku	DFO - Kahama District Council
17	Dr. Chrispinus Rubanza	TAFORI – Shinyanga
18	Mr. Charles Thomas	DFO – B'Mulo
19	Mr. Baraka Otuoma	DFO Muleba
20	Mr. J.A. Mmbaga	DFO – Musoma
21	Mr. Cosmas K. Tuthuro	District Natural Resources Serengeti
22	Ms. Gentrude M. Kulindwa	Ass. RAS (SSSS)
23	Mr. Pius F. Mtalimbo	RAS Office
24	Mr. David Ngahyoma	STAR TV
25	Ms. Rose Ikombe	START TV
26	Mr. Sitta Tuma	Mtanzania Daima
27	Mr. Ignas Rutta	Mtanzania Daima
28	Prof. P.Z. Yanda	UDSM – IRA
29	Prof. C. Mung'ong'o	UDSM – IRA
30	Prof. A.S. Kauzeni	UDSM – IRA
31	Mr. P. Ndaki	VIO
32	Dr. E. Liwenga	IRA - UDSM
33	Mr. C. Haule	FBD
34	Ms. A. Mtewele	UDSM – IRA
35	Mr. L. Kolowa	UDSM – IRA

VILLAGE PARTICIPANTS

1   Ms. Juliana Wales

2   Ms. Amisia Filipo

3   Mr. Peter Mbuga

4   Mr. Joseph Mbinayamaswa

5   Mr. Deogratias Justus

5. ZANZIBAR

1	Mr. Mkubwa A. Hamza	DFO – North 'A' Unguja
2	Mr. Khamis Ali Bakari	Agriculture – Extension
3	Ms. Wahida Mmanga Mzee	„
4	Mr. Ali Muombwa	STZ
5	Mr. Daud Lugoha Songwa	DFO – North "B" Unguja
6	Mr. Massoud B. Massoud	DCCFF – Pemba
7	Mr. Maulid H. Shehe	DCCFF – Pemba
8	Mr. Mohamed O. Sulam	DCCFF – Pember
9	Mr. Salim Moh'd Simai	DCCFF – Pemba
10	Mr. Hassan S. Khamis	NGENARECO - Pemba
11	Mr. Hajiwahaji Ibrahim	SEDCA
12	Mr. Moh'd Thabit Moh'd	Forest Officer
13	Mr. Amour B. Omar	CARE – TZ
14	Mr. Ismail S. Mgeni	CARE – TZ
15	Dr. Makame A. Usa	DCCFF
16	Mr. Kafumu, G.R.	VPI/DOF
17	Mr. Saleh Kmar	DCCFF
18	Ms. Lucy Mabula	HITS FM
19	Mr. Ali A. Mwinyi	DCCFF
20	Mr. Fikiri Abd	A/Misitu W/Mjini
21	Ms. Mwanajuma Abdi	Zanzibar Leo Newspaper
22	Ms. Shazil S. Suleiman	Forestry Officer
23	Mr. Tamrini A. Said	DCCFF
24	Ms. Miza S. Khamis	DCCFF
25	Ms. Fatma A. Khamis	DCCFF
26	Mr. Ali A Juma	DCCFF
27	Mr. Ali M. Hilal	DCCFF
28	Mr. Idris H. Abdullah	DCCFF – Pemba
29	Mr. Mwarabu Mmadi	STAR TV
30	Ms. Mwanakheri Mrisho	R.F.A
31	Mr. Islam Seif Salum	Acting PS
32	Mr. Simain Ame Simai	JECA
33	Mr. Alois Simon	PS Office
34	Prof. P.Z. Yanda	IRA – UDSM
35	Prof. C. Mung'ong'o	IRA – UDSM

36	Prof. A.S. Kauzeni	IRA – UDSM
37	Dr. E. Liwenga	IRA – UDSM
38	Mr. E. Nashanda	FBD/MNRT
39	Ms. S. Nyagawa	IRA – UDSM
40	Ms. A. Mtewele	IRA – UDSM
41	Mr. Yassin Mkwizu	Royal Norwegian Embassy
42	Mr. Abdallah Said	DCCFF
43	Mr. Rashid Khamis Ali	DCCFF
44	Mr. Mwinyi Sadallah	The Gurdian
45	Dr. Bakari Asseid	DCCFF
46	Ms. Sauda Salehe Omary	STZ

MUYUNI MSIKITINI "C" WARD

1	Mr. Heri Amir	
2	Mr. Haji Ali Chande	
3	Mr. Ismail Suleiman Mbaruk	
4	Mr. Ali Mohamed Ali	
5	Mr. Salum Rashid Juma	
6	Mr. Khalid Juma Hassan	
7	Mr. Hussein Ramadhan Mkanga	
8	Mr. Abdu Ramadhan Ali	
9	Mr. Salum Hemed Salum	
10	Mr. Mbaraka Suwedi Suma	
11	Mr. Hassan Seit Hasi	
12	Mr. Abdu Abdalla A.	
13	Mr. Khamis Hajji Khamis	
14	Mr. Mtwana Mwinyishomari	
15	Mr. Ali A. Juma	
16	Mr. Haji wa Haji Ibrahim	
17	Mr. Mwinyikombo R. Mwinyikombo	
18	Mr. Rajab Mwinyikombo Rajab	Ward Chairman - Muyuni "C"
19	Mr. Hassan Amour Ali	

6.   SOUTHERN HIGHLANDS ZONE

1	Mr. Nicholaus Mchome	RC Rukwa
2	Mr. Ahmad L. Sadick	DC Sumbawanga
3	Mr. Casmir S. Ngowi	Forest Catchments Mbeya
4	Mr. Newton Mwakabambo	Envirocare Kyela
5	Mr. Vicent Bony	DFO - Makete
6	Mr. Gilbert Ngailo	DFO Ludewa
7	Mr. Aswile G. Fumbo	DFO – Kyela
8	Mr. Godfrey Mwita	DFO – Kilolo
9	Mr. A.M. Tarimo	DFO – Mbozi
10	Ms. Irene S. Thobias	Forest Publicity
11	Mr. Majid S. Mhina	DFO Iringa D C
12	Mr. Lebai T.H. Nsemwa	ARI - Uyole
13	Mr. Peter G. Chibwaye	DNRO – Rungwe
14	Mr. Belson S. Ngullo	DFO – Njombe
15	Mr. Hamadiel Mgalla	Tanzania Forest Conservation Group Mufindi
16	Mr. Bilal Ramadhan	DFO Mufindi
17	Mr. George R. Kafumu	VPO
18	Mr. Willigis Kiwaya	DFO – Mbeya
19	Mr. Edward Syadala	DFO – Chunya
20	Mr. Castor Ntara	Land Officer
21	Ms. Regina Kamala	CNRO JiJi
22	Ms. F. Ilumba	Ag. DFO – Mpanda
23	Ms. Halima Kitemo	CBU Ubembde – Mpanda
24	Mr. Alfred Baraka	CBO Mpimbwe – Mpanda
25	Mr. Charles Patrick	Forester Mbarali
26	Ms. E.N. Mbilinyi	Forestry Extension & Publicity
27	Mr. J. Butuyuyu	
28	Mr. Makarius N.	RC's Office
29	Ms Hamis S. Nafar	DFO- Ileje
30	Prof. A. Kauzeni	IRA UDSM
31	Prof. C. Mung'ong'o	IRA UDSM
32	Mr. Njuguna Karanja	Mpiga picha TBC
33	Dr. A. Majule	IRA UDSM
34	Dr. E. Liwenga	IRA UDSM
35	Mr. C. Haule	MNRT

36	Ms. E. Kisanga	IRA UDSM
37	Mr. M. Fulano	IRA UDSM
38	Mr. Ulaya	IRA UDSM
39	Mr. N. Mwaibale	Journalist
40	Ms. Esther Macha	Journalist – Majira
41	Mr. Festo Sikagonamo	Radio One
42	Charles Thom	RA
43	A. Maganja	Chunya
44	Adamu Mwasomola	Mbeya C.C
45	Mr. G. Hamisi	Forest Cathments Mbeya Region

MAPOGORO VILLAGE – MBEYA

1	Andalwisye K. Mwamengo
2	Subira Benja
3	Furaha Mwaitwalile
4	Selina Shaura
5	Anyandwile Balile
6	Tabu Jofre
7	Adamson George
8	Asumani Bwiga
9	Liberatha Moris
10	Enock Tumaini
11	Irene Thobias
12	Willigis Kiwaya
13	Joseph Butuyuyu

7.   WESTERN ZONE

1	Lameck E. Matungwa	TANAPA Gombe National Park
2	Cheyo Mayuma	Kigoma Regional Secretariat
3	Kasulwa James	Kasulu D. Council (Lands)
4	Enea E. Mallya	Kasulu D. Council (Lands)
5	Nicholaus Joseph`	TANAPA – Mahale National Park
6	Amos Kapama	TANAPA
7	Ngowo, Billyagraham	REDESO – Kibondo
8	Kishela Siulapwa	Forestry Kigoma District

9	Jailos Pilla	Planning Officer – RAS Kigoma
10	W. K. Severine (Capt.)	JKT Kavembwa
11	Dr. Chabandi W.B.	KIEMA – Kibondo
12	Mohamed Semdoe	Kibondo District Council
13	Hillary Mwaita	TCRS – Kibondo
14	Ashery K. Petro	FBD – Kigoma
15	Wenceslaus K. Lyogello	Natural Resource – Igunga
16	Wilson N. Subuya	Natural Resource – Tabora
17	Mpokera S. Mmbuji	Natural Resource – Nzega
18	Valentine Msusa	RCFM – Tabora
19	Magashi G. N.	DFO Sikonge
20	Shaaban S. Makaka	DFO Urambo
21	Hamadi Mgaya	RCF – Tabora
22	Leondard Y. Nzilayilunde	Kigoma Rural Municipal
23	Simon Milledge	Royal Norwegian Embassy
24	Prof. P. Z. Yanda	IRA – UDSM
25	Prof. A. S. Kauzeni	IRA – UDSM
26	Prof. C. Mung'ong'o	IRA – UDSM
27	Dr. E. Liwenga	IRA – UDSM
28	Mr. C. Haule	Forestry and Beekeeping Division
29	Mr. P. Ndaki	Vice President' Office
30	Sood Ndimuligo	Jane Goodall Institute
31	Emmanuel Mtiti	Jane Goodall Institute
32	A. Mtewele	IRA – UDSM
33	L. Kolowa	IRA – UDSM
34	Jacob Ruvilo	Tanzania Daima
35	Mwajabu H. Kigaza	Majira
36	Col. Joseph Simbakalia	RC – Kigoma
37	Benjamin Oganga	Kigoma RC's Office
38	Emily Silas	Kigoma RC's Office
39	William J. Ikina	Kigoma PFPO
40	Deo Nsokolo	ITV/Radio One
41	George Kiraba	RNRO

NYAMOLI VILLAGE – KIGOMA

1	Mwatano Hamisi
2	Ledinina Mjojo
3	Chausiku Selemani
4	Hadija Kalihose
5	Letisia Rupiano
6	Hawa Jafary
7	Severina Firipo
8	Abu Ndinadyo
9	Donald Homa
10	Baraka Mohamedi
11	Gideoni Nyamwelu
12	Gerald Petro
13	Siwangu Msolina
14	Pius P. Genegwa
15	Zuneyu Muhina
16	Issa Yusuphu
17	Mozes Leo
18	Nasibu Lutabila
19	Said S. Kalabona
20	Zaituni A. Mrisho
21	Damandi Kuteku
22	Ahamadi Mbangoka
23	Zaituni Ahamadi
24	Athumani H. Kiferu
25	Wilson Shamba
26	Josephinia Dastani
27	Elias Joeli

8. EASTERN ZONE

1	Maj. Gen. Said Said Kalembo	Regional Commissioner – Tanga
2	Dr. Ibrahim Msangi	District Commissioner - Tanga
3	Dr. Joseph Sura	DC's Office – Tanga
4	Henry Msanga	RC's Office – Tanga
5	Msajigwa Mwamtalima	DC's Office – Tanga
6	Gerald M. Kauki	Ulanga District

7	Elinihaki Hashim	Handeni District
8	John A. Karamba	Muheza District Council
9	Ernest C. Kamata	Temeke District Council
10	Damson D. Ringo	Forestry Extension – Moshi
11	Edfas Bayella	Kisarawe District
12	Buyanda W. Katwale	Eastern Zone Kibaha
13	Christopher Phoye	Noarthern Zone Moshi
14	Martin J. Mgaya	Kibaha District Council
15	Shehoza Mhina	Pangani District Council
16	Emanuel Ndossi	WCST – Dar es Salaam
17	Katunda Kalyango	Morogoro Municipal
18	Stephen E. Myasi	ANR Conservator
19	Othmar Haule	Kilosa
20	Beda A. Karani	Morogoro
21	Msaki J. J.	Bagamoyo
22	Vincent Vyamana	Morogoro
23	Joseph Mchau	Tanga
24	William Mngazija	ITV Tanga (Journalist)
25	Hilder Mtenzi	TBC Tanga „
26	Moses Francis	ITV Tanga „
27	Amir Said	Amani Tanga
28	Hamza Omary	Mkinga District Council
29	Betty S. Munuo	Korogwe District Council
30	Elimringi Minde	Morogoro
31	Eniyoye C.K. Mrinji	Kilindi Tanga
32	Ndebalika Felix, B.	Kinondoni Dar es Salaam
33	Neema Mukandala	IRA – UDSM
34	Richard G. H. Kivo	Lushoto
35	Patrick Ndaki	Vice President's Office
36	George R. Kafumu	Vice President's Office
37	Prof. A. S. Kauzeni	IRA – UDSM
38	Prof. C. Mung'ong'o	IRA – UDSM
39	Dr. E. Liwenga	IRA – UDSM
40	Shukuru Nyagawa	IRA – UDSM
41	Arca Mtewele	IRA – UDSM

42	Lucas Kolowa	IRA – UDSM
43	Evod Ulaya	IRA – UDSM

AMANI VILLAGE – TANGA

1	Rukia Shabani
2	Amiri R. Mzonge
3	Faraji Sadick
4	Mhina Mohamed
5	Salimu Eliya
6	Juma M. Sheshe
7	Aloyce E. Kibiriti
8	Muhudi Yusufu
9	James Msuya
10	Amiri Said

9. DIRECTORS' CONSULTATION WORKSHOP
GIRAFFE OCEAN VIEW HOTEL – DAR ES SALAAM

1	Mr. Juma S. Mgoo	Forestry and Beekeeping Division
2	Mr. E. K. Mugurusi	Vice President's Office
3	Aminatha Kirama	NEMC, DSM
4	Ms. Jacqueline Mwakangale	NEMC, DSM
5	Mr. Anthony Nyarubamba	MOWI, DSM
6	Mr. Twahir Nzallawahe	MAFC
7	Mr. Melchior M. Temu	Rep. Attorney General
8	Mr. Manase Z. Mbasa	Ministry of Energy and Minerals
9	Mr. Julius Mbilinyi	Ministry of Community Development
10	Mr. Elibariki Zablon	TPDF Hqts.
11	Gerald Mango	NLHSD
12	Mr. Martin X. Mhagama	MLHSD
13	Mr. Mathew Mndolwa	TAFORI
14	Brig. P.P. Mlowezi	JWTZ
15	Mr. Martin Mvema	MNRT – Tourism Division
16	Ms. Catherine Mndeme	MODNS
17	Ms. Angelina A. Mpandiko	MOEVT –Dsm
18	Mr. Rawson P. Yonazi	Cabinet Secretariat

19	Mr. Stephen Nkondokaya	Vice President's Office
20	Mr. Faustine F. Tilya	TMA
21	Prof. Cleophas Migiro	CPCT
22	Dr. M.S.H. Mashingo	MLD & F
23	Col. B. J. Mcha	Ministry of Defence & National Service
24	Mr. Edwin H. T. Mujwahuzi	Ministry of Infrastructure Development
25	Ms. G.S. Gulinja	Ministry of Lands and Human Settlement
26	Mr. Patrick Ndaki	Vice President's Office, DoE
27	Mr. George Kafumu	,,
28	Mr. F. Manyika	,,
29	Mr. Evarist Nashanda	MNRT -Forestry and Beekeeping Division
30	Mr. Christognus Haule	,,
31	Dr. J. M. Abdallah	SUA
32	Prof. P. Z. Yanda	IRA UDSM
33	Prof. A.S. Kauzeni	IRA UDSM
34	Prof. C. Mung'ong'o	IRA UDSM
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36	Ms. Shukuru Nyagawa	IRA UDSM
37	Mrs. M. Mohamed	IRA UDSM
38	Ms. Elizabeth Kisanga	IRA UDSM
39	Ms. Neema Mukandala	IRA UDSM
40	Mr. Lucas Kolowa	IRA UDSM
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Annex 2a: **Tanzania forestry situation**

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1. BACKGROUND

Tanzania is endowed with vast forest resources. In 2005, Tanzania mainland had a total forest area of 35.257 million hectares (ha) representing 39.9% of the total land area (FAO 2006, URT 2009). Woodlands occupy most of the forest area, which cover about 90% of the total forest area. The rest are mangrove forests, montane forests, small parches of coastal forests and plantations of softwoods and hardwoods. However, 57% of all of these forests are on general land with open access and only 43% of the forested land is designated as forest reserves (FRs) and national parks (protected). These forests are supposed to be managed for either production and/or protection based on forest management plans.

The forests provide a range of benefits, from ecosystem services to wood and non-wood products (NWFPs) primarily within local villages and households. The value of these forests is high. The combined value of forest goods and services is $ 2.2 billion which is equivalent to 20.1% of Gross Domestic Product based on 2006 prices (URT 2009). The wood products include: firewood, charcoal, round wood and sawn wood. The most important use of wood in Tanzania is for fuel and about 95% of the country's energy supply is met by fuelwood (Iddi & Håkan 1997). The NWFPs consist of game meat, medicinal plants, fodder, latex, beverages, dyes, fibres, gums, resins, oils, beeswax and honey, tannins and toxins. Several of these are subsistence products providing nutrition, critical in situations of drought and famine. Traditional medicine is the only affordable alternative available to most rural and urban population. Ecosystem services which accrue from the forests include: watershed functions, maintenance of soil fertility, conservation of biodiversity, sustaining cultural values, carbon dioxide (CO_2) sequestration, climatic amelioration and eco-tourism. Forest areas also support agriculture and livestock.

Despite all the invaluable goods and services provided by natural forests, there are high rates of deforestation and degradation. Although a worldwide problem, deforestation and forest degradation is most acute in Sub Saharan Africa (SSA) where it is characterized by decreasing production of forest products and food and worsening levels of poverty and malnutrition. For Tanzania, between 2000 and 2005, high rates of deforestation led to a loss of 412,000 ha of forest per year (FAO 2006). Deforestation and degradation are taking place in both reserved and unreserved forests but more so in the later due to inadequate resources to implement active and sustainable forest management (SFM) (URT 2009).

Other than deforestation and degradation, there is growing evidence that climate change is impacting on forests and forest ecosystems and therefore livelihoods of forest dependent communities as well as national economic activities that depend on forest products and services. The problem is manifesting itself through, amongst others, unusually high temperatures, floods, droughts, hurricanes, epidemics, poor crop yields, unreliable water supplies, and increasing fire intensity. River flows and water stocks in reservoirs may decline considerably under a warmer climate while forest ecosystems may shift their ranges and lose some of their biodiversity.

Thus, climate change might have dramatic consequences on Tanzanian forests, and may make some sites unsuitable climatically for some of the endemic species that are found there. However, currently little is known about climate change's effect on forests and how this may impact on the livelihoods of the communities. Evaluation of the impacts of climate change on forests and forest ecosystems and livelihoods is an urgent area of study.

On the other hand, forests are important sinks for removing carbon dioxide from the atmosphere and are currently one of the technologies that are being used for mitigating future climate change. Forest loss and other land use change contribute 20-25% of green house gases;

avoiding deforestation and degradation i.e. Reduced Emissions from Deforestation and forest Degradation (REDD) is now part of the solution in tackling climate change.

This background paper focuses on the assessment of land use, forest policy and governance with a view to identify key drivers of deforestation and or forest degradation and review past experiences with reducing reforestation and forest degradation in order to identify promising approaches for the emerging REDD strategy.

2. OVERVIEW OF LAND USE, FOREST POLICY AND GOVERNANCE

2.1 Land use

Land use in Tanzania is shown in Table 2.1 (FBD 2000). It is however worth noting that reports differ as to the percentages of various land use categories (CIA World Fact Book 2010). A country wide land use study is urgently needed.

With regard to forest resources, knowledge on the extent of the resource is limited and outdated (URT 2009). Regular resource assessments have not been carried out due to inadequate financial resources and consequently management has not been based on reliable data (URT 2009). A three year National Forest Resources Monitoring and Assessment Project is underway.

Table 2.1 land use categories in Tanzania mainland (FBD 2000)

Land use type	Area (000 ha)	Percentage
Small holder cultivation	3,880	4.1
Large scale cultivation	585	0.6
Urban development	1,600	1.7
Inland water	5,900	6.3
Grazing land	48,740	51.7
Forest and woodlands	33,555	35.6

Several land use related studies have been carried out in Tanzania, but they have mainly covered small areas at a level of a forest area, Village, Ward, Division or District (See e.g. Monela & Solberg 1998, Nduwamungu 2001, Mnakabenga 2001, Mwalukasa 2002, Msilanga 2005, Tenga 2006). Overall, the studies show decreasing forest/woodland resources and increasing areas under cultivation due to deforestation. The main direct causes of deforestation and degradation were shown to be shifting/permanent cultivation and firewood and poles gathering and charcoal production. The main underlying cause was found to be population growth. For example a study done in the Coast region (Table 2.2) showed that tree cover was worse in 1998 than ten years ago (1991) due mainly to charcoal production.

Table 2.2. Land cover changes in the northern study area (1991-1998), Coast region, Tanzania (CHAPOSA 2002)

Cover type	Areal extent, ha 1991	Areal extent, ha 1998	Net change, ha	7 year change, %
Open woodland	183,000	99,000	-84,000	-46
Bushland	152,000	223,000	71,000	47
Closed woodland	119,000	91,000	-28,000	-24
Mixed cultivation	60,000	94,000	34,000	57
Grassland/fallow	12,000	3,200	-8,500	-73
Thicket	4,900	3,900	-1,400	-29
Bushed grassland	3,500	19,000	16,000	441

The table shows that the both open and closed woodland decreased while other cover categories such as thicket, bushland, bushed grassland and mixed cultivation showed a tremendous increase in areal extent (CHAPOSA 2002). The direct and indirect causes of the deforestation are discussed in section 3.

The study concluded that, it was true that in the absence of any further disturbance after tree cutting, the areas may progressively revert to woodland. However, in the face of increased population and the demand for agricultural land, such areas may not be given enough room to regenerate.

The National Land Act and Village Land Act of 1999 (URT 1999) provide the legal framework for the three land categories, namely general land, reserved land and village land. General land is a residual category i.e. unoccupied land that is available for other purposes. It includes all land that is not reserved land or village land. Reserved land denotes all land set aside for special purposes, including forest reserves, game parks, game reserves, land reserved for public utilities and highways, hazardous land and land designated under the Town and Country Planning Ordinance. The village land constitutes all land in the village.

The deforestation and degradation reported in the previous paragraphs has been a result of among other things insecure land tenure resulting from absence of land use planning (FBD 2001). While the land policy (URT 1995) recognizes the existence of two main types of tenure: customary (deemed) land rights and granted right of occupancy, the forest resources in the unreserved or general land (57% of area) are open access resources due to unclear ownership, absence of security of tenure and formal user rights (FBD 2001). As a result, these forests have been under constant pressure for conversion to other competing land uses such as agriculture (shifting cultivation), livestock grazing, settlements and industrial developments and also suffer from repeated forest fires (FBD 2001). Current cross sectoral efforts are geared at provision of property rights to communities and the private sector to sustainably conserve and manage the forests and trees on the general lands (FBD 2001).

2.2 Forest Policy

The first forest policy in the then Tanganyika was promulgated in 1953. The policy emphasised

among other things the need to protect forest resources and managing them in the most productive way to meet present and future needs. The policy envisaged shared responsibilities, but there were no legal provisions to enforce such visioned responsibilities (Kaoneka 2000). The Forest Legislation of 1957 was not effective beyond the government controlled forest estate because it was not explicit on how to monitor forest development in areas outside state ownership. The consequence has been massive deforestation in the forests on public lands (57% of total forest area).

Thus for over four decades, Tanzania has been implementing a forest policy of 1953, until 1998 when a new policy was approved by the government (URT 1998). The overall goal of the National Forest Policy is to enhance the contribution of the forest sector to the sustainable development of Tanzania and the conservation and management of her natural resources for the benefit of present and future generations. The objectives of the forest sector on the basis of the overall goal are as follows:

- Ensured sustainable supply of forest products and services by maintaining sufficient forest area under effective management;
- Increased employment and foreign exchange earnings through sustainable forest-based industrial development and trade;
- Ensured ecosystem stability through conservation of forest biodiversity, water catchments and soil fertility; and
- Enhanced national capacity to manage and develop the forest sector in collaboration with other stakeholder.

The policy encourages community and private sector involvement in forest management through establishment of Village Land Forest Reserves (VLFRs), individual, group and community forests over which they have full rights of ownership and management and Joint Forest Management (JFM) through joint management agreements with government where communities have user rights and management responsibilities. All this aims at enhancing conservation of forests by reducing illegal use of the resources.

The forest policy explicitly makes reference to linkage with other sectors. These include agriculture, livestock, mining, energy, wildlife, beekeeping, environment and land. Policy failures in some of these sectors have contributed to the deforestation and degradation of forest resources. This has been due to inadequate sectoral coordination and harmonization of policies (FBD 2001).

The forest policy has been revised to take into consideration significant changes which have occurred in the country since 1998. The revised forest policy awaits government approval (URT 2009).

Following review of the National Forest Policy in 1998, the government enacted Forest Act No 14 of 2002 (Cap 323 R.E 2002) (URT 2002). The Act is the legal instrument to implement the National Forest Policy. The Act among others provides for implementation of Participatory Forest Management (PFM) in the form of Community Based Forest Management (CBFM) and JFM.

2.3 Governance

The Tanzania Development Vision to 2025 (URT 2005) articulates the economic and social aspiration of the Government. Specifically, the vision aims at attaining (i) high quality livelihood (ii) peace, stability and unity (iii) good governance (iv) a well educated learning society and (v) a competitive economy capable of producing sustainable growth and shared benefits. The National Strategy for Growth and Reduction of Poverty (NSGRP) (URT 2006) is the main instrument for realizing these targets by pursuing three main outcomes (i) high shared growth and reduction of poverty, (ii) improved quality of life and social wellbeing, and (iii) good governance and accountability. In addition to NSGRP, there are other reforms to ensure good governance. The reforms include the Public Sector Reform Programme (PSRP) and the Local Government Reform Programme (LGRP). PSRP aims at improving performance and service delivery of public institutions. LGRP focuses on decentralization by devolution (D by D), which entails decentralization by devolution of powers and resources to the local government. Thus governance is given due consideration in government policy documents and reforms though the situation on the ground may be different.

According to Kjær (2004) governance is the setting, application and enforcement of rules. Hence, forest governance is the processes that shape the rules, their application and enforcement, including adjudication, and it is effectively governance which decides whether the objectives of SFM are met. In simple terms, 'good forest governance' could be defined as forest management that follows participatory and democratic decision-making processes and ensures forest conservation as well as an equitable distribution of costs and benefits.

Centralized forest management and PFM are the main strategies used by the Forestry and Beekeeping Division's (FBD) to ensure the sustainable management and conservation of Tanzania's forests. However, SFM is not being fully realized due to among others poor governance at local as well as district, regional and national levels. At the local level, key governance issues concern (i) corruption (ii) elite capture and/or (iii) minority marginalization in terms of access to forest resources (iv) low accountability (v) lack of transparency (vi) low participation (vii) weak law enforcement (Mndolwa *et al.* 2009, Nuru *et al.* 2009, Raphael & Swai 2009). At higher levels, the main issues are (i) corruption (ii) weak law enforcement (iii) accountability (Milledge & Elibariki 2005, URT 2009).

Weak governance is partly attributed to the existing forestry sector institutional framework. The forest sector administration involves the FBD of the Ministry of Natural Resources and Tourism (MNRT) and the Prime Minister's Office Regional Administration and Local Government. The administration has been weak especially in linking the local governments, regional administration and central levels (FBD 2001, Milledge & Elibariki 2005).

To improve governance at local level, the village government needs capacity development in areas such as planning, mobilization, finance management, good governance, and lobbying. The local/central government needs to provide the different skills through various training programmes done at village level.

At district and regional levels, protection of the FRs against the various threats they face is key to ensure maintenance of habitat cover and quality. However, the current capacity of forestry staff for law enforcement (in the FRs) and providing advisory services to the communities is generally weak (FBD 2009). Staff strength should be improved by recruitment, professional competence, proper remuneration and deployment to at least each Ward. The staff should also be provided with transport and other facilities for effective implementation of their law enforcement and advisory duties.

3. THREATS TO FORESTS IN TANZANIA

The major direct causes of uncontrolled deforestation and soil degradation in the forests are: settlement and agricultural expansion, overgrazing, firewood and charcoal production, uncontrolled fires, timber extraction, development of infrastructure/industry, refugees and most recently the introduction of large scale agriculture of bio-fuel production. These direct causes of uncontrolled deforestation and thus land degradation are driven by market and policy failures, rapid (and uncontrolled) population growth and rural poverty, and the state of economy. The consequences of deforestation and land degradation are usually deleterious to human populations and include reduced ability of forests to provide a variety of purposes: economic, social, environmental, cultural and spiritual. The major threats to forests are discussed in the following sections.

3.1 Direct causes

3.1.1 Agricultural expansion, human settlement and processing

Traditionally, fields under the various shifting cultivation systems were left fallow for at least 10-20 years (Mugasha & Nshubemuki 1988). In that period, 90% of the wood biomass would regenerate. Over time, the resource/man ratio changed due primarily to relatively rapid increase in population changing the nature of resource utilization. People cleared the natural forests to form agricultural lands and human settlements and as a consequence, the length of fallow was, in many instances, shortened so that the farming system moved from woodland fallow to bush fallow, and in many cases to grass fallow. This process of intensification has contributed to deforestation and degradation of forests. In addition, fires set by shifting cultivators and other forest dwellers often extend outside the cultivated plots and are a major cause of forest degradation and impede regeneration of woody plants (Rowe *et al.* 1994). This traditional agriculture also results in mining soils of plant nutrients by removing crop residues, leaching, and soil erosion (Smaling *et al.* 1997).

Tobacco growing is a widespread and a highly economic activity within the small scale farming system in forest areas especially the Miombo woodlands. Tobacco growing however requires substantial quantities of wood for curing and has consequently led to massive clearance, destruction and degradation of forests (Temu 1979, Brigham *et al.* 1996). Woodland losses are amplified by the need for fresh land each year in order to avoid the risk of root-knot nematodes (Misana *et al.* 1996).

For the forests bordering lakes, wood is cut by the lakeshore communities and commercial fishing industry for fish smoking (Brigham *et al.* 1996). This has contributed to the clearance and degradation of these forests. The burgeoning brick-making industry also takes its toll on the natural forests because of the large amount of fuel consumed during firing (Struhsaker 1987).

3.1.2 Uncontrolled fires

Uncontrolled dry season understory fires are a major cause of forest degradation. Most of these fires occur in the unreserved forests (public lands or general lands). The fires are caused

intentionally or accidentally by people preparing land for cultivation (shifting cultivation), collecting honey, making charcoal, hunting or livestock owners burning to prepare areas to provide green flush for their livestock and to control pests such as ticks (Frost 1996). Fires tend to be more frequent and intense in areas of low woodland cover and high mean annual rainfall, where grass production is high but grass quality and therefore grazing pressure is low (Frost 1996). The impact of fire on plants depends on the intensity and timing in relation to plant phenology. Late season fires in miombo woodlands are more intense and destructive than fire burning early in the dry season when much of the vegetation is still green and moist (Trapnell 1959, Frost 1996). Frequent late season fires in addition to changing species composition also affect vegetation structure transforming woodlands to open, tall grass savanna with only isolated, fire tolerant canopy trees and scattered understory trees and shrubs (Frost 1996). Other effects of severe fires include: large flux of nutrients leaving the ecosystem through volatilization and rapid mineralization of nutrients and increased microbiological processes (increased decomposition, nitrification and denitrification rates), losses of nutrients through accelerated erosion, and leaching, adverse changes in hydrological functioning (increased runoff, peak flows and sediment delivery to streams), degradation of soil physical properties (breakdown in soil structure, reduced moisture retention and capacity, development of water repellency), losses in microbial populations and associated processes, and decreases in micro- and macrofauna (Neary *et al.* 1999).

3.1.3 Overgrazing

Overgrazing of herbage in the forests is another important cause of forest degradation. Overgrazing in these areas is mainly due to large herds of cattle arising from unwillingness among livestock owners to de-stock and the fact that most of the forests/woodlands are open access (not reserved). The consequences of overgrazing have been land degradation (soil compaction, broken soil crust and erosion) as well as reduced species diversity and density. As most forest browse species are deciduous, there is nutrient bottleneck during the dry season but overgrazing during the wet season. However, the presence of tsetse fly in some forests which transmit trypanosomiasis to cattle has limited the rearing of cattle in these areas.

Studies in some forests of SSA have shown that, heavy browsing significantly reduces the biomass of some desirable tree species, results in the death of coppiced stumps and is detrimental to tree regeneration especially of preferred species (Chidumayo *et al.* 1996).

3.1.4 Firewood gathering and charcoal making

Firewood gathering and charcoal making have contributed significantly to forest destruction and degradation. Rapid population increase and fast rate of urbanisation have increased the demand for these products while poverty has prevented transition to other sources of energy (Struhsaker 1987, Monela *et al.* 1993, Monela & Kihiyo 1999). Fuelwood shortage has led to some communities using cow dung and agricultural residues for cooking instead of leaving both to improve fertility of farm plots. Other socio-economic problems associated with wood energy scarcity include: land degradation, health hazards, consumption of semi-cooked food, economic hardships, problems for women and children and lowering of living standards (Monela & Kihiyo 1999).

Charcoal is one of the major products in forests and provides an important income for rural dwellers. According to CHAPOSA (2002) charcoal production has become one of the major income sources for rural people in areas where transportation to the big cities is possible. In Tanzania, 75% of the farmers in studied areas had charcoal as an important source of income (CHAPOSA 2002). The CHAPOSA study in Dar es Salaam revealed that woodland cover has been reduced during the study period partly due to charcoal production and partly due to increased cultivation (CHAPOSA 2002). During 1989-1998, forest resources for charcoal production in forests close to Dar es Salaam were reduced by 22% (from 22 to 17%). Based on projected population growth and wood fuel use trends, the Dar es Salaam supply area would remain with about 20% of current wood resources in the year 2015 while the percentage of closed (natural) forest remaining in the area would be 20%.

Increasing use of fire wood and charcoal in urban areas of less developed countries is expected, as switching to alternative energy is minimal due to poverty among most of the city dwellers. Indeed, urbanisation contrasts with that of more developed countries during the 19th century, and is sometimes termed urbanization in poverty characterized by exploding cities without corresponding development of industrialization and the associated increase in urban income levels (Kreibich 2003).

3.1.5 Timber extraction

Timber extraction is one of the major causes of loss of forests. Timber extraction can also damage as much as 53% of the remaining smaller trees, destroy as much as 50% of the original forest and disturb 40% of the topsoil (Struhsaker 1987). Other effects include: suppression of regeneration by weeds or failure to regenerate and damage to the watershed functions of the forests (Kaoneka & Solberg 1994).

Ecologically, pitsawing is less damaging than mechanised felling because it results in minimal land degradation as compared with mechanized logging (Struhsaker 1987, Pocs 1988, Kaoneka & Solberg 1994). Pitsawing can, however, cause the following problems when not properly controlled and monitored (Pocs 1988, Kaoneka & Solberg 1994): (i) altering the under-canopy environmentally opening large gaps inside the forests (ii) can be wasteful because of poor sawing accuracy due to inadequately skilled cutting crews (iii) monitoring of the actual resource inventory in the area subject to pitsawing is difficult. Consequently, far more timber than the official licence allows appears to be taken out illegally from the forest reserves (iv) disturbs the natural regeneration by taking out trees with good gene pool qualities.

3.1.6 Infrastructure and industrial development

Investments in road and railway construction, industries, hydroelectric projects and mineral and oil extraction, necessary to meet development objectives, often entail environmental trade-offs. For example, in order to enhance agricultural development and mining activities, colonial governments constructed roads and railways to access areas with great potential in terms of agriculture and minerals (Misana *et al.* 1996). In Tanzania, the construction of railways by Germans in order to promote agricultural development, industries and mining activities resulted into population concentrations, rapid urbanization and high rates of deforestation and land degradation due to domestic woodfuel and industrial wood requirements (Misana *et al.* 1996, Nduwamungu 2001). Further, according to Palo (1999), economic theory supports the finding

that building or improving roads inside or near forests tends to increase deforestation. Roads facilitate logging and improve accessibility of forests by small-scale farmers and land speculators for agriculture, as well as reduce the costs of transporting inputs into those areas and marketing the products (Palo 1999).

Land degradation also occurs due to mining pits not being rehabilitated. In Tanzania for example, there is a growing number of small-scale miners driven by poverty and the search for alternative income earning opportunities digging thousands of mining pits which are never rehabilitated (Mwero 2002). When minerals are exhausted, mining sites are abandoned and miners move to more lucrative sites (Mwero 2002).

3.1.7 Refugees

The presence of refugees (with large numbers concentrated in certain locations) in forest areas has had severe environmental consequences in terms of rapid depletion of forests and land degradation. In Tanzania there were about 700,000 refugees in 2001, mostly from Burundi, Democratic Republic of Congo and Rwanda (FBD 2001). Land clearing for refugee campsites, construction material, fuelwood and agricultural crop production constitute a major threat to forest resources in refugee-populated areas (Babu & Hassan 1995).

3.1.8. Bio-fuel plantations

Liquid biofuel production is being promoted in Tanzania to substitute fossil fuels whose prices are escalating in the world market resulting in the rapid increase in the country's' expenditure on oil imports. It is estimated that Tanzania has 30 mil ha suitable for bio-fuel plantations. Currently multinational companies are increasing their investments into the cultivation of crops for biofuel production. The total area allocated for biofuel plantations is 650,000 ha out of the 4 mil ha requested. The cultivated area so far is not known. There is currently no government policy on biofuel plantations and the current Environmental Impact Assessment (EIA) process is weak (WWF 2008). It is estimated that over half of the biofuel investors did not carry EIA (Mutch 2009). Consequently large areas of natural forests habitats (e.g. the Coastal forests) with high biodiversity are been cleared to give way to biofuel crop farming. Further, the influx of settlers to the areas will have significant impact on the natural habitat for farming, house construction, and fuel wood collection. If biofuels are established on fertile soils, food crop cultivation may be displaced to other, more marginal areas, causing more land to be cleared, potentially reducing food crop yields, and increasing deforestation (WWF 2008). Taking land out of food production could also raise food prices, thus exacerbating poverty (Gerber *et al.* 2008, WWF 2008).

3.2 Underlying causes

The above direct causes of uncontrolled deforestation and thus land degradation are driven by market and policy failures, rapid (and uncontrolled) population growth and rural poverty, and the state of economy (Rowe *et al.* 1994, Palo 1999, Kaoneka 2000, Palo *et al.* 2000). Many of these underlying causes are related and because they are so often embedded in divergent social and economic contexts, their relative importance varies substantially among countries. Solutions to deforestation based on significant policy reforms are more likely to succeed if measures are also taken to control population growth and to alleviate rural poverty.

3.2.1 Market and policy failures

Market and public policies are important determinants of how forests are used and managed (Rowe *et al.* 1994, Palo 1999, 2000, Palo *et al.* 2000, 2001). Market failures refer to the inability of market prices under certain conditions, such as the presence of open access exploitation, externalities, incomplete information and imperfect competition, to reflect accurately the value of marketed and non-marketed or non-tradable environmental services (Rowe *et al.* 1994, Wardle & Kaoneka 1999, Palo 1999, 2000). Such failures also mean that markets are unable to ensure equitable resource and income distribution to promote maximization of collective welfare of the society (Wardle & Kaoneka 1999). Under corrupt conditions, a government has no motivation to move from administrative stumpage pricing to competitive stumpage markets (Palo *et al.* 2001). Consequently, in order to arrive at a suitable balance between markets and government policies, corruption and other policy failures have to be overcome (Palo *et al.* 2001).

Policy failures are consequent upon the following (Rowe *et al.* 1994, Simula 1997, Wardle and Kaoneka 1999, Kaoneka 2000, Palo 1999, 2000, Palo *et al.* 2000, 2001, Kowero *et al.* 2001):

- Inability of governments to institute strict centralised management without adequate financial and managerial capacity, the consequence has been inefficient management of forest resources;
- Inability of governments to adequately define property rights thereby rendering forests an "open access" resource with consequent risk of over-exploitation and general resource degradation and lack of investment incentives on forest activities;
- Inability of governments to charge a sufficiently high forest rent which reflects the real financial cost of managing forests. The low forest rent creates an incentive for inefficient use and over-exploitation of forest resources;
- Implementation of old forest policies which fail to adequately address emerging opportunities and constraints imposed by national aspirations, international agreements and conventions; and
- Non-forest incentives (pricing policies, tax incentives and other subsidies) encouraging private investments in leading sectors such as agriculture, energy, mining and transportation, leading to forest conversion to these uses.

Since the mid 1980's, many countries of Africa, including Tanzania have been implementing the structural adjustment programmes (SAPs) aimed at rectifying severe macro-economic problems, including falling export earnings, worsening balance of payments, mounting debts and declining economic growth (Misana *et al.* 1996; Kaoneka 2000, Kowero *et al.* 2001). The implementation of SAP has also contributed to unsustainable forest utilization and land degradation (Misana *et al.* 1996, Kaoneka 2000, Kowero *et al.* 2001). The SAP package includes: removal of price controls, trade liberalization, reducing government spending, floating exchange rate of the domestic currency and decentralization of management roles through privatization and devolution (Kaoneka 2000, Kowero *et al.* 2001). For the countries that have implemented SAP, a major effect of SAP has been reduced financial capacity of forest departments to manage forest resources effectively (Kaoneka 2000, Kowero *et al.* 2001). Secondly, peasant farmers who, hitherto, depended on subsidized farm inputs have been compelled to encroach forests in order to expand farmlands to meet the rising demand of food a consequence of family expansion and population growth (Kaoneka 2000). This leads to an upsurge in deforestation and degradation (Kaoneka 2000). On the other hand, higher crop prices may result in increased land clearance as new land is opened up for cultivation (Misana *et al.* 1996).

Other past and present policies and global obligations which have contributed to forests

degradation include (Misana *et al.* 1996, URT 1997, FBD 2001, Kowero *et al.* 2001, URT 2009):

- Colonial land alienation policies which led to much of the land especially the more fertile being reserved for European settlers and peasants being concentrated in marginal lands leading to severe deforestation and degradation of forests;

- Colonial policies to encourage cultivation of export crops (like tea, tobacco, coffee and cotton) and mining mainly by settlers, through incentives like technical assistance, financial credit and road and railway construction leading to accelerated conversation of forests to farms and increased demand for fuel for tobacco curing and urban areas established due to mining activities. These colonial agrarian systems have been reinforced by post-independence agricultural policies;

- During the colonial period, forestry was in most cases under agriculture departments and even when forestry departments were created, they were placed under the ministries responsible for agriculture and in this way, forestry departments were overshadowed by departments that commanded more government attention and resources although they were minor land users. Also there was no clear vision and commitment in some countries on how forestry should be developed resulting in haphazard or uncoordinated development of the sector, which continued even after these countries became independent;

- Tanzania land reclamation policy where miombo woodlands invaded by tsetse fly were reclaimed by clearing woody biomass;

- Tanzania livestock policy which encourages pastoralists to migrate to less populated areas. Thus the problem of land degradation which is characteristic of livestock concentration zones is simply exported to other areas. Bush clearing to control the advance of testse flies is emphasized in the livestock policy and this has hindered re-establishment of woodlands and created impetus for further woodland clearance;

- Resettlement policies: the Tanzania Villagisation Policy of 1967 which involved establishment of nucleated villages, some in virgin lands which necessitated extensive clearance of woodlands for farmland and settlement expansion. Woodlands became no man's land open for exploitation by any one;

- The energy policy focussing on the commercial energy sector (electricity), rather than woodfuel used by over 80% of the population. Such inadequancy of the energy policy in addressing woodfuel problems have led to the depletion of forests particularly around major towns/cities. Further, the Tanzania environment policy of 1997 stresses on development and use of indigenous energy sources such as bio-energy, coal, natural gas and hydropower. However, less than 2% of energy development budget is allocated to wood energy programmes, and fuelwood is still regarded as a minor forest product with little market value;

- Population policies emphasizing on family planning rather than urban-rural migration leading to increased woodfuel demand, usually in form of charcoal and increased deforestation in the vicinity of the urban areas;

- Political policies replacing sectoral policies and sectoral policies from other sectors having preference over forestry sector policies in their own domain. The results were varying levels of encroachment into forest areas as well as constrained growth of the sector;

- Globalisation has harmed the environment through for example expansion of unsustainable agriculture and mining; and

- Implementation of Millennium Development Goals (MDGs) on combating poverty may lead to increased utilization of natural capital including forests.

3.2.2 Population growth and rural poverty

Reports by Palo (1999, 2000); Palo *et al.* (2000) and Yirdaw (1996) among others, have shown that there is a significant correlation between population pressure and deforestation, especially

when there is a prevailing poverty, an ambiguous land tenure system, lack of agricultural intensification, market and policy failures, and political instability.

In the past, population density in the forest areas was low and the agricultural systems followed by indigenous farmers did not degrade soil and water resources due to the long fallow period (10 - 20 years) and respect developed by shifting cultivators for the forested areas (i.e. sources of food and medicine) surrounding them. With the coming of outside civilizations, however, indigenous shifting cultivators have been given access to modern life-saving drugs and medicines that have helped prolong their lives. This has resulted in population increases that placed more pressure on the food production systems. Rapid population growth often intensifies pressure to convert forest areas to other uses, as well as exploit forests for short-term benefits (e.g. food and fuelwood supply) (Rowe *et al.* 1994, Palo 1999, 2000, Palo *et al.* 2000; Nduwamungu 2001). As the people interacted with the outside world, educational and economic opportunities began to be available. While such opportunities were noteworthy, they tended to encourage the breakdown in the culture that the early subsistence models used to exploit and manage natural resources sustainably.

Poverty is one of the main underlying factors contributing to deforestation and soil fertility depletion (Rowe *et al.* 1994, Quinones *et al.* 1997, Palo 1999, 2000, Palo *et al.* 2000). Poverty-led environmental degradation is responsible for much of the deforestation and degradation of forests. The majority of rural poor rely heavily on forests and woodlands for income and subsistence. While some traditional rural communities have developed comparatively sustainable forms of resource use, many others are compelled, by circumstances often beyond their control, to exploit forests unsustainably for short-term gain (Rowe *et al.* 1994).

3.2.3 State of the economy

According to Rowe *et al.* (1994) poor economic performance combined with high external debts, pushes countries, especially those of SSA to exploit forest resources quickly for short-term gains. The debt burden provides an inducement to liquidate forest capital. Debt service requirements also provide a justification for expanding export crop production into forest areas. The pressure to generate foreign exchange earnings, therefore, has led to an emphasis on quick return and unsustainable land-use practices. As a result, countries of SSA have adopted policies that led to forest conversion to agriculture and short-term exploitation of forest capital.

4. PAST EXPERIENCES WITH REDUCING DEFORESTATION AND FOREST DEGRADATION

4.1 Natural forest management and management plans

Documented forest management in Tanzania originated in the German colonial period with the introduction of a forest administration and the creation of the first forest reserves in the country, over the period from 1902 to the outbreak of World War I (Schabel 1990). However, it was not until 1957 that forestry activities were required to comply with an official national Forest Ordinance. The Forest Ordinance of 1957 formalized state dominance in the management of

forest resources. By the mid-1990s a global shift towards decentralized forest management was taking place, with delegation of forest management rights and responsibilities to a local level as a strategy to achieve SFM and development. In Tanzania, as elsewhere, this led to a major review of forest policy and legislation. A new Forest Policy (URT 1998) took effect in 1998 and led to a new Forest Act. The Forest Act (URT 2002) covers the creation and declaration of forest reserves owned by central or local government. In addition, the Forest Act gives the MNRT the power where necessary to alter the status of a National or Local Authority Forest Reserve "to become a Village or Community Forest Reserve".

4.1.1 Centralized forest management

The Tanzanian FBD provides overall policy guidance for the nation's forestry sector, including setting royalties (URT 2007a), and technical oversight and supervision. FBD holds primary responsibility for the management of state owned forests, including industrial forest plantations and natural forests in forest reserves (URT 2002). However, in practice, the decentralized system of government places much responsibility for forest conservation and management with FBD district administrations. Exceptions are made for industrial forest plantations, for several major catchment forests and for forests with high biodiversity values; all these remain under the direct management of FBD.

4.1.2 Participatory forest management

The recent legislation thus makes transfers of forest resource ownership and management responsibilities to local communities feasible. Consequently, a community-based approach to securing and managing forests, generally referred to as PFM, has emerged as a central element in the FBD's strategy for ensuring the sustainable management and conservation of Tanzania's forests (FBD 2001, Blomley and Ramadhani 2006). There are three main objectives of PFM namely (i) improving rural livelihoods, (ii) conserving and regenerating forest resources and (iii) promoting good governance. In Tanzania, the two major approaches to the implementation of PFM are CBFM, and JFM. FAO (2004) noted that when conventional forest management plans developed primarily for timber production are used for PFM they impose financial and technical demands farmers cannot meet. Simpler forest management plans drawn up by communities with technical assistance from the forest sector have been adopted in Tanzania (URT 2007b).

CBFM and JFM approaches differ in terms of forest ownership and cost/benefit flows. CBFM, where trees are owned and managed by a village government through a Village Natural Resources Committee (VNRC), applies on village land or private land. In this case, the owner carries most of the costs and accrues most of the benefits related to management and utilization, with a minimal role for central government and the district authorities have a role only in monitoring. For CBFM, the Forest Act requires a management plan to be in place before any village or private forestry status is recognized. Preparation of the plan is a village council responsibility but must involve relevant government officials, the local authority in the vicinity of the forest and the local communities granted the rights of occupancy or lease from the private entity. Approval from the Director of FBD has to be obtained before it is operational. After approval, VNRCs oversee implementation. In practice, a good number of villages protect their forests only through by-laws or forest management plans (Blomley and Ramadhani, 2006).

JFM is currently a strongly favoured approach to the management of state owned forests, with management responsibilities and returns divided between the state and the communities adjacent to the forest (Blomley et al. 2008). It takes place on "reserved land" owned and managed by either

central or local government. Villagers typically enter into agreements to share management responsibilities with the forest owner. The Forest Act requires a joint management agreement prepared by the central government, or designated district authority, to be formally made with local communities adjacent to the state forests before any JFM initiative starts.

CBFM and JFM operate in accordance with the *Village and Ujamaa Villages Act* of 1975, and the *Local Government (District Authorities) Act* of 1982, which empower the village councils to make rules in the form of by-laws, recognized in courts of law, which facilitate management of village land and village forests (Kihiyo & Kajembe 2000). Since the Forest Act was enacted, forest area under PFM has increased considerably but there has been no increase in forest area under private ownership (URT 2007c). By 2008, the area under CBFM was 2,345,000 ha which represents 11.6% of unreserved forests while the area under JFM was 1,780,000 ha mostly montane and mangrove FRs (FBD 2008).

A number of PFM studies have since reported improved forest regeneration, biodiversity, forest growth and well-being of community members (e.g. Topp-Jørgensen *et al.* 2005, Blomley & Ramadhani 2006, Blomley *et al.* 2007). In contrast, the contributions of JFM to people's livelihoods will remain questionable as long as benefit-sharing mechanisms are not clear and limitations on income generation potential persist (Topp-Jørgensen *et al.* 2005, Blomley & Ramadhani 2006, Vyamana *et al.* 2008). The cost-benefit sharing mechanism currently being finalized by FBD should be instituted after approval by relevant authorities. Furthermore, the management agreement process for villages participating in JFM agreements should also be simplified as the current system is long and bureaucratic (FBD 2006).

4.1.3 Management plans for forests in Tanzania

In principle, Tanzania's forests are managed according to forest management plans under which the needs and interests of forest-adjacent communities are taken into account where appropriate, always consistent with overall aims of resource sustainability and poverty reduction (FBD 2001, 2002, 2007b). The plans are based primarily on silvicultural rules and prescribe management procedures, both for natural and industrial plantation forests, setting out relevant management objectives, silvicultural measures and, where applicable, marketing arrangements for forest products (URT 2007c). In the case of the silvicultural provisions, any pressing research needs are indicated.

Institutional responsibilities for the preparation and implementation of forest management plans are clearly defined (URT 2002, 2007b). Finance severely constrains action on the ground, however. In practice, as a result, recent plans tend to have been prepared and implemented with development partners' support, particularly in natural forests with global biodiversity values. For example, Amani Nature Reserve was initiated with support from the Government of Finland (Amani Nature Reserve 1998), while preparation of the strategy for conservation of Eastern Arc mountain forests has been developed with the support of the Global Environmental Facility (CMEAMF 2008). Until now, PFM has also been heavily donor-dependent (Blomley and Ramadhani, 2006), despite the government's indication of commitment to PFM as a key strategy (FBD 2001, 2007b). High donor dependency of PFM, casts doubts on its sustainability.

Further, donor support for some projects was considered too short in duration to effectively empower communities to manage the forest effectively (Milledge & Elibariki 2005).

Under few PFM management plans are silvicultural rules implemented. Vyamana *et al.* (2008), studying poverty impacts of PFM in the Eastern Arc area of Tanzania, found that from stipulated rules concerning enrichment planting, resource monitoring, patrols and boundary clearing, only patrolling and boundary clearing rules were implemented. In Iringa, a comparable situation arose from lack of interest and incentive for forest conservation among communities (Topp-Jørgensen *et al.* 2005). In the southern highlands of Tanzania neglect of resource monitoring has been estimated to reduce potential forest revenue by 80% (Topp-Jørgensen *et al.* 2005).

4.2. Forest plantations

Tanzania embarked on large scale plantations development in the 1950s. This was aimed to meet the increasing demand for wood. It was also expected to also relieve some of the pressures on natural forests.

Currently, Tanzania has 19 state owned industrial plantations covering some 89,000 hectares mainly planted with softwoods and a few hardwood species. There are over 60,000 ha of privately owned plantations. The main species planted in plantations include: *Pinus patula*, *P. elliottii*, *P. caribaea*), *Cupressus lusitanica*, *Eucalyptus maidenii*, *E. saligna* and *Tectona grandis*.

The productivity of government plantations is generally low (15 $m^3ha^{-1}yr^{-1}$) due to use of unimproved seed and low intensity management (Chamshama & Nwonwu 2004, FFNC 2006). With improved seed and good forestry practice a yield of up to 30 $m^3ha^{-1}yr^{-1}$is possible (Chamshama & Nwonwu 2004). On the other hand, privately owned plantations have been found to have high productivity due to careful site selection, intensive cultural practices, selection of genetically improved seed/propagules. Government owned plantations are characterised by planting and replanting backlogs, low intensity site preparation techniques, poor quality trees due to use of un-improved seed and low survival due to poor species-site matching and delayed or low intensity weeding (FBD 2001). It is also noted that they are generally neglected or have irregular pruning and thinning, constant fire, disease and pest attacks, and generally suffer illegal felling and encroachments (FBD 2001). On a positive note, new plantation tree species have been introduced in order to increase biodiversity, and reduce the impacts of fire, diseases and insect outbreaks (URT 2009).

There have never been efforts to expand the government forest plantations areas for many years now. On the other hand, the area under private sector plantations is increasing. Overall however, the total area of forest plantations which is about 150,000 ha (FAO 2006) is low given high domestic and export demand of forest products and the fact that Tanzania is one of the few African countries with potential areas for expansion of forest plantations (FAO 2003a).

4.3 Woodlots and trees on farm

During the 1970s, Tanzania encouraged individuals and communities to establish woodlots and trees on farm (TOF) aimed to meet the increasing demand for wood and NWFPs, the need for afforestation/reforestation for environmental objectives especially windbreaks and shelterbelts as well as rehabilitation of degraded areas for improvement of watersheds/productivity. Response has been variable, and adoption of these activities is not promising in most parts of the country. To the contrary, people in a number of districts responded positively to tree planting.

With regard to individual and community woodlots, management has generally been variable. In places like Makete, Southern Tanzania, individual woodlots have generally showed satisfactory performance and now have a significant contribution to the livelihoods of the communities (Malimbwi *et al.* 2010). While communal woodlots is another important source of wood and NWFPs, they have in some cases become free access resources and the weakening of traditional systems of management have led to resource degradation (FAO 2003a).

On the contrary, today TOF constitute a vast tree resource in Tanzania and form a major source of wood and NWFPs for domestic use and for sale. However, little information is available as to their extent and overall contribution to wood production (FAO 2003a) as most national forest inventories tend to focus only on "designated forest lands". In view of the increased demands on forest products and declining "forest land", all indications are that TOF will become a major source of wood supply to meet growing rural and urban demand, provided issues such as tenure and access to markets are sorted out (FAO 2003a).

At present, the sources of most of the plantings for TOF are largely unknown. While nursery raised seedlings are sometimes planted, especially for the exotic tree species, trees are also established from transplanted naturally regenerated seedlings (wildings) on farm. Other trees are retained while establishing new farms in forested areas. Some studies have shown that the quality of TOF is generally low. This is due to low seed quality linked to inbreeding and poor selection of trees for seed collection, low availability of quality planting stock/seed, and sometimes poor species-site matching (Chamshama & Nwonwu 2004, Chamshama 2006, URT 2009). Support to farmers in the form of improved germplasm can lead to significant improvement in productivity, quality and resistance against pests and diseases of TOF.

Tree management on farm involves pruning, pollarding and sometimes thinning for overcrowded trees, which excessively shade food and cash crops. Silvicultural advice is generally limited, and thus most of these operations are based on the farmer's own experience (Malimbwi *et al.* 2010). Consequently the quality of the trees for use especially for timber is generally low. Imparting silvicultural management skills among farmers would improve wood quality for various uses.

The sale of wood and NWFPs produced from TOF has often been problematic (URT 2009, Malimbwi *et al.* 2010). Farmers need to be assisted in all aspects of marketing and value addition to improve their returns from sale of wood and NWFPs.

4.4 Forest landscape restoration

Forest landscape restoration is a process for re-establishing ecological integrity and enhancing human well-being in deforested or degraded landscapes (WWF 2007). It covers both forest restoration and forest rehabilitation. Forest restoration is the process of restoring a forest to its original structure, composition and function, while forest rehabilitation seeks only to revive capacity for providing goods and services (FAO 2003b). Natural regeneration, assisted natural regeneration, enrichment planting, plantations, agroforestry and various soil and water conservation techniques are all used in forest landscape restoration (Lamb *et al.* 2005, WWF 2007). In Tanzania, techniques already in use include plantations, natural regeneration, agroforestry and various soil and water conservation techniques (WWF 2007). Plantations are too restricted in extent to provide sustainable livelihoods and environmental services for the large land areas demanding restoration (Lamb *et al.* 2005), while assisted natural regeneration and enrichment planting have been tried only in research activity (Mugasha 1996, Mbwambo & Nshubemuki, 2007). Kaale (2001) concluded that natural regeneration through active involvement of local communities promoted under PFM, and supported by the new forestry legislation and programme, was by far the most promising option for restoration of the large areas of degraded land in Tanzania. CBFM is regarded as the most appropriate way to achieve forest landscape restoration, and is expected to be successful because local communities are allocated clear forestland rights, and traditional knowledge and practices are taken into account.

Example of a successful forest landscape restoration is the *Ngitili* system of agro-pastoral communities in Shinyanga region, Tanzania. The *Ngitili* concept as currently understood came into being through "*Hifadhi Ardhi Shinyanga* (HASHI)", the Kiswahili designation of a land restoration project in Shinyanga Region, which began in 1986. *Ngitili* means enclosure and refers to an ancient and traditional range (bushland and thicket) management system of *Wasukuma* tribe agro-pastoralists for ensuring the availability of dry season fodder reserves. Areas of standing vegetation (trees, shrubs, forbs and grasses) are fallowed and enclosed from the onset to the end of the wet season and opened for livestock grazing at the peak of the dry season (Kamwenda 2002, Iddi 2003). Protection of *ngitilis* is a responsibility of traditional village guards (*sungusungu*) and community assemblies known as *Dagashida*, led by the council of elders, who enact and enforce by-laws.

Monela *et al.* (2005) found that more than 350,000 ha of land was occupied by restored or newly established *ngitili*, of which about 50% was owned by groups and another 50% by individuals. Benefits from *ngitili* were estimated at 14 US$ per person per month, which is much higher than the average monthly spending per person in rural Tanzania (8.5 US$). The benefits gained were from products harvested from *ngitili,* including fuelwood, timber, medicinal plants, fodder, thatch-grass for roofing, wild foods such as bush meat, edible insects, fruit, vegetables, and honey (Monela *et al.* 2005). In addition, restored vegetation through *ngitili* has been reported to maintain water storage in reservoirs for domestic and livestock use. The free access to communal *ngitili* for poor people provides a safety net for the poorer households who have no or very little individual

ngitili (Monela *et al.* 2005). In 2002, the HASHI project was awarded the prestigious Equator Initiative Award.

Although the science of landscape restoration may be new, efforts to restore degraded landscapes in Tanzania are not. The success stories on forest landscape restoration (e.g. Ngitili and SULEDO) have always been associated with situations where communities were actively involved, and their interests, local knowledge and practices taken into account. This notion is already part of the current policies and legislation in almost all sectors, which provide the necessary enabling environment for restoration of degraded lands. The initial positive impacts of landscape restoration provide guidance and encouragement for wider success in the future.

4.5 Integrated conservation and development and landscape based projects

Conservation of biodiversity and ecosystem services has for several decades been achieved by the "fines and fences" (non participatory) approach to conservation. In the mid 1980s, the World Wildlife Fund (WWF) first introduced Integrated Conservation and Development Projects (ICDPs) to attend to some of the problems associated with the "fines and fences" approach. ICDPs are biodiversity conservation projects with rural development components aimed to improve livelihoods and reduce human pressures on biodiversity. ICDPs have mainly been implemented at the level of sites. Examples in Tanzania include the East Usambara Mountains Project in Amani, Tanga, the Soil and Conservation and Agroforestry Project in Lushoto and the Conservation and Management of the Eastern Arc Mountains Forests Project based in Morogoro, Tanzania. The projects mainly worked at the watershed level as watersheds are considered appropriate organizational units because they are readily identifiable landscape units with readily identifiable boundaries that integrate terrestrial, aquatic and geologic features. The projects aimed at biodiversity conservation, increasing agricultural productivity and reducing poverty by encouraging communities to undertake income generating activities.

The following are the key lessons from project activities in the Eastern Arc Mountains (EAM) (Burgess *et al.* 1998, FBD 2002):

a) Whilst field patrolling to curb illegal activity is essential, and requires considerable staff inputs, on its own it is not sufficient. Field patrolling, with convictions for illegal use is a necessary input, but it has to be linked to awareness creation and extension support;

b) Adequate staff inputs are needed for such field work; as the level of PFM increases, the field staff would undertake less patrolling and provide more extension support to PFM. PFM itself requires considerable staff inputs to ensure success;

c) The participation of local communities in the survey and monitoring process for forest resources is an essential part of trust and capacity building, and increases ownership for both the resource and project activity;

d) Capacity building and awareness is needed at all levels of government and civil society. Capacities are weak and there are many different agenda in the institutions;

e) PFM is a slow and gradual process, initially costly (time, human resource, financing) and requires trust on both sides;

f) PFM approaches without demonstrating realistic benefit streams to people will not work;

g) Social impact assessment of conservation activity is an important part of monitoring and evaluation;

h) Transparency is a key attribute. This applies to both planning and implementation;

i) Equitable benefit sharing is essential; emphasising those most dependent on the forest;

j) Adequate linkages between local government who have responsibility and central government who have technical skills, are important;

k) Continuing awareness of project activity is essential for proper participation. Awareness is achieved through networking, education and involvement;

l) There is need to increase linkages between forest conservation and alternative livelihoods; sustainable use, improved agriculture. Conservation on its own will not work;

m) Full participation and understanding is essential at the lowest levels of local institution – in the hamlets and sub villages. Village situations differ; and PFM needs to be site specific;

n) Conservation processes involving communities need a long time hence patience is needed from all parties involved;

o) Field activities need focus, with considerable and continued capacity building amongst all stakeholders;

p) Some projects had overly-strong focus on the reserved areas at the expense of simultaneously working with communities;

q) Development of management structures which are wholly within the project, and not linked to bodies which are likely to persist in an area in the longer term; and

r) Use of top-down approaches in some projects in the 1980s to early 1990s resulted in project failures.

About a decade ago, conservation and development groups realised that looking at what forests and other land uses supply at a landscape scale helped to understand better the trade offs implicit in balancing different land uses. It meant focussing on the overall benefits that emerge from the whole landscape often containing components managed in different ways, rather than looking at each site in isolation (WWF 2004).

A landscape is defined as a territory that is characterised by a particular configuration of topography, vegetation, land use, and settlement pattern that delimits some coherence of natural, historical, and cultural processes and activities (Buck *et al.* 2006). Various management approaches are applied to the landscape to conserve biodiversity and ecosystem services in protected areas and provide agricultural products and services in the inhabited parts of the landscape. There is a project using the landscape approach in the East Usambara and this approach is now being advocated in the forest reserves/nature reserve areas of the country.

5. CONCLUSION

Tanzania is still endowed with extensive forest resources but their sustainability is threatened by the human activities that cause deforestation and forest degradation, and occur when communities strive to earn their livelihoods. Thus it is important to recognize a forest-livelihoods linkage if SFM is to be achieved. As peoples' livelihoods are embedded in many sectors (e.g. agriculture, fisheries, forestry), halting deforestation must be approached from the multi-sector perspective. Similarly, SFM can only be realized if the forestry sector aims to optimize the dual objective of improving forest condition and conserving the environment, while at the same time improving livelihoods of the people, particularly the poor, who largely depend on forest resources for their livelihoods.

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ANNEX 2b-1 The National Forest Programme (NFP) Summary

UNITED REPUBLIC OF TANZANIA

MINISTRY OF NATURAL RESOURCES AND TOURISM

FORESTRY AND BEEKEEPING DIVISION

NATIONAL FOREST PROGRAMME IN TANZANIA

2001 - 2010

November, 2001

ABBREVIATIONS AND ACRONYMS

BET	Board of External Trade
C&I	Criteria and Indicators
CBD	Convention on Biological Diversity
CBFM	Community Based Forest Management
CBO	Community Based Organization
CCD	UN Convention on Combating Desertification and Drought
CEEST	Center for Energy, Environment, Science and Technology
CSD	Civil Service Department
CSRP	Civil Service reform Programme
CU	Coordinating Unit
DC	District Council
EAC	East African Community
EIA	Environmental Impact Assessment
ERP	Economic Recovery Programme
ESAP	Economic and Social Action Programme
FAG	Forestry Advisory Group
FBD	Forestry and Beekeeping Division
GDP	Gross Domestic Product
GEF	Global Environmental Facility
HIPC	Highly Indebted Poor Countries
IK	Indigenous Knowledge
IPF	Intergovernmental Panel on Forests
IUCN	The International Union for the Conservation of Union
JFM	Joint Forest Management
LGA	Local Governments Authority
LGRP	Local Government Reform Programme
LGRT	Local Government Reform Team
LMDA	Logging and Miscellaneous Deposit Account
LUP	Land Use Planning
MCDWCA	Ministry of Community Development, Women and Children Affairs
MEM	Ministry of Energy and Minerals

MIS	Management Information System
MNRT	Ministry of National Resources and Tourism
MoAF	Ministry of Agriculture and Food Security
PO-RALG	President's Office Regional Administration and Local Government
MTEF	Medium Term Expenditure Framework
NAFORM	National Forestry Research Master Plan
NBSAP	National Biodiversity Strategy and Action Plan
NCSSD	National Conservation Strategy for Sustainable Development
NEAP	National Environment Action Plan
NEMC	National Environmental Management Council
NFP	National Forest Programme
NGOs	Non- governmental organizations
NLUPC	National Land Use Planning Commission
NPES	National Poverty Eradication Strategy
NWFP	Non-wood Forest Products
PRS	Poverty reduction Strategy
PSRP	Public Service Reform Programme
RAS	Regional Administrative Secretariats
RPFB	Rolling Plan and Forward Budget
SADC	Southern Africa Development Community
SAP	Structural Adjustment Programme
SC	Steering Committee
SFM	Sustainable Forest Management
SPM	Southern Paper Mills Ltd
SUA	Sokoine University of Agriculture
SWAp	Sector Wide Approaches
TAFORI	Tanzania Forestry Research Institute
TANESCO	Tanzania Electric Supply Company
TFAP	Tanzania Forestry Action Plan
TWICO	Tanzania Wood Industry Corporation
UNCED	UN Conference on Environment and Development
UNFCCC	United Nations Framework Convention on Climate Change
UNFF	United Nations Forum on Forests

EXECUTIVE SUMMARY

National Context

About 38% of the Tanzania's 886,000 km^2 total land area is covered by forests and woodlands that provide for wildlife habitat, unique natural ecosystems and biological diversity and water catchments amounting to 1.6 million hectares. These forests are however faced with deforestation at a rate of between 130,000 and 500,000 ha per annum, which results from heavy pressure from agricultural expansion, livestock grazing, wild fires, over-exploitation and unsustainable utilization of wood resources and other human activities mainly in the general lands.

Policies

The NFP is an instrument meant to implement the National Forest Policy, which was approved by the Government in 1998. The policy takes cognisance of macro-economic and other sectoral policies ranging from environmental conservation to sustainable development of the land based natural resources. Major policies that have a bearing on the forest sector include the Environmental Policy and Land Policy. The formulation of respective legislation and their operationalization will enhance sustainable forest management mainly in the general lands and cross-sectoral areas.

Justification

The National Forest Programme was developed in order to address the challenging responsibilities in the near future and to increase the forest sector's contribution to the national economy and more so in poverty reduction. Forests and trees play multiple roles in the rural life of majority of Tanzanian people especially women and marginal groups in relation to food security, rural energy supply and household subsistence. Forests are increasingly becoming important in the local and global environmental and biodiversity conservation. This programme would significantly enhance not only sustainable forest management (SFM) but also improve the design and implementation of projects and programmes which have so far been fragmented and uncoordinated.

Objectives

Recognizing the ever increasing environmental degradation and loss of forest resources, Tanzania embarked on developing a long-term National Forest Programme to implement the National Forest Policy. The objectives of the NFP development programmes are (i) sustainable supply of forest products and services ensured to meet the needs at the local and national levels; (ii) enhanced national capacity to manage and develop the forest sector in a collaborative manner; (iii) enabling legal and regulatory framework for the sector in place and (iv) increased economic contribution, employment and foreign exchange earnings through sustainable forest-based industry development and trade of forest products.

Development Programmes

The National Forest Programme (NFP) for 2001-2010 is based on four implementation programmes that cover both forest resources management as well as institutional and human resources development aspects. The programmes are: (i) <u>Forest Resources Conservation and Management</u> programme which aims at promoting gender balanced stakeholders participation in the management of natural and plantation forests, giving priority to ecosystems conservation, catchment areas and sustainable utilization of forest resources; (ii) <u>Institutions and Human Resources Development</u> programme which aims at strengthening institutional set up, coordination of forest management, establishing sustainable forest sector funding and improvement in research, extension services and capacity building through strengthening human resources; (iii) <u>Legal and Regulatory Framework</u> programme which focuses on the development of regulatory issues including the Forest Act, rules, regulations and guidelines to facilitate operations of the private sector and participatory management, and (iv) <u>Forestry Based Industries and Sustainable Livelihoods</u> programme which is intended to enhance forest industry development by promoting private sector investment, improving productivity and efficiency and to tap the income generation opportunities provided by non wood forest products. The complete Logical Framework Matrices for the respective programmes are presented in Annex 7 to this main document.

(1) Forest Resources Conservation and Management Programme

The programme covers Forest Reserves, General Lands, Industrial Plantations, Private and Community Forestry and Forest Biodiversity Conservation, Watershed Management and Soil Conservation

Objective: Sustainable supply of forest products and services ensured to meet the needs at the local and national levels

Sub-programme	Key Issues[2]	Key Strategies
1.1 Participatory Forest Resources Management and Gender Aspects[3]*	Ineffective forest management due to the lack of involvement, motivation and benefits to local communities, private sector and other stakeholders. (H) *Inadequate gender aspect in forestland management. (H)*	Establish CBFM and JFM by using innovative ways to share the costs and benefits and by assessing the economic, financial and social viability of participatory initiatives. Pay attention to gender balance in terms of income generation opportunities, poverty reduction, decision-making and ownership of forest resources and products. Collaborate with local governments in the management of forests in the general lands and local government forest reserves. Involve specialized executive agencies, private sector and local governments by commercialization or privatization of the management of existing industrial plantations

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[2] H = High priority   M = Medium priority   L = Low priority

[3] * = Priority Sub-programmes

Sub-programme	Key Issues[2]	Key Strategies
		through concessions and leases.
		Expand existing plantations and promote tree planting in private farmlands.
1.2 Forest Biodiversity Conservation and Management*	Degradation and erosion of biodiversity due to shifting cultivation overgrazing, monoculture, wildfires and poaching. (H)	Assess forest biodiversity sites and habitats with high endemism and species richness under major ecozones and create conservation strategies and joint management agreements
	Inadequate application of indigenous knowledge in biodiversity conservation. (M)	Demarcate and manage protective buffer zones around gazetted forest and nature reserves with biodiversity, water and other amenity values in collaboration with local communities through JFM and CBFM
1.3 Land Use Planning	Undefined land use and security of tenure of forestlands in village and general land. (H)	Develop clear ownership for all forests and trees on general lands.
	Land scarcity due to population pressure and its negative effects on forest development (L).	Demarcate forest reserves under central, local government, village and private individuals and grant appropriate user rights.
1.4 Forest Resources Information and Management Planning	Inadequate data on available forest resources for utilisation, and baseline data for conservation and management purposes. (H)	Streamline forest resources information systems by assessing the current databases/registries and priority needs for new forest resource information.
	Management plans non-existent or outdated or not implemented. (H)	Conduct forest inventories and develop management plans together with the relevant stakeholders in priority plantations and natural forest areas.
	Inadequate information on ecosystems (forest biodiversity, water catchment and soil conservation). (H)	Establish new, cost-effective ways to conduct and prepare forest reconnaissance inventories, biological surveys and zonation and prepare low cost management plans.
	Outdated and non- existent management plans in watershed and soil conservation areas. (H)	
	Inadequate collection, analysis interpretation, dissemination, storage and updating of forest resource information. (H)	
1.5 Forest Resources Utilisation	Inefficient utilisation of plantations. (H)	Commercialise or privatise the management of existing plantations through concessions, leases and joint management and use fully the plantation potential in terms of quantity and quality.
	Potential for forest products, NWFPs and services (including eco-tourism, woodfuel) not fully assessed/utilised. (M)	Assess and promote utilization of forest products, NWFPs and services for wider use and income-generation, especially among the rural communities.
	Heavy dependency on few species for raw material supply for forest-based industry. (L)	Assess and create awareness on lesser-known

Sub-programme	Key Issues[2]	Key Strategies
		species for wider utilization.

(2) Institutions and Human Resources Programme

Objective: enhanced national capacity to manage and develop the forest sector in a collaborative manner

Sub-programme	Key Issues	Key Strategies
2.1 Strengthening Institutional Set-up and Sectoral Co-ordination and Cooperation*	Inadequate sectoral and inter-sectoral co-ordination (H). Inadequate, regional and international co-operation (H). Inadequate mechanism for coordination of stakeholders in management of forest in general lands (M). Weak institutional linkages between the central and local levels, NGOs, local communities and the private sector on conservation and management of forest ecosystems (H).	Promote cross-sectoral coordination between the forest administration and other government institutions at all levels through formal mechanisms (at the central and local levels, and areas envisaged for collaboration include integrated planning, policy formulation and extension services). Develop mechanisms for adequate sectoral and inter- sectoral co-ordination and consult other stakeholders in planning and management of forest resources as well as regional and international co-operation in implementation of SFM. Explore and utilize fully opportunities provided under various conventions, agreements and mechanisms, at international cooperation level.
2.2 Human Resources Capacity Building*	Inadequate human resources to carry out forestry programmes (H). Inadequate working conditions for civil servants (H). Declining number of male and female forest staff due to HIV/AIDS (H).	Collaborate with the local governments and President's Office - Regional Administration and Local Government, to develop sufficient capacity of the local governments to administer and manage forest resources by building professional, technical and specialized competence. Sensitise male and female forest staff on AIDS/HIV in collaboration with other stakeholders.
2.3 Forest Financing*	Inadequate financing in research and training institutions (H). Inadequate investment in forestry sector (H). Poor administration and management of revenue collection from forest resources (H). Lack of mechanisms for investments in forest conservation and sustainable management (H).	Develop new and innovative sectoral financing mechanisms in the forest sector involving the key stakeholders. Enhance self-financing mechanisms through broadening of the revenue base for all products and services, full valuation of the resource use and improvement of revenue collection by product pricing. Harmonise collection of royalties and other fees with local governments or through other feasible mechanisms to make the collection efficient. Promote private sector and local community investments in forestry activities.

Sub-programme	Key Issues	Key Strategies
	Financial constraints in development of forest-based industry and products (M).	
2.4 Strengthening Extension Services and Awareness Creation in Forest Management*	Inadequate extension services to all stakeholders for SFM (H). Poor gender awareness and women involvement in forest programmes (H). Inadequate use/suppression of indigenous knowledge on management and uses of forest resources on village and general lands (M). Inadequate knowledge of national forest policy (public education) (H). Limited political support to forestry (H).	Develop cost effective forest extension systems jointly by the central government, local government, private sector, NGOs and CBOs. Promote gender awareness and women involvement in forest programmes. Promote indigenous knowledge on management and uses of forest resources at local level. Promote political support by creating awareness for politicians and decision-makers.
2.5 Forestry Research*	Inadequate nation wide research coverage in the forest sector (H). Inadequate knowledge and research base in forestland management, including indigenous knowledge (H).	Integrate National Forestry Research Master Plan into the NFP based on the identified information gaps that require research. Undertake research on priority areas and disseminate research findings and promote their application. Undertake research through partnerships with other institutions.
2.6 Policy Analysis, Planning and Monitoring	Lack of periodic/systematic review of forest policy (L). Lack of systematic/periodic review of forest laws and regulations (H). Inadequate consultation of stakeholders in planning and management of forest resources (H).	Develop sectoral competence for formulation and revision of forestry legislation. Develop facilitative management guidelines and by-laws for different forest types at all levels. Set and refine national Criteria and Indicators for Sustainable Forest Management.
2.7 Forest Resources Valuation	Poor understanding on the value of forest eco-system products and services (M). Lack of valuation of forest ecosystem in terms of tangible & intangible values (M).	Conduct special studies for valuation of both tangible and intangible forest products and services and incorporate biodiversity and other values into the national accounting system

(3) Legal and Regulatory Framework Programme

Objective: enabling legal and regulatory framework for the sector in place

Sub-programme	Key Issues	Key Strategies
3.1 Development of Laws and Regulations*	Inadequate legal framework for private sector/ gender balanced community participation in management of forestland (H). Lack of motivation for the local communities and private sector in forest management (H). Lack of guidelines for collaborative forest management (H). Inadequate legal mechanisms for harvesting, royalties, benefit sharing and on tariffs in wood-based products, NWFPs and services (H). Formal mechanisms for sharing responsibilities and benefits are non-existent. (H). Outdated forest legislation to protect biodiversity and nature reserves conservation (H). Lack of legal guidelines and regulations for bio-prospecting activities in forestry sector (H).	Prepare regulations and guidelines that support sustainable management and prepare joint management agreements between the central government, specialized executive agencies, private sector or local governments, as appropriate in each case. Promote formation of local groups or other organizations of people living adjacent to the forest to participate in cost and benefit sharing. Grant to the local communities appropriate user rights for forest produce and management of forests in accordance with approved management plans. Establish executive agency (ies). Put under effective legal protection sufficient areas of valuable key forest ecosystems and habitats with endemic species and update them to nature reserves. Develop regulations for bio-prospecting in partnership with relevant stakeholders.
3.2 Harmonisation of Regulations*	Inefficient and time-wise expensive procedures for establishing concessions, leases and other types of forest utilisation/management contracts (H). Multiplicity and uncoordinated charges on forest products (royalties and fees) (H). Unharmonized forest and trade legislation for wood and non-wood forest products (L).	Carry out with all relevant stakeholders rationalization of charges on forest products (royalties) in order to guarantee the competitiveness of forest products in local and international market in relation to competing products. Streamline procedures for administration of forest products and trade to reduce red tape.
3.3 Development of Sector-specific Environmental Impact Assessment Guidelines*	Lack of environmental impact assessment guidelines in forestland management (H). Inadequate consideration of environmental concern in wood and non-wood based industry and services (M).	Monitor all forest major forest investments and development activities to ensure adherence to EIA guidelines.

(4) Forestry Based Industries and Sustainable Livelihoods Programme

Objective: increased economic contribution, employment and foreign exchange earnings through sustainable forest-based industry development and trade of forest products.

Wood-based Industry and Products, Woodfuel, Artisanal Wood-based Industry and Products, Eco-Tourism, Other Non-wood-based Industry and Products, and Trade in Forest Products

Sub-programme	Key Issues	Key Strategies
4.1 Forestry Products and Services Information Development*	Inadequate information on markets and marketing of forest products and services (M). Inadequate information on non-marketed forest products and services (M). Inadequate information on raw materials for mechanical and chemical wood-based industries and non-wood products. (H).	Establish databases and marketing information for mechanical and chemical industries, artisanal products, NWFPs, woodfuel and charcoal markets. Conduct baseline surveys on market information on NWFP, forest products and services. Disseminate market information to producers, users and other relevant stakeholders.
4.2 Products and Markets Promotion and Awareness Creation*	Inadequate promotion and awareness creation on lesser-used tree species and NWFPs and services (M). Limited knowledge on market information by producers at all levels (L)	Create awareness on the demand and supply, markets, marketing and income-generation potential of forest products, NWFPs and services and lesser-known species. Create linkages between producers and consumers for systematic market information. Establish forest certification system.
4.3 Forestry Industries Technology Development	Inadequate innovation and affordable alternative sources of energy (L). Inadequate or lack of appropriate technology to process (packaging quality, quantity, high value added) and use wood, NWFPs and artisanal products (L).	Develop alternative affordable sources of energy in collaboration with relevant gender balanced stakeholders. Create quality standards for various products and facilitation of adoption of appropriate technologies in harvesting and processing.
4.4 Infrastructure Development	Poor infrastructure in facilitating forest-based industry (M).	Improve infrastructure, mostly roads and information and communication technology, in forest plantations and natural forests.

Way Forward

In the first year of the NFP, the document will be disseminated and publicised to all relevant stakeholders for action at national level. This is important taking into account the necessary coordination of development partners, local and international agencies supporting the implementation of the programme and in facilitating the move towards a programme approach in NFP implementation.

The Programme will have to receive the necessary support in the local governments. This will entail conducting meetings with key decision-makers at local level to disseminate NFP information and promote start-up of district NFP planning and implementation.

Monitoring system for implementing the NFP will be set up in terms of assessment/refinement of existing Criteria and Indicators for SFM, and refinement of NFP indicators based on national C&I. This will involve also training of FBD and some district staff on the application of the system.

Developing activities towards a programme approach by assessing and designing programme framework, instruments and milestones at national and district levels. In this respect, NFP Coordinating Unit will be facilitating and following up capacity building in the districts through technical support.

Input Requirements

The NFP implementation is expected to draw resources from various sources under different stakeholders including the private sector, public sector and external assistance. Growing involvement of the private sector, NGOs and individuals is expected to reduce dependency on donors and increase local sources and government share. The government has approved the Ministry of Natural Resources and Tourism to retain 70% of the revenue collected for forest management purposes. For the forest plantations, the Forest Division has been allowed to retain about 45% of the forest royalties under the Logging and Miscellaneous Deposit Account (LMDA) to service silvicultural and road maintenance activities in the plantations. These are significant steps towards sustainable forest financing.

Financing NFP development programmes will require improved country's capacity especially in establishing Sector Wide Approach (SWAp) under which all significant funding supports a single national forest programme. The move from project-based assistance towards a Sector Wide Approach is a gradual process requiring strong government leadership and the collaboration and support of development partners.

Also new mechanisms will be developed to facilitate that the potential investors in forest industry will benefit from the availability of credit facilities. The forest sector will work in close collaboration with private sector, government, private financial institutions, international financing institutions and relevant international special facilities to ensure that the right mechanisms are in place.

Key Institutions, Stakeholders and Lead Actors in NFP Implementation

In the implementation of the NFP, the central and local governments, private sector, NGOs, CBOs at all levels and the international community have key roles to play so as to maximize the benefits and minimize the costs of management. While the central government will focus more on coordinating, guiding and monitoring implementation, local governments and the private sector will be responsible for the actual management.

Implementation arrangements for forest reserves including plantations and general lands, a semi-autonomous Executive Agency/(cies) will be established at national level. The operations will be based on the results of different feasibility studies and evaluations currently underway.   In the field level activities, ongoing reforms under the Local Government Reform Programme provide a framework for organizational arrangements to support forest management. The ultimate goal is to integrate and mainstream pilot activities into the district plans in a programme approach. Implementation modalities for the different sets of forests include community-based forestry management under the respective local governments, joint forest management where partnership with central government is a key and private forests management including plantations and natural forests.

In this respect, some key institutions include the Regional Administration and Local Government, Lands, natural resources and other land based sectors, research and training institutions (Sokoine University of Agriculture – Faculty of Forestry and Nature Conservation and Tanzania Forest Research Institute), Civil Service Department and Legal affairs and Private Sector Foundation.

Under these roles and responsibilities, different tasks include:

The FBD: providing co-financing for planned activities at the local levels, but also for services, such as capacity building, facilitation, monitoring, evaluation etc. to be conducted from the central and regional levels.

The Regional Secretariat: forming a link between FBD and the local authorities by advising and facilitating implementation in the local governments.

The District Council: facilitating planning and implementation through extension, providing technical assistance and capacity building, mobilising financial resources for implementation of planned activities from different sources.

Private sector, NGOs, CBOs and Communities: funding and management of forest development.

I. AFRICAN WILD LIFE FUND

Project summary

A Project title: "Advancing REDD in the Kolo Hills Forests" (ARKFor)

b. Primary proponent: African Wildlife Foundation (AWF)

c. Date of submission: original submission: 28 May 2009; revisions based on comments from RNE and IRA: 15 November 2009

e. Total budget and timeframe: US$ 2,273,872 (US$ 2,061,794 funding request and US$ 241,559 in matching funds); Three (3) year implementation period

f. Summary description of project:

The African Wildlife Foundation (AWF) and its partners propose a demonstration project titled "Advancing REDD in the Kolo Hills Forests" (ARKFor) focused on continuous community forest areas and government forest reserves, known collectively as Kolo Hills, in the Kondoa District in north-central Tanzania. Working closely with the Kondoa District Council and its District Forestry office, ARKFor will work with 15 rural communities, which together are home to approximately 40,000 people, to improve the management of over 18,000 hectares of government and community owned forests, and prepare the local government and communities to engage in REDD as a means to incentivize the long-term conservation and management of forest resources. Specifically, ARKFor will work to:

1/ Improve the current knowledge and scientific understanding of the target forest by using available methodologies to quantify baseline carbon volume, current and prospective deforestation rates and their impact on carbon, and the biodiversity and community benefits of improved forest management.

2/ Build village-level, local government and civil society organisational capacity towards understanding REDD mechanisms in view of participating in future forest carbon trading and develop relevant indicators to monitor forest and carbon health..

3/ Work to halt and reduce deforestation and forest degradation and address the fundamental drivers of deforestation through sustainable joint forestry management (JFM), land use planning (LUP) and the development of alternative energy sources.

4/ Develop conservation-friendly micro-enterprises and sell community carbon certificates consistent with JFM plans, to provide direct livelihood benefits and offset the costs of conservation, including through agro-forestry and sustainable agriculture activities.

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5/ Promote effective REDD policies and practices through shared learning and networking between project and national stakeholders, enabling REDD to contribute to climate change mitigation and offsetting the costs of forest conservation.

ARKFor places a strong emphasis on capacity building and the participatory collection and analysis of data as requisite to sound, pro-carbon joint forest management. The Kolo Hills forests hold the headwaters of the Tarangire River; thus, because of this unique conservation value and the ecosystem services this watershed provides to both people and wildlife, ARKFor will also seek to deliver direct livelihood and biodiversity conservation benefits, thereby implementing REDD+. ARKFor will work to ensure that project learning and outcomes are fed into the overall national REDD readiness process and towards addressing known REDD implementation issues including permanence, leakage (local and national), compliance costs, and assessment methodologies.

ARKFor will be led by the African Wildlife Foundation (AWF) and implemented in conjunction with local and expert partners. AWF has developed expertise in the domain of field-level sustainable land management in key African ecosystems since its founding in 1961, and has been active in field-level forest management for over two decades. AWF has been a registered non-governmental organisation in Tanzania since 1991. In the project area, AWF has been working with District officials, communities and other partners since 1995, presently led and supported by a team of four conservation professionals based in Arusha.

Climate Change, Impacts, Adaptation and Mitigation in Tanzania. The CCIAM Programme

July 2009 – June 2014

Prepared and Submitted by:

Sokoine University of Agriculture, in collaboration with University of Dar es Salaam; Ardhi University and the Tanzania Meteorological Agency

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Re-submitted: July 1st, 2009

GOAL: Better Management of Natural Resources and the Environment through Appropriate Adaptation and Mitigation Strategies and Participation in Climate Change Initiatives

PURPOSE: Develop and Sustain Adequacy in National Capacity to participate in Climate Change Initiatives and Address the Effects and Challenges of Climate Change

PROGRAMME DURATION: JULY 2009 – JUNE 2014

EXECUTIVE SUMMARY

BACKGROUND

Overview

One of the biggest challenges of the 21st century is climate change. The accumulation of green house gases such as carbon dioxide (CO_2) from different sources in the atmospheres promotes global warming (IPCC, 2007). The major source of green house gases in the atmosphere is the burning of fossil fuels that is estimated to contribute about 80%. Land use and land cover change especially forest deforestation and degradation contribute the remaining percentage (Stern, 2007).

Among the major impacts of climate change in Tanzania is its influence on ecosystem services. Tanzania is endowed with different ecosystems and thus a variety of ecosystem services. While we are aware of the different ecosystem services that are provided by different ecosystems in Tanzania, knowledge on how these services are vulnerable to climate change and to what extent they will be impacted by climate change are not well known. Based on the above situation the proposed programme aims at investigating how the different ecosystems and associated ecosystem services will be impacted by climate change.

The impact of climate change poses serious challenges to sustainable livelihoods and economic development, particularly for least developed countries like Tanzania. The adverse impacts of climate change are already noticeable in many countries including Tanzania. The ramifications of climate change are particularly evident on environment, human health, food security, human settlements, economic activities, natural resources and physical infrastructure. In recognition of these challenges, the Government of the United Republic of Tanzania and the Kingdom of Norway are committed to work together to address the problems. The two governments have therefore agreed to establish a partnership with the purpose of implementing programmes for adaptation to and mitigation of climate change. Bali conference identified four key issues including: adaptation, mitigation, technology transfer and financial mechanisms to support implementation particularly of mitigation and adaptation activities. Specifically, Tanzania and Norway are committed to participate in the development and implementation of the REDD (Reduced Emissions from Deforestations and forest Degradation) initiatives as proposed in the Bali Conference to combat deforestation and the challenges of climate change.

The history of REDD started at CoP 11 in Montreal, Canada in 2005, and continued at CoP 12 in Nairobi in 2006. During the CoP 13 in Bali in 2007 major advances were made, and there was a clear commitment of Parties to deal with this issue in the context of an overall package for a post-2012 regime. A time span of 2 years was set for negotiations which should culminate in agreement on this post-2012 regime at CoP 15 in Copenhagen (December, 2009). It was also agreed to start demonstration activities to support REDD as a climate mitigation and adaptation measure. The Decision (CoP 2.13) expressly focuses on reduced emissions from deforestation and degradation. Other possible options mentioned are 'sustainable forest management', 'forest enhancement' and 'conservation'. However, various issues for REDD readiness including methodologies for baseline determination, monitoring, assessment, reporting, and verification, benefit sharing mechanism are yet to be addressed. Other issues include enhancement of capacity building to address climate change research, dissemination and strategic interventions relevant to REDD.

Programme Justification

The Norwegian Government is committed to support the participation of Tanzania in the development and implementation of programmes to address challenges of climate change with a purpose of increasing the participation of Tanzania and other developing countries in the mitigation of and adaptation to the effects of climate change. The emphasis is to enhance Carbon (C) sequestration and storage through sustainable forest management and conservation of existing C stocks (e.g. through reduced deforestation, de-vegetation and degradation). This approach will improve livelihoods of people and ensure better adaptation to the impacts of climate change. In response to the initiative, Sokoine University of Agriculture and collaborating institutions; the University of Dar es Salaam, Ardhi University and Tanzania Meteorological Agency, as well as Norwegian University of Life Sciences (UMB) are submitting this proposal requesting the Royal Kingdom of Norway to support Tanzania build up institutional capacities and knowledge base for appropriate responses to the challenges and opportunities brought about by climate change. Of particular relevance is

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the focus on enhancement of a much greener environment by promoting natural forest conservation, afforestation, reforestation and better agricultural practices for improved livelihoods as espoused in the "Reduced Emissions from Deforestations and Forest Degradation (REDD)" initiative. Recognizing that this is a challenge demanding participation across diverse disciplines and sectors, the programme will involve collaboration of relevant institutions in Tanzania and Norway which will adopt a multi-stakeholder approach to its implementation.

Developing, optimizing and sustaining readiness and adequacy in capacity to address the challenges brought by climate change will require a number of interventions through raising awareness, training to build capacity at various levels, research and outreach. This programme therefore will provide support in terms of documenting and disseminating research backed experiences generated from REDD demonstration activities. The proposed programme is online with the supporting role of research institutions in Tanzania to the development and implementation of REDD policy as stipulated in the UN-REDD and National REDD Implementation Frameworks. It is in the realization of both the essence and the urgency to adapt to and mitigate climate change that this proposal is being put forward for consideration.

This proposal emphasises the need for promoting forestry through REDD initiatives aimed at increased C sequestration as a mitigation and adaptation mechanism to climate change, and as a way of counteracting deforestation, protecting the environment and meeting the energy needs of the rural and urban communities, through efficient production of fuel wood and bio fuels. The opportunity for carbon sequestration both in larger forests and in smaller forest enclosures, plantations of fruit trees and multipurpose trees planted for food, fodder, timber, and fuel will be promoted to avoid leakage under REDD schemes.

Better management and conservation of natural forests and small-holder forestry practices will be studied as among the major ways of ensuring that local communities benefit by participating in the emerging C trading markets for Reduced Emission from Deforestation and forest Degradation (REDD). Factors contributing to the failure of the forest sector in Tanzania not to benefit from Clean Development Mechanism (CDM) afforestation/ reforestation scheme as elucidated under Kyoto Protocol, will be investigated with the aim of aligning Tanzania forestry projects in a better position to benefit from the post-Kyoto arrangements.

The REDD initiative is envisaged to develop and promote mechanisms of payment for ecosystem services. So far, forest ecosystems are known to be a good repository of biodiversity and also contribute significantly to livelihoods of adjacent communities but taken for granted. Under climate change scenarios it is believed that forest ecosystems will be impacted differently and thus the impact will affect differently the existing biodiversity in forest ecosystems and community livelihoods. Until today it is not well known as to how climate change will affect forest biodiversity. It is also not well known how the forest biodiversity will respond to the different scenarios of climate change in Tanzania. Unless the impact and response of forest ecosystems to climate change are known, mitigation and adaptation measures will be difficult to develop. Under the proposed programme pertinent investigations will be undertaken to determine how climate change will influence forest biodiversity and related livelihoods under REDD pilot areas.

One of the major causes of deforestation and forest degradation in tropical countries including Tanzania is poor agricultural practices. These lead to poor crop production, shifting cultivation, land degradation, as farming communities' clear forests to establish new farms. In order for the REDD initiative to succeed adjacent communities need to be empowered through tangible incentives including those emanating from forest conservation initiatives. These incentives can also be used to encourage farming communities to adopt better farming practices and less destructive land use practices. The intention of this program is to investigate the viability of better farming practices that promote the achievement of REDD policy objectives for adaptation and mitigation to climate change.

Extensive pastoralism is also responsible for deforestation and land degradation. Under REDD initiatives, better animal husbandry practices need to be integrated in the land-use plans for better adaptation to and mitigation of climate change. Proper balances for cultural values and carrying capacity need to be addressed for purpose of sustaining the gains from REDD. In this programme, the link between deforestation and pastoralism will be investigated for better animal husbandry that ensures increased productivity and reduced emissions.

Currently, women are poorly represented in training, research and decision making organs in the country particularly in the fields of agriculture and life sciences. This programme will make deliberate attempts to ensure active participation of women and other vulnerable groups in the programme activities. Other issues the programme needs to address will include: the role of women in land and tree tenure, gender sensitive benefit sharing mechanism for values of ecosystem services. The contribution of women in deforestation and forest conservation is poorly studied. Moreover, the role of gender in small and medium scale enterprises (SME) related to natural resource management need to be promoted with the overall intention of facilitating the attainment of REDD policy initiatives.

Adaptation to climate change requires focused and sustained long-term series of actions with cumulative impacts over time through building institutional capacities in training, research and development (R&D). The emphasis of the proposed programme will be on better management of forest and other land resources for REDD readiness. The programme will also address socio-economic and gender aspects related to climate change such as livelihoods of various communities, vulnerability and adaptation options. This programme focuses on developing and undertaking training and education programmes contributing to scientific knowledge on climate change with particular emphasis to the REDD initiatives. The programme will also contribute to capacity building among other REDD actors at all levels and opportunities will be availed to all Tanzanians. The proposing institutions have the capacity and expertise to adequately undertake the projects. It is expected that by the end of the programme, a comprehensive research and methodology development programme for climate change adaptation and mitigation will have been completed and enable Tanzania to implement the post-2012 climate mitigation and adaptation regimes. It is for this reason that this proposal is tabled for funding.

Objectives of the Proposed Programme

Main objective

To develop and sustain adequacy in national capacity to participate in climate change initiatives and address the effects and challenges of climate change with particular emphasis to the REDD initiatives.

Specific objectives

This programme will address the following specific objectives:

To determine and develop appropriate climate change mitigation and adaptation strategies in forestry, other land uses, ecosystems and biodiversity management

To assess climate change impacts on and vulnerability of ecosystem services and livelihoods under REDD initiatives

To conduct policy and legal framework analysis of climate adaptation and mitigation with emphasis on economic efficiency, ecological effectiveness and wider political legitimacy

To develop and undertake capacity building, dissemination and strategic interventions for adaptation and mitigation to climate change

FOCUS AREAS AND ACTIVITIES

This programme is designed to be executed through four strategies; research, capacity building needs to address climate change, strategic interventions and documentation, promotion and publicity administration.

Focus Areas for Research

Development of appropriate climate change mitigation and adaptation strategies in forestry, other land uses, ecosystems and biodiversity management

Quantification of the potential for forestry based carbon off-sets and carbon trading

Development of forest carbon assessment and monitoring system

Determine effective and efficient payment system for REDD in Tanzania

Determine appropriate approach to limit deforestation and forest degradation in Tanzania for its participation in REDD

Modelling of impacts of climate change and management scenarios in forestry, land-use, ecosystem and biodiversity

Assessment of Small Holder Forestry Potential for Climate Change Mitigation, Adaptation and Rural Development

Financial analysis of Carbon sequestration and storage

Development of strategic interventions for adaptation in forestry, and other land uses including human settlements.

Assessment of innovative agricultural land use and farming systems for adaptation to and mitigation of climate change to support REDD initiatives.

Development and testing of various range land management strategies for the purpose of reducing pressure on forest resources for adaptation and mitigation to climate change

Assessment of climate change impacts on and vulnerability of ecosystem services and livelihoods under REDD initiatives:

Establishment of trends and projections of ecosystem services associated with climate stressors.

Model effects of alternative management options on ecosystem services under changing climate.

Development of methods to describe relationships between ecosystem services, climate stressors and management responses.

Assessment of local climate change vulnerability of biodiversity and forest related livelihoods and adaptation options.

Assessment of macroeconomic impacts of climate change in forest resource management and its implication for different ecological zones.

Integrated analysis and synthesis of lessons learned from adaptation options and macroeconomic impacts.

Policy and legal framework analysis of climate change adaptation and mitigation with emphasis on economic efficiency, ecological effectiveness and wider political legitimacy

Analysis of climate change related policies and legal framework in Tanzania.

Analysis of land competition in the context of climate change adaptation and mitigation efforts and how the competing interests are balanced in Tanzanians present policies and policy implementations.

Analysis of various REDD initiatives that are addressed through markets, private and public sector management, and civil society.

Determine how institutional arrangements and governance affect various forest management regimes (CBFM, Plantations, Private forests, general land forests and forest reserve) in the context of climate change.

To determine the feasible incentive structures, monitoring mechanisms, controls leakages and additionality to influence policy formulation and implementation for climate change adaptation and mitigation.

Focus Areas for Capacity Building

Develop and Undertake Human Capacity Building to Address Adaptation and Mitigation to Climate Change

Mainstreaming climate change issues in tertiary institutions curricula.

Conducting specialised climate related training at various levels for Tanzanians including 50 MSc and 17 PhD students with special emphasis on climate and ecological modelling with emphasis on REDD pilot areas.

Developing modules incorporating analytical modelling in socio-economic and ecological issues to be used for analysis of adaptation to climate change and variability.

Developing short courses on different topics on climate change for policy makers and trainers.

Conducting training and dissemination workshops for various stakeholders

Enhancement of special skills in modelling for technicians and scientists

Engagement of 15 young and 12 senior professionals in exchange programmes. This will involve Norwegian and Tanzanian postgraduate students and other young researchers in collaborative research projects to acquire skills and/or exposure to experiences that may add value to their study programmes.

Develop/Rehabilitate Physical Infrastructure to Address Adaptation and Mitigation to Climate Change

Establishment of database to pool all information generated by the programme

Provision of equipment (e.g. weather monitoring equipment (Automatic Weather Stations), data loggers, GIS software and equipment, computers).

Provide reliable internet services and connectivity in partner institutions to facilitate access of scientific information for research

Strengthening existing climatological monitoring station network and communication system by TMA

Strengthening the existing climate research and establish modelling laboratories

Avail hardware and software for short course training of various participants on modelling climate change effects.

Improvement of field research laboratory at Mazumbai for monitoring of climate change impacts on high forest ecosystems and related biodiversity

Strengthening of research laboratory for monitoring of climate change impacts on aquatic ecosystems and related biodiversity at UDSM

Acquire tide gauges for continuous observation reference station for sea level monitoring by ARU.

Acquire a total of five vehicles to support project implementation and coordination activities. Each institution shall receive one car, and one extra will be for coordination at SUA.

Focus Area for Strategic Intervention

Develop and Undertake Strategic Intervention for Climate Change Adaptation and Mitigation

Some of the strategic intervention needs include:

Document existing REDD related activities and technologies and report the same to relevant meetings

Assess community-based projects aimed at alleviating poverty through different approaches to climate change adaptation and mitigation developed by NGOs in REDD pilot

Support CDM and REDD demonstration projects

Support demonstration projects at community level on biofuels technologies and options to support REDD implementation.

Value chain analysis of farming systems in Tanzania for REDD

Provision for advisory and developmental services on emerging constraints in adaptation to climate change by small producers

Focus area on outreach programmes

Documentation, promotion, publicity and administration

Outputs from the dissemination and out reach include:

Enhanced understanding about climate change and its impacts under REDD initiatives

Increased awareness of the risks and opportunities associated with climate variability and change under REDD initiatives.

Enhanced understanding of vulnerability of ecosystems to climate change

Adaptation and mitigation strategies to manage the impacts of climate change using the REDD initiatives.

Skills to identify climate information needs of various stakeholders for improved natural resource management.

Monitoring and Evaluation

The monitoring and evaluation (M&E) shall cover all research and training activities, strategic interventions, funding, financial management and research infrastructure.

The compositions and size of the monitoring and evaluation teams, as well as the durations of the M&E missions will be guided by the Programme Management Team of the programme depending on the nature and size of the projects to be monitored and evaluated. The PMT secretariat shall prepare the standard format for instruments to be used for M&E and shall present the instruments for approval by the Programme Management Team (PMT).

The monitoring and evaluation will be conducted at least once a year, preferably in early June in order to allow planning for items to be incorporated in Steering Committee and Annual Meeting in October. All the institutions involved in Tanzania shall be visited by the M&E teams for the purpose of monitoring and evaluation for duration not exceeding 7 days for each.

The Project Monitoring and Evaluation will generate the following information:

An overview of research, capacity building and strategic intervention activities

The project will be steered in the right direction

A list of problems and possible solutions for each project activity

A list of new ideas emerging from success or failure of the project or as a result of external factors

Recommendations to ensure efficiency, effectiveness and impact of project activities

Conclusions of the review and recommendations for the future

A follow up schedule for the recommendations

Proposed Programme Budget

The programme is estimated to cost about NOK 93.88 million (NOK ninety four point nine million) over a period of five years.

Facilitation for the Preparation of a National REDD Strategy in Tanzania

Proponent: Institute of Resource Assessment, University of Dar es Salaam, Tanzania

Date: 02 March 2009

Contact: Professor Pius Yanda

Introduction

Tanzania has about 33.5 million hectares of forests and woodlands that constitute 38% of the total land area in the mainland. About 13 million hectares of the forests have been gazetted as forest reserves including 83,000 hectares of industrial plantations and 1.6 million hectares of strategic forests such as water catchments and mangroves owned and managed by the central and local governments through the Forest and Beekeeping Division (FBD) in the Ministry of Natural Resources and Tourism (MNRT). Forests on general lands and which are classified under the Forest Policy, Land and Village Acts cover 19 million ha.

In order for the programme to reduce deforestation and degradation to be fair, effective and efficient, and to enable the Communities, that are in the forefront of Tanzania's action against deforestation and degradation, to participate in the mechanism, it will be necessary to inter alia:

Develop the National REDD strategy based on the National Roadmap for preparation of a REDD strategy;

Develop reference level scenarios and MRV systems for accounting deforestation and forest degradation separately, both at local and national levels;

Adopt a system in which not only the carbon saved by reduced deforestation and degradation, but also the additional carbon sequestered by sustainable management of existing forest, will be subject to crediting; and

Propose and facilitate the transparent system of institutional arrangement for implementing REDD, which allows funds received at the national, state or project level to be (in part) dispersed fairly to those stakeholders, such as the communities practicing CBFM, who have been active in conserving forests and the carbon within.

Scope of the project

The GoT has established a Task Force to administer the process of developing a national strategy for REDD and for enhancement of the voluntary carbon market in Tanzania. This Task Force will

work in partnership with other stakeholders in the process. The mandate of the Task Force is attached as an annex to this project proposal.

The Forest and Beekeeping Division of the MNRT and the Division of Environment of the VPO have expressed the need for a facilitator who will assist the Task Force in preparing the country for the REDD process as well as promoting a diversified set of activities aimed at testing mechanisms to improve the incentives for sustainable land management including reduced deforestation. The facilitator should be an institution who through the proposed project will develop capacity to assist the national processes for making Tanzania ready for the international markets for environmental services, in particular the carbon markets. The facilitator would initially be established for around 18 months.

The Institute of Resource Assessment has been identified by MNRT-FBD/VPO-DoE/RNE as a relevant institution to support the development of a national strategy to combat deforestation, and to link Tanzania to the current and future global markets for avoided deforestation. IRA is expected to play an important role in the national processes related to climate change, and this project is also designed to develop their capacity to support these processes beyond the current project period.

This project aims to facilitate the consultation processes leading to the development of a national REDD strategy, and to facilitate the initial stages of its implementation up to the time of the climate change conference in Copenhagen in December 2009, and through the initial implementation period up to mid-2010. After that time, a more permanent structure for the follow up of REDD related activates should be in place.

Tanzania has also been accepted as a partner to the UN REDD programme, and has entered a dialogue with the Forest Carbon Partnership Project of the World Bank, with the aim of being included as a partner under that programme. The proposed project will also assist in the coordination with these processes as necessary. In particular, linkages with the World Bank and UN-REDD will be established with respect to two priority aspects of REDD readiness: the scoping and development of a REDD fund mechanism, and the testing of MARV methods and technologies.

In addition, a substantial amount of information on REDD and proposals for further strategy process has been documented in previous studies, this will be an important source of information for the REDD process.

The main purpose of the project is to facilitate the development of the National REDD strategy based on the Road Map and background knowledge and experiences in preparation of a coordinated National REDD strategy.

Project design

GOAL:

Ensure that Tanzania actively participates and benefits from global markets for ecosystem services, in particular carbon related activities, as a result of reduced CO_2 emissions from deforestation and forest degradation.

PURPOSE:

To facilitate the National REDD Task Force, in collaboration with other stakeholders, in developing a National REDD Strategy, Action Plan and implementation processes for the plan.

OUTPUTS:

Output 1:   Facilitator capacity of the National REDD Task Force for the REDD facilitation process established

Output 2:   REDD demonstration projects to develop methodologies for Monitoring Reporting and Verification (MRV) developed and lessons learnt to contribute to UNFCCC CoP15

Output 3:   Knowledge base on climate change and REDD in Tanzania developed and disseminated

Output 4:   Coordination mechanisms to facilitate development of a National REDD Strategy established and functional

Output 5:   Conceptual Framework for National REDD Strategy and Action Plan prepared and discussed

Output 6:   National and local level consultation and awareness creation on REDD processes established and implemented

Output 7:   Study tours in-country and internationally to study experiences from programmes and initiatives to reduce deforestation planned and implemented

Output 8:   Transparent and independent mechanism for a possible REDD Fund for Tanzania developed and operational.

Output 9:   Draft National REDD Strategy and Draft Action Plan prepared and discussed at all levels

Output 10:   Special in-depth studies needed for the development and implementation of the REDD strategy planned and implemented

Output 11:   Final Draft National REDD Strategy and Action Plan prepared and submitted

Methodology

The REDD strategy process requires a series of meetings and stakeholder consultations, coordination with other climate change initiatives, study tours, collection of REDD experiences from around the world, designing and implementing special studies related to the process, prepare for baseline studies and for development of monitoring and verification mechanisms, preparation of information materials, preparing and conducting information campaigns and preparing for the set up of incentive mechanisms for reduced deforestation.

Under this project, IRA will primarily fulfil a facilitation role for the National REDD Task Force. IRA will facilitate the processes of developing the National REDD Strategy and Action Plan, and assist the initiation of other preparatory activities such as demonstration pilots and MRV activities. The *first draft National REDD Framework* (February 2009) will be used as the starting point for strategy development.

Considerable information and literature currently exists from preliminary studies conducted. These will be consulted and consolidated, with close collaboration with other NGOs and knowledge-sharing initiatives, to assist the strategy and implementation process. IRA will also facilitate the work of implementing regional consultations, meetings of the Task Force and other stakeholders, organisation of awareness campaigns, facilitating the preparation and management of special studies, planning and implementing study tours, attendance and preparations for national and international meetings.

The Project will ensure the early development of an outreach and awareness plan, which specifies key target audiences for both knowledge-sharing activities (targeting key players who need to be empowered with the right understanding of REDD for successful strategy development and adoption) and their participation in the national REDD strategy development process. Early communications to a broad audience will help ensure a common understanding prevails regarding the overarching purpose of strategy development and the envisaged process.

The outreach and awareness strategy will cover consultative process for UNFCCC preparations, ensuring a clear process for feeding the lessons learnt from pilot/demonstration activities into preparations for CoP15, and the potential for organizing a side-event at UNFCCC CoP15 to exchange experiences and perspectives on specific REDD issues. The consultation and outreach plan will include a process to provide feedback from UNFCCC CoP15 to national stakeholders.

Consultative and preparatory processes (in-depth studies, study tours, consultation and awareness) will ensure a wide participation and/or representation in terms of gender, income levels, health and geographic location.

Preparatory activities will be implemented by various external institutions (as decided by the Task Force), but IRA will assist and facilitate as necessary. Instead of outsourcing, members of the Task Force and/or IRA may implement specific project activities, if deemed the most appropriate service provider. The Project will develop criteria and processes for the identification of priority information and research needs as well as the selection of external service providers throughout this project.

The project aims to cover the cost of meetings of the National REDD Task Force during the project lifespan, following formal IRA procedures, following which it is expected that future cost implications will be borne by respective Ministry budget processes. Budgets and work plans developed for each period will be endorsed by the Task Force and sent to the RNE for approval. While IRA will provide a facilitation role (and, where agreed, an implementation role), the Task Force will be responsible for ensuring the implementation of REDD strategy development activities. IRA, as the facilitator of the process, will table projected activities during Task Force meetings, with minutes clearly stipulating agreed responsibilities and timeframes.

Meetings of the Task Force will discuss and agree on the most effective means to complete project activities in a timely and transparent manner and using the most competent service providers and expertise. Wherever possible, the project will adopt a flexible approach towards implementation, ensuring the updating of the monitoring framework during the course of implementation.

Activities under each output will be aligned internally and with other initiatives related to climate change to avoid duplication. This refers to other donor supported exercises, the World Bank FCPF programme, the UN REDD programme, NGO programmes, government initiatives and initiatives from the private sector. The WB and UN programmes will be core initiatives for the REDD strategy process in Tanzania, and an important role of the facilitator will be to facilitate coordination of the work conducted under the various initiatives.

IRA will establish the facilitation team on its premises in Dar es Salaam, and appoint an experienced and internationally recognised scientist to lead the facilitation team. Staffing needs (including staffing plan and description of responsibilities) will be determined during the initial stages of project implementation, and filled by IRA following approval of ToR by the Task Force. Indeed, IRA is in a position to make available necessary administrative and technical support staff as and when required throughout the course of the project, and following standard IRA human resource procedures. IRA will also draw on external resources from private sector, academia, civil society and government institutions as deemed necessary to accomplish the various tasks.

The National REDD Task Force will establish a process for continual dialogue among main institutions, including the proactive facilitation of collaborative relationships (e.g. environment, investment, trade, agriculture, energy), actor (e.g. public, private, civil society) and geographic coverage.

Activities

In accordance with the project purpose, the envisaged role for IRA is to facilitate the National REDD Task Force, in collaboration with other stakeholders, in developing a national REDD Strategy, Action Plan and implementation processes for the plan. The activities for the 11 outputs are described below, and form the basis for detailed work planning and budgeting. As mentioned above, a flexible approach is recommended since not all details of a REDD programme development process are not known, and there may be a need to add, delete or modify activities in the course of implementing the project. These will be proposed by IRA and presented to the National REDD Task Force, FBD, DoE and the RNE for endorsement.

Output 1: Facilitator capacity for the National REDD Task Force for the REDD facilitation process established

Activity 1.1   Appoint Lead Technical Expert and Program Management Team (according to approved staffing plan), and establish suitable office facilities.

Activity 1.2   Develop facilitation staffing plan with job descriptions and propose to first meeting of Task Force for approval.

Activity 1.3   Procurement of necessary support functions including transport, communication and office equipment based on Government of Tanzania procedures.

Output 2: REDD demonstration projects to develop methodologies for Monitoring Reporting and Verification (MRV) developed and lessons learnt to contribute to UNFCCC CoP15

Activity 2.1   Assist the Task Force in developing a plan for demonstration areas for REDD.

Activity 2.2   Develop guidance material for institutions that intend to develop programmes for reduced deforestation.

Activity 2.3   Facilitate the establishment of standards for baseline studies and assist project holders in the process of designing baselines.

Activity 2.4   Review methodologies for carbon measurement and monitoring and facilitate a process of defining further studies needed and advice on coordination activities for methodology development

Activity 2.5   Facilitate implementation of Quick Start Activities (see Draft Framework for REDD)

Activity 2.6   Maintain an overview of different carbon standards and feed information on these into the strategy process

Activity 2.7   Facilitate a process of attracting global verification institutions and establishing qualified verification institutions in Tanzania for the verification of results in avoided deforestation

Output 3:   Knowledge base on climate change and REDD in Tanzania developed and disseminated.

Activity 3.1   Collate relevant information on REDDS, climate change and natural resource management at local, national, regional and global levels, and disseminate to key stakeholders

Activity 3.2   Facilitate the production of a regular newsletter on the progress on development of the strategy and its implementation.

Activity 3.3   Facilitate the development of information materials on REDD and climate change and their dissemination to stakeholders at various levels.

Activity 3.4   Facilitate the development of a web site for REDD as a portal for REDD related information.

Activity 3.5   Collect experiences from, and develop information materials about, equity issues in REDD, including gender aspects and elite capture of benefits.

Activity 3.6   Facilitate the use of this information in the strategy development process.

Output 4:   Coordination mechanisms to facilitate development of a National REDD Strategy established and functional

Activity 4.1   Identify key stakeholders and analyse their existing and potential roles, and prepare an organization structure to include other potential players.

Activity 4.2   Facilitate establishment and operations of partnership consortia and/or collaborations

Activity 4.3   Facilitate establishment of an advisory group and expert groups

Activity 4.4   Facilitate the coordination role of the Task Force as it relates to the harmonisation of other REDD related initiatives such as the WB FCPF and the UN REDD.

Output 5:   Conceptual Framework for National REDD Strategy and Action Plan prepared and discussed

Activity 5.1   Facilitate the preparation of a Conceptual Framework for National REDD Strategy and Action Plan, and any associated materials.

Activity 5.2   Organise and facilitate stakeholders meeting to discuss and revise the Conceptual Framework for National REDD Strategy and Action Plan.

Activity 5.3   Facilitate the Task Force to prepare for UNFCCC CoP15 in Copenhagen, including relevant technical issues and presentation of the Conceptual Framework for National REDD Strategy and Action Plan.

Output 6:   National and local level consultation and awareness creation on REDD processes established and implemented

Activity 6.1   Play a facilitation role for the Task Force, including logistics for periodic Task Force meetings, preparation of progress reports and work plans, and developing minutes and draft papers resulting from the meetings.

Activity 6.2   Assist the Task Force prepare a consutation and outreach plan, with specific aim to enable key players in strategy development to have adequate knowledge base of REDD.

Activity 6.3   Assist organise and facilitate district level consultations and document stakeholders' views on issues to be addressed on successful implementation of a REDD programme at national and district levels.

Activity 6.4   Assist organise regional awareness activities on the potentials of REDD through NGOs or other relevant partners.

Activity 6.5   Assist the Task Force to organise workshops and other meetings for the strategy development and ensure participation of all relevant public and private stakeholder groups.

Activity 6.6   Facilitate public awareness activities using appropriate media, including the provision of opportunities for public input to the national REDD strategy development process.

Output 7:   Study tours in country and internationally to study experiences from programmes and initiatives to reduce deforestation planned and implemented

Activity 7.1   Identify suitable sites for study tours nationally and internationally, and organise such visits for task force members and other key stakeholders.

Activity 7.2   Develop reports with lessons learned from study visits and tours, and employ these in the subsequent process of developing the Tanzanian strategy.

Output 8:   A transparent and independent mechanism for a possible REDD Fund and possible carbon market for Tanzania developed and operational

Activity 8.1   Facilitate the assessment of options for REDD incentive mechanisms and their potential use in Tanzania, taking into account lessons from similar Funds and existing legal framework.

Activity 8.2   Assist the Task Force with the design and development of good governance formalities and mechanisms in the proposed REDD incentive mechanism.

Output 9:   Draft National REDD Strategy and Draft Action Plan prepared and discussed at all levels

Activity 9.1   Use lessons learned and results from interim assessments to assist the Task Force prepare a Draft National REDD Strategy, Draft Action Plan (including assigned responsibilities of different stakeholders for coordination and implementation, budget implications, and evaluation/review procedures) and any associated materials

Activity 9.2   Assist the Task Force organize and facilitate a stakeholders meeting to discuss and revise the Draft National REDD Strategy and Draft Action Plan

Output 10:   Special in-depth studies needed for the development and implementation of the REDD strategy planned and implemented

Activity 10.1   Facilitate the identification of special studies needed and develop brief concept notes describing the rationale for each study proposal.

Activity 10.2   Facilitate the development of TOR, identification of candidates and development of contracts for special studies approved by the Task Force.

Activity 10.3   Follow up study teams and facilitate the inclusion of their findings into the national REDD strategy development process

Output 11   Final Draft National REDD Strategy and Action Plan prepared and submitted

Activity 11.1   Facilitate the Task Force prepare a Final Draft National REDD Strategy and Action Plan.

Activity 11.2   Assist the Task Force promote the timely adoption of a National REDD Strategy and Action Plan through relevant high level meetings.

Special studies

The studies to be conducted under output 10 will be sub-contracted to research institutions or individual experts nationally or internationally as deemed necessary, and in accordance with predetermined agreed priorities by the Task Force. In-depth studies will aim to: involve teams that utilise available centres of expertise; be transparent processes open to peer review and inputs from the public before finalization; and ensure a dialogue between technical specialists and policy makers. TORs for the studies will be developed in consultation with the Task Force and the RNE, and any contract with a budget above USD 20, 000 will be submitted to the RNE for endorsement before signing with the consultant. Types of studies envisaged could include:

Drivers of deforestation and a mapping of existing and identification of additional necessary actions to reduce the effects of these drivers;

Multi-sectoral policy review of possible positive or adverse effects on climate change;

Land tenure and forest resources use rights;

Institutional and legal frameworks review in the context of REDD interventions, including issues pertaining to 'carbon marketing', 'carbon financing' and 'carbon accounting'.

Business case for carbon trade through REDD initiative;

Modalities for REDD funding and experiences from different approaches to incentives for reduced deforestation;

Carbon measurement mechanisms and modalities of implementing at field level;

Experiences from baseline studies for REDD;

Issues relating to 'carbon marketing' (marketing, negotiation, liability and contractual issues);

Potential for REDD to reduce poverty;

Documenting existing carbon trading in Tanzania (both under Kyoto Protocol (CDM) and voluntary markets), and in particular lessons learned and applied.

Integrating incentives and co-benefits into strategy;

Training needs assessment; and

Development of Reference Scenarios.

Budget

Further detail is provided in Annexes 2, 3 and 4.

Summary of Project Budget

S/No.	ITEM	AMOUNT (US$)
1	Facilitation Budget for Year 1 and 2	**514,800**
2	Tentative Budget for Project Activities	**1,338,000**
3	Monitoring, review, evaluation (managed by Embassy)	**40,000**
Total Project Budget		**1,892,800**

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the Jane Goodall Institute

Building REDD Readiness

In the Masito Ugalla Ecosystem Pilot Area

In Support of Tanzania's National REDD Strategy

Pancras Ngalason

Executive Director

The Jane Goodall Institute Tanzania

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Dar es Salaam

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I. Project summary

a. Project title: **"Building REDD Readiness in the Masito Ugalla Ecosystem Pilot Area in Support of Tanzania's National REDD Strategy"**

b. Primary proponent: **The Jane Goodall Institute Tanzania**

c. Date of submission: December 4th , 2009

d. Total budget and timeframe: **$ 2,759,640.76** to be implemented over a period of three years starting January 1st 2010 and continuing until December 31st, 2012.

e. **Summary description of project**

Western Tanzania provides an important opportunity to demonstrate the viability of engaging communities as partners in a market-based national strategy to reduce carbon emissions through technical training in forest inventory, monitoring and management; strengthened organizational management practices; and transparent dialogue and decision-making by government, community-based organizations and civil society. The proposed JGI "Building REDD Readiness in the Masito-Ugalla Ecosystem Pilot area in Support of Tanzania's National REDD Strategy" project builds on JGI's 15 years of successful fieldwork in western Tanzania and includes a mix of components designed to achieve the following purposes:

To build awareness and enhance capacity and governance mechanisms for local communities and government institutions to administer and benefit from REDD-related obligations and opportunities in the Masito Ugalla ecosystem in support of national REDD readiness.

The project will produce a model that can be widely replicated to reduce carbon emissions and sequester carbon above and below ground; protect and enhance biodiversity and other ecosystem service benefits; and improve sustainable livelihoods through REDD projects.

f. Proponent contact details: Pancras Ngalason, Executive Director, The Jane Goodall Institute Tanzania, P.O. Box 70728, Dar es Salaam, Tanzania, pngalason@janegoodall.or.tz Tel: +255-767-666 101

II.   Project Background

a.   Problem Statement

African states stand to be major global actors in creating incentives to reduce carbon emissions from avoided deforestation and forest degradation (REDD). Deforestation rates in Africa are double those of other tropical regions, and immediate action will be required to reduce this loss and minimize local and global impacts. Tanzania continues to hold a leadership role in Africa's response to REDD opportunities and the National REDD Task Force and Norway's International Forest and Climate Initiative provide an ideal mechanism for establishing the institutional, policy and social frameworks for a strong national response. However, Tanzania, like many other African nations, must address longstanding ambiguities surrounding traditional forest tenure rights before national and local REDD programs can take root and flourish. Tanzania must also determine how to most effectively monitor and enforce forest protection in order to secure the permanence of carbon resources. This will require government and communities to collaboratively forge institutional and policy measures that ensure transparent and respected governance of forest areas, and equitable disbursement of revenues directly and indirectly generated from REDD programs.

These national constraints are particularly evident in the western Tanzania region encompassed by the vast Masito-Ugalla Ecosystem (MUE) (a map of the ecosystem is included as Annex D). The MUE is an expansive forested landscape of approximately 10,827 km^2, with most of the area in intact native forest and miombo woodland. The area is surrounded by 13 villages, with most bordering the western region along the coast of Lake Tanganyika. The MUE includes approximately 469.2 km^2 of community managed forest and woodlands; an additional 1,537.7 km^2 in national forest reserves; and an additional 2,683 km^2 of forest and woodland designated as "General Lands" which signifies undefined management at the regional rather than the local level. These forested lands in the MUE are under significant increasing threats from the population of 62,000 that is growing at an annual rate of 4.8%, one of the highest rates in Tanzania. In addition the region has been harbouring varying but substantial refugee populations from both Burundi and the Democratic Republic of the Congo which increases demands and pressures on native forests. The region also has one of the lowest per capita incomes in the country, as low as $150 per year, with low rates of literacy and school completion, all of which contributes to the extreme pressure on natural resources. The rapidly growing and economically disadvantaged population has frequently engaged in unsustainable natural resource utilization such as destructive agricultural practices, particularly extensive shifting cultivation. These practices results in the fragmentation and loss of forests and woodlands as they are converted to fields, and the inappropriate cultivation of steep hillsides, which results in sedimentation of aquatic habitats. In addition, unsustainable levels of wood extraction for fuel and timber are major contributors to the degradation of forests and woodlands.

Analysis of remote sensing data shows that in the areas near Gombe National Park, just to the north of the MUE pilot area, approximately 50% of the natural forest and woodland was lost between 1991 and 2003 (Pintea 2007), making the rate of deforestation more than three times as high as that experienced by the country as a whole during the same period. Although the rate of forest and woodland loss in the Masito-Ugalla area has been slower, it is at risk of increasing quickly due to the rapidly growing population in the area and a steadily improving infrastructure of roads allowing access to more remote areas of the landscape. To reverse the trend of forest loss and environmental degradation, it will be necessary to support sustainable economic growth across both ecosystems. District officials and communities in and around the ecosystem have already demonstrated a strong commitment to reverse these trends and respond to pressing forest conservation needs.

The proposed landscape for the JGI REDD Project is surrounded by communities whose well being depends on the use of finite natural resources such as firewood, charcoal, timber and farmland. Socio-economic studies conducted in 2007 indicated low levels of literacy, lack of alternative income generating options, ignorance on national policies regarding the management of natural resources, low education on the relationships between human well being and their surrounding environment as well as reduced opportunities for diversified activities that would reduce impact on natural resources.

b. **Proposed Approach and Thematic Focus**

Western Tanzania provides an important opportunity to demonstrate the viability of engaging customary forest managers as partners in a market-based national strategy to reduce carbon emissions through technical training in forest inventory, monitoring and management; strengthened organizational management practices; and transparent dialogue and decision-making by government, community-based organizations and civil society; and develop transparent and equitable benefit sharing mechanisms. The proposed JGI "Building REDD Readiness in the Masito-Ugalla Ecosystem Pilot area in Support of Tanzania's National REDD Strategy" Project ("The JGI REDD Project") includes a mix of components designed to reduce carbon emissions and sequester carbon above and below ground; protect and enhance biodiversity and other ecosystem service benefits; and improve sustainable livelihoods through REDD projects implemented in one of the poorest regions of Tanzania. The JGI REDD Project will ultimately achieve the following outputs:

- Generate information and lessons learned on the major drivers of deforestation in Tanzania.

  - Effects of fire on carbon accounting analysed, documented and disseminated.
  - Lessons learned from actions to reduce deforestation and degradation from JGI's 15 years experience in western Tanzania analysed and documented.
  - An assessment of outcomes from all JGI REDD project activities and methodologies, including an interpretation of social, economic, institutional and policy lessons gained from the 3 year project implementation is documented and shared with relevant stakeholders.

- Create carbon mitigation awareness and build capacity among stakeholders in the project area to pursue REDD related opportunities

  - Principles of carbon trading and REDD applied by stakeholders in project area (district government, village leadership, civil society, general population).

- Inter-village forest conservation CBOs formed and empowered to manage forests on general lands.
- Build stakeholder capacity to participate in the delivery, administration and management of REDD project sites according to national and international standards.

- Develop social, institutional and governance mechanisms to administer REDD related obligations and benefits

  - A replicable and scalable methodology for remote sensing/GIS based forest and carbon accounting developed, tested and verified at village level.
  - Communities and CBOs have the tools and skills to monitor forest biomass and carbon stocks.
  - A community based equitable benefit sharing mechanism developed and practiced.
  - Remote sensing and GIS capacity for carbon mapping and monitoring at the national scale supported and strengthened.

c.   **Geographical focus and target beneficiaries**

The regional topography of western Tanzania includes steep hillsides interspersed with densely populated valleys and near the shores of Lake Tanganyika, transitioning to eroded canyons, cliffs and flat-topped hills in the Masito-Ugalla area. The entire region is interspersed with vast tracts of intact forest and woodland. Part of the Eastern Afromontane Biodiversity Hotspot (identified by Conservation International), the area boasts a great diversity of wildlife, including a number of rare and endemic species. The region encompasses a number of existing protected areas, including the Tongwe East and Uvinza Forest Reserves, which collectively cover over 2,200 km² of nominally protected forest and woodland habitat. The total area of the ecosystem is 10,827 sq. km and 7,588 sq. km. or 64% of its total area is covered in forest and Miombo woodlands. The Masito Ugalla Ecosystem (MUE) is a diverse and scenic landscape that includes numerous waterfalls and other features that offer attractive ecotourism opportunities. A detailed map delineation of the MUE is included in Annex D.

The proposed JGI REDD program will work with 15 villages in MUE area. All villages will involved in the REDD preparedness awareness including forest conservation initiatives in collaboration with GMU program. A sample of 7 villages located along the Lake Tanganyika shoreline within Kigoma district will protect about 700 sq. km of indigenous forests currently classified as General Lands. The program will support these 7 villages to jointly form and register a forest management CBO that will be responsible for the management of the earmarked general land. The program will provide training to the CBO aimed at improving their skills and experiences to implement REDD activities and generate economic benefit for the member villages.

d.   **Project benefits**

It is estimated that this forest management CBO will generate an annual net income from the sale of carbon credits totalling $400,000. This estimate is based on the assumptions described below.

The average above ground biomass of Miombo woodlands ranges between 50 t/ha and 150 t/ha. For the MUE the estimate was cautiously set at 75 t/ha. To determine the below ground carbon a rate of 27% was applied, leading to a total biomass estimate of 95t per ha. Assuming a biomass to C ratio of 50% and a C to CO2eq ratio of 44/22 an estimated 175 t CO2eq/ha was established.

The deforestation rates within the MUE vary widely. First vegetation change analysis using Landsat satellite imagery between 2001 and 2007 determined a wide range of deforestation rates within the ecosystem. Close to the villages along the lakeshore (the ones targeted by this project) the rate was 45%, within the core of Masito Ugalla ecosystem the rate was 8-11%, in the wider Mahale landscape the rate was between 11-15%. More analysis is needed but at this stage a deforestation rate of 12% has been determined for the period between 2001 and 2007 within the targeted project area. This leads to an annual deforestation rate of 1.7%.

The following tables have been prepared with the help of the economic feasibility tools developed by Socialcarbon and the Climate, Community and Biodiversity Alliance (CCBA).

The carbon price continues to fluctuate significantly, often driven by factors that are very difficult to calibrate. Earlier this year EU allowance credit prices dropped to around 10 Euros/t CO2eq, down from around 30 Euros/t COeq from July of 2008, probably due to the overall market crash. However, carbon credit sales actually increased late last year and early this year, so carbon credits were clearly not reflecting other market behavior. However, the price has been rising again lately. Today's (October 30, 2009) price in Europe is around 14.6 Euros/t CO2eq ($21.46/ton). Considering the price fluctuations observed in the past the presented calculation is based on a price per t CO2eq of $10.-.

According to the SC/CCBA model, after deducting 25% non performance reserve, 15% government tax, 5% commercialization fee, about $50,000 per year for monitoring and verification, about $50,000 per year for activities to reduce deforestation, an estimated annual net income of $400,000 was determined.

According to the socio-economic surveys conducted in and around the MUE this amount exceeds significantly the current income generated within the targeted area both by the communities and the district authorities. Additional income will potentially be generated through further economic activities like eco-tourism and marketing of NTFP like honey and medicinal plants.

Further benefits are generated by the experiences gained during the community mobilisation and training, the developed education materials, the applied community based biomass and carbon monitoring techniques, the remote sensing based forest and carbon monitoring tools developed and the benefit sharing mechanisms developed in a consultative process involving community and government stakeholder. All of these experiences and processes will be meticulously documented at all stages of project implementation and widely distributed to interested parties. Project results and implementation methodologies will be evaluated by independent consultants and their findings will also be made public to contribute to the formulation of the National REDD Strategy.

At a global scale greenhouse gas emissions (GHGs) from deforestation and forest degradation will be reduced by an average annual amount of 55,000 tCO2eq leading to a total of 2,2 million t of CO2eq over the project lifetime of 40 years. Further details of the calculations leading to these results are presented in the attached file "REDD_feasibility_tool_MUE_Nov_09".

The avoided deforestation over the 40 years lifespan of the project will reach a total of 22,600 ha of Miombo woodlands.

a. **Project Purpose**

The purpose of the project is:

To build awareness and enhance capacity and governance mechanisms for local communities and government institutions to administer and benefit from REDD-related obligations and opportunities in the Masito Ugalla ecosystem in support of national REDD readiness.

Expected Output 1: A cadre of local trainers comprised of stakeholders from the project area (district government, village leadership, civil society, general population) will be empowered to facilitate broad stakeholder participation in REDD project design and management, including the collection, analysis and application of lessons learned in reducing deforestation and forest degradation in Western Tanzania:

JGI's team will work in partnership with the University of Dar es Salaam (UDSM), Sokoine University (SUA), Google, and Forest Trends to train and equip community members to understand and access carbon markets. JGI and its partners will produce and deliver training modules on REDD and improved forest management investment opportunities, including potentials to produce carbon credits through emerging international and voluntary markets, and generate supplemental incomes through the sustainable production and sale of secondary products from REDD project areas. Stakeholder groups comprised of District Council officials, village government, civil society and the broader MUE population will participate in public awareness, formal and non-formal education and training programs that will strengthen their understanding of the science and benefits of carbon sequestration; and the financial and environmental risks, benefits and opportunities available through national REDD accounting and sub-national REDD projects. Stakeholder groups will be able to identify direct and indirect financial, social and environmental benefits from REDD related opportunities on lands under their jurisdiction.

Activities:
- A JGI team comprised of Tanzanian and international specialists with expertise in forest based climate change initiatives will train a cadre of local trainers comprised of district technicians, CBO and NGO staff. This activity will include the following outputs:
  - Develop and apply training modules informing stakeholders of forest carbon sequestration principles and processes, including risks and threats from unsustainable forest management practices; the structure and operation of forest carbon standards and project types; and REDD project development principles, including didactical methodologies.
  - Develop training modules to prepare local trainers to become competent and efficient promoters of REDD knowledge.
- Training of district government officials, including councillors, senior representatives and technical staff on central government policies and plans related to carbon standards and project types, including data on available markets for certified credits..
- Sensitising the village leadership and the general public in targeted communities on basic principles of carbon standards and project types, including data on available markets for certified credits.
- Identify opportunities to produce and deliver secondary products or services from REDD projects to existing markets, including wild harvested food and medicinal products; minimal impact harvests of fuel wood and building materials; and ecotourism.

- Developing and delivering public awareness and knowledge campaigns related to climate change and carbon sequestration, including public address, radio programs, pamphlets and posters, civil organization meetings, school and youth organization programs.
- Building the capacity of selected stakeholders to participate in the delivery of REDD project documentation for carbon credits, and to administer and manage REDD project sites according to national and international standards.
- Sensitize village leadership and the general public in methods to assess "carbon footprints", and implement local programs to monitor emissions and reductions at a household and community scale. Sensitization programs will also inform village leadership and the general public in measures that can be used to reduce or mitigate household and community footprints through coordinated travel, waste recycling and improved land uses.
- Collecting, compiling and documenting (in print and PowerPoint formats) the outcomes from more than 15 years of experience working to reduce deforestation and land degradation in western Tanzania and provide qualitative and quantitative demonstrations to show how the results from this experience can inform and enhance a national forest carbon regulatory and governance framework by October 15, 2009. The documentation will specifically describe how JGI's experience in western Tanzania can inform a national and Africa-wide REDD program. Documentation will be prepared in formats designed to assist the replication or adaptation of the project activities and outcomes in other areas in Tanzania and adjacent countries.

Expected Output 2: Inter-village forest conservation CBOs formed and empowered to manage forests on general lands in support of a national REDD accounting program and sub-national forest carbon projects.

Activities:
- Facilitate inter-village forest management CBO formation.
- Facilitate the assignment of forest management rights for CBOs within general lands in the Masito-Ugalla area.
- Train and equip CBOs in sustainable forest management practices.
- Facilitate the development of participatory community-based forest management plans for general lands in conjunction with district authorities.
- Train and empower (through District recognition) Community Forest Monitors (CFMs) to reduce and control risks to forest carbon resources from fire, inappropriate harvests and other threats.

Expected Output 3: A replicable and scalable methodology for remote sensing/GIS/GPS based forest and carbon accounting at village scale, developed, analysed tested, verified, documented and disseminated.

Activities:
- JGI will work with Google and relevant national institutions such as government GIS units, IRA, SUA and others to develop a forest carbon stock mapping and monitoring methodology that can be used at the village scale but consistent and scalable to the national scale, incorporating WHRC biomass and carbon algorithms, multi-resolution remote sensing data, GIS and ground-based measurements using Google Android ODK (Open Data Kit) mobile technology and Google web-based Forest MRV (Monitoring, Reporting and Verification) platform that would support

open and transparent access to the satellite data and results of this project. The methodology will incorporate data produced under *Output 4* and thus integrate community-based forest monitoring with a national carbon assessment program. JGI will employ a combination of village-based and external expertise to test the use of 1-km MODIS, 28.5-57-m Landsat MSS, TM and ETM+, 20-m and 2.5 m SPOT, 60-cm QuickBird and other satellite imagery data combined with field measurements in order to (a) verify past deforestation and carbon emission trends; (b) establish a current forest carbon baseline, including determination of leakage and additionality risks evident in the project area; and (c) detect annual changes in carbon sequestration and emission rates in designated forest carbon reserves using field measurements. The outcome will be an independent methodology that can then contribute to the national forest carbon dialogue and support regional and national carbon sequestration and emission monitoring.

- Develop training modules to facilitate broad national access to the JGI and Google forest carbon emission and sequestration monitoring methodology.

- Provide remote sensing, GIS and methodology user support to other specific local scale REDD-pilot initiatives in Tanzania through collaborative training workshops, remote sensing and field data analysis and publication of results.

- JGI, in collaboration with the University of Dar es Salaam, will generate information and lessons on the major drivers of deforestation in the project area including effects of fire. Fire, as a driver of unplanned deforestation, comes into play in three areas: the analysis of agents and drivers of deforestation; the estimation of annual estimates of baseline carbon stock changes and emissions from unplanned deforestation in the project area, reference region, and leakage belt; as well as, the derivation of annual deforestation risk maps for location and quantification of baseline and future carbon emissions. Therefore, key goal will be identifying location/quantification of fire impact, and the creation of proxy variables that can be used annually by a spatial model to create annual deforestation risk maps in the 10 years before and over the life of the project. The team will conduct research through detailed literature reviews and complemented by remote sensing analysis of multi-temporal and multi-sensor satellite imagery to determine the effects of fire on carbon accounting. The project area is dominated by miombo forests and woodlands where fire is sometimes necessary to encourage growth of some flora species, but it also experiences significant wildfires resulting from fires deliberately set to clear land for cultivation or grazing. Unfortunately, existing data and observations of the effect of fire on biomass accumulation are inconclusive, and given the significant presence of fire in this ecosystem, it will be impossible to accurately monitor carbon levels without taking fire into account. JGI's literature review and qualitative remote sensing and field observations will provide stakeholders with a comprehensive and rational assessment of the role and impact of fire on carbon emissions and sequestration. The assessment will include a set of lessons learned from reduced deforestation and improved forest management in western Tanzania. This process will also include documentation of JGI's extensive prior community forest management and reduced deforestation experience and methodologies.

- Results from the assessment including the one collected from JGI's 15 years of working with local people on forest management and protection activities, will be documented in electronic and printed formats, and disseminated to relevant stakeholders in formal meetings, and will serve as a critical reference for communities, the nation and the international community.

Expected Output 4: Communities and CBOs are provided with the tools and skills to monitor forest biomass and carbon stocks.

Activities:
- Train a cadre of project, district staff and selected community members to serve as instructors and mentors for CFMs. The instructor/mentor cadre will in turn train and equip community member teams to carry out forest biomass assessments and produce a systematic database on forests and woodlands in designated areas in partnership with Sokoine University and Google.
- Work in partnership with Sokoine University researchers and Google to train community Forest Monitors to use GPS and field protocols to collect forest measurements for validating carbon maps produced through remote sensing/GIS based forest and carbon accounting.
- Train community members and CFMs in participatory mapping of their forests and threats by visual interpretation of very high resolution satellite imagery (e.g. QuickBird 60-cm, WorldView-1 and WorldView-2) of designated forested areas.

Expected Output 5: A community based equitable benefit sharing mechanism developed and practiced.

Activities:
- Conduct training in good governance principles for participating forest management CBOs and village governments with a focus on constitution formulation; organizational management; conflict mitigation and negotiation; project planning and administration; and transparent financial management procedures.

- Provide technical assistance to CBOs and village governments to secure certified credits for carbon emission reductions from REDD+ projects established on community lands, and assist village CBOs to work collaboratively with local government to market and contract the sale of these credits.

- Develop and implement a participatory benefit sharing mechanism for direct and indirect benefits accruing from improved forest management.

- Establish a REDD carbon credit pool fund to be disbursed for certified carbon credits generated by forest management CBOs.

- Conduct training in business management and marketing skills for participating CBOs and village governments in order to strengthen the capacity of these institutions to support the production and sale of secondary products or services from REDD projects to existing local or regional markets, including wild harvested food and medicinal products; minimal impact harvests of fuel wood and building materials; and ecotourism.

Expected Output 6: Remote sensing and GIS capacity for carbon mapping and monitoring at the national scale supported, strengthened and disseminated.

Activities:

- JGI will work with its partners from the geospatial industry (e.g. ESRI, DigitalGlobe, Google, Forest Trends and others) and relevant institutions in Tanzania (e.g. government GIS units, IRA, SUA and others) to facilitate the use of:

    o Application of GPS-enabled Google Android mobile phones using the Open Data Kit (ODK) data collection system, to collect carbon, forest, biodiversity social and economic data within the context of community-based forest/carbon projects.

    o Very high resolution satellite data such as 60-cm QuickBird and 50-cm WorldView-1 and WorldView-2 imagery;

    o Providing access to ArcGIS (ESRI) software and tools;

    o Object based and visual interpretation of very high resolution satellite imagery to support forest and carbon mapping and monitoring;

    o Applications of very high resolution satellite imagery in mapping carbon stocks in select REDD project sites.

- JGI will work with relevant institutions in Tanzania (e.g. government GIS units, IRA, SUA and others) to build capacity for mapping and monitoring biomass and carbon at a national scale. In particular, JGI will:

    o Facilitate access to existing WHRC biomass and carbon maps of Tanzania derived from 1-km MODIS satellite imagery

    o Facilitate training workshops in direct remote sensing measurements of carbon stocks using satellite imagery and field data using WHRC biomass and carbon algorithms.

- Link and contribute forest mapping and monitoring and capacity building activities in western Tanzania with the National Forest Resources Monitoring & Assessment of Tanzania (NAFORMA). JGI is in contact with the NAFORMA team including National Project Coordinator and heads of technical teams such as Group REDD, Database and Remote Sensing and Mapping and Inventory. Currently NAFORMA is evaluating its methodology and will endorse early December its Final Sampling Design, distributing responsibilities and a tentative workplan for next project phases. Once this is accomplished, JGI and NAFORMA will identify how its activities could link to NAFORMA in order to avoid gaps and overlaps and provide synergy. One of the objectives will be to have a compatible protocol, data collection methodology and data storage format. NAFORMA is also considering using the Google Android devices and the ODK software to support the biophysical and socioeconomic data collection and presentation. This would allow JGI to easily contribute field data from project area, satellite imagery and analysis and support national forest mapping efforts.

- To assess and document outcomes of all JGI REDD project activities and methodologies, including an interpretation of social, economic, institutional and policy lessons gained from the 3 year project implementation and shared with relevant stakeholders through publications, formal meetings and workshops and consultations

- To prepare project documentation consistent with emerging international standards to account for emissions reductions at the project or sub-national level and facilitate monetization of offset value. Specifically a key goal of the project would be to produce a successfully accepted project

design document (PDD) using VCS methodologies and potentially Climate Community and Biodiversity Standards. This document would potentially either allow communities to access carbon market mechanisms and/or to provide rigorous accounting of sub-national project activities for monetization through national REDD financing schemes.

- Characterization of drivers and agents of deforestation and degradation, and an assessment of leakage risks (note, while leakage would ultimately be captured in national accounting frameworks as pointed out in V1.a, a careful assessment based on the specific deforestation agents and dynamics will also help to specifically identify and strengthen project design to account for these risks). This might actually fit best in Output 2.

- Based on deforestation drivers assessment, developing a spatially explicit model, consistent with VCS methodological modules, that describes deforestation risks and provides a without-project baseline projection. This would build on the historical land-use change assessments described in Output 3. This could be developed by WHRC, JGI with external technical support as needed, and should use international refereed tools (e.g. Dinamica, IDRISI/GEOMOD) to project deforestation rates and location.

- Apply additionality tests (e.g. Section 5.8 of the Voluntary Carbon Standard 2007) to demonstrate that emissions reductions are real and additional

- Define project boundaries, reference and leakage areas, as appropriate, for modeling and monitoring.

- Consolidating information in a project design document PDD that can provide rigorous justification for marketing of emissions reductions for market or fund-based mechanisms, and contribute to Tanzania's efforts to demonstrate effective emissions reductions outcomes from sub-national activities.

- Assessment of options for potential monetization of offset value, evaluating possibilities for financial structuring of project for carbon markets or other financial mechanisms to maximize returns to local communities.

b. **Project Timeframe:**

The project implementation period will be from January 1st, 2010 and continuing until December 31st, 2012. A mid-term evaluation will be completed by June 2011, and final completion reports will be available by December 31st 2012. A detailed timetable for all proposed Project Outputs and Activities is included in Annex E.

c. **Monitoring and Evaluation Plan, including Performance-Based Milestones:**

The proposed JGI REDD Project will apply a consistent set of performance indicators to measure the results from project inputs, processes, outputs, and impacts. Our quarterly and annual project monitoring and evaluation (M&E) activities will rely on the participation of key stakeholders to define indicators; collect and analyse data; and report results. Data collection will be supervised by the JGI management team, and carried out by trained community para-technicians, with analysis and reporting

carried out by the Project Monitoring and Evaluation Specialist. Trained para-technicians will carry out initial and cumulative field measurements, data recording and mapping work with the participation and supervision of the JGI management team. Assessments of local behavior change resulting from the project activities will be carried out through initial and cumulative surveys and direct observations of target behaviors. Target behaviors for subsistence and commercial forest resource use will be determined through surveys assessing behavior change during the life of the project. The JGI team will also collect data to monitor the overall project "carbon footprint", including office and workshop venue energy consumption; ground and air transportation; land use changes resulting from project investments; and material uses and recycling. Semi-annual project "carbon footprint" reviews will identify and implement measures to reduce or mitigate overall the overall project footprint through coordinated travel, waste recycling and improved land uses.

Monitoring results will be interpreted and made available through semi annual reports to be sent to the Norwegian Embassy and to the National Task Force and thereafter posted on the JGI web site. A cumulative final report will be prepared at the end of year three of the initiative. There will be formal annual meetings between JGI and the Royal Norwegian Embassy (RNE) to involve the Task Force. These meetings are intended for sharing reports and discuss project implementation progress and challenges. Mid term and final evaluations will be done by the Norwegian Embassy.

A detailed summary of the quarterly, annual, mid-term and cumulative measures to be carried out over the life of the project is included in Annex F.

The Royal Norwegian Government (MFA) will from time to time provide financial advisory services, technical input and training whenever possible to the Jane Goodall institute project staff and associate partners to ensure that the project provides high quality accounting services and comply with all financial management guidelines.

d. **Information management and communications,**

As described in the breakdown of project activities, JGI will both communicate extensively with and disseminate work products to the Embassy of Norway, the Tanzanian National REDD Task Force, and other local, regional, national and expert stakeholders and partners. The reporting documentation prepared quarterly, as well as at the mid-term and conclusion of the project, will serve as the primary ongoing tool for disseminating project outcomes and lessons learned. These include a document and presentation on lessons learned from actions to reduce deforestation and degradation during JGI's 15 years experience in western Tanzania; a baseline assessment of behavioural responses to forest degradation and loss; carbon emission reduction risks, opportunities and benefits; and strengthened forest governance constraints, opportunities and benefits; and a print and poster display summarizing the proposed methodology to use multi-resolution satellite imagery and field measurements to map carbon at the national and community scales in Tanzania. Regular meetings for sharing the information will be organized to involve the key partners and players in consultation with the National Task Force and the Royal Norwegian Embassy. Selected information about the project will be shared in regional meetings that will be organized by Google Earth where JGI has been invited as a partner. In additional JGI team led by Dr. Jane Goodall who has been invited to speak at the Copenhagen meeting will share the project information to the global family. All documents will be distributed in paper and electronic copies, and made available for download on the internet.

Combining REDD, PFM and FSC certification in South-Eastern Tanzania

Project Summary

Project title

Combining REDD, PFM and FSC certification in South-Eastern Tanzania

Primary proponent

Mpingo Conservation Project

Date of submission

31st May 2009, final revised version submitted 8th December 2009

Total budget

$1,948,123

Timeframe

4 years

Summary description of project

Integrating Reduced Emissions from Deforestation and forest Degradation (REDD) with Participatory Forest Management (PFM) is key to ensuring benefits from REDD reach forest-adjacent communities, and that local incentives are aligned with national and global interests in conserving forests to reduce carbon emissions. The Mpingo Conservation Project (MCP) already has extensive experience with PFM through the brand it has developed in SE Tanzania whereby communities earn revenue from selling sustainably harvested timber. MCP holds the first Forestry Stewardship Council (FSC) certificate for community-managed natural forest in Africa. Financial flows from timber are expected to exceed those available from carbon markets over the long term, so MCP proposes to leverage REDD as a catalyst to expand PFM+FSC over a wider area, bringing substantial benefits to poor and natural resource-dependent rural communities and conserving greatly increased areas of forest.

An important component of the project involves working in collaboration with SUA and international partners to develop improved methods of measuring carbon stored in miombo woodlands (including assessing soil carbon), and from this developing efficient participatory assessment and monitoring procedures (drawing on MCP‟s experience with participatory timber inventory) and protocols for monitoring and verification through remote sensing. Another major component is the development of best practice for delivering and monitoring benefits to communities. Carbon leakage will be mitigated through highly targeted efforts to tackle identified local drivers of deforestation.

Proponent contact details

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Making REDD and the Carbon Market work for Communities and Forest Conservation in Tanzania

Tanzania Forest Conservation Group

Project Title	Making REDD and the Carbon Market work for Communities and Forest Conservation in Tanzania
Project Duration	5 Years
Implementing Agency and Contact Person	Tanzania Forest Conservation Group Charles Meshack, Executive Director. Email: cmeshack@tfcg.org Phone: +255 (0)754 380607
Primary Partner	MJUMITA (Tanzanian Community Forest Conservation Network)
Collaborating civil society organisations and research agencies	CARE International's Poverty Environment and Climate Change Network Katoomba Group / Forest Trends Regional Community Forestry Training Centre (RECOFTC) Sokoine University of Agriculture, Morogoro Tanzania Natural Resources Forum Valuing the Arc
Beneficiaries	25,000 persons living in 20 communities engaged in either CBFM or JFM
Geographical Area	At least 50,000 hectares of montane and lowland coastal / miombo forest in the Eastern Arc Mountains and Coastal Forest biodiversity hotspot.
Total Budget	US$ 5,914,353
Summary	The project aims to reduce greenhouse gas emissions from deforestation and degradation in Tanzania in ways that provide direct and equitable incentives to communities to conserve and manage forests sustainably. The project will achieve this by supporting the development of a Community Carbon Cooperative hosted within the existing Network of Tanzanian communities engaged in participatory forest management. The Cooperative will aggregate voluntary emission reductions from its members and market them according to internationally recognised standards. Project funds and carbon market revenue will be channelled directly to the communities on a results-based basis thereby maximising incentives to maintain forest cover and reduce deforestation. As an additional incentive for reducing emissions, 8 % of the project budget will only be disbursed upon demonstrating direct REDD results; in total, 18% of the project's financial disbursements will be linked to results-based performance. The project includes an evaluation and communication component designed to capture the lessons learnt in order to inform project implementation and share them with the national and international community including sharing lessons learnt during project inception at the UNFCCC meeting in Copenhagen. The project also focuses on building in-country capacity with regards to REDD at both local and national governmental levels. This is linked with a strategic advocacy component aimed at forging a smooth path for REDD in Tanzania by engaging in the formulation of REDD frameworks and processes at national and international level.

Community Based REDD Mechanisms for Sustainable Forest Management in Semi-Arid Areas (Case of Ngitilis in Shinyanga Region)

TaTedo in collaboration with DASS and NAFRAC

PROJECT SUMMARY

Project Title	Based REDD Mechanisms for Sustainable Forest Management in Semi-Arid Areas (Case of Ngitilis in Shinyanga Region)
Project Duration	4 Years (January 2010 – December, 2013)
Implementing Agency and Contact Person	TaTEDO, Estomih N. Sawe, Executive Director Email: energy@tatedo.org , edirector@tatedo.org Phone: +255 (0)22 2700771, +255 (0) 754 279 868
Key Partner	DASS (Development Associates) and NAFRAC (Natural Forest Resource and Agroforestry Centre)
Collaborating institutions and research agencies	Local Government Authorities Ngitili Owners of Kahama and Shinyanga Rural Districts SUA (Sokoine University of Agriculture) and Clinton Foundation
Beneficiaries	Direct beneficiaries are 250 Ngitili owners and indirect 6,000 households in 10 villages.
Geographical Area	Shinyanga Rural and Kahama districts, Shinyanga region.
Total Budget	US$ **2,012,752**
Summary	The project aims at promoting sustainable natural resource management and reducing greenhouse gas emissions from deforestation and forest degradation from restored Ngitilis. Through this project a robust local institutional framework to help Ngitili owners manage forest and benefit from carbon funds will be established. Ngitili owners will be mobilized and assisted to form and establish legal Ngitili carbon groups and associations. The project will use lessons, experiences and knowledge of HASHI project to strengthen Ngitili groups and associations for effective REDD implementation. Measures for addressing key drivers of deforestation and forest degradation will be introduced. Furthermore, the project will assess different mechanism for carbon trading and benefits sharing to help Ngitili communities successfully participate and benefit from carbon incentives. This particular project focuses on private forest owners at community level to explore mechanisms for their involvement in REDD process. Outcomes and lessons learnt from this project will provide inputs to

the development of the national REDD strategy.

Annex 2c: REDD Implementation Framework

1. UNREDD Implementation workplan

JP Outputs	UN Agency	Partner	Indicative activities for each Output	Resource allocation and indicative time frame* US$		
				Timeframe	Category	Cost
Outcome1. National governance framework and institutional capacities strengthened for REDD						
1.1. A Policy Framework for REDD is in place.	UNDP	VPO FBD	1.1.1 Assess what has worked in the forest management arena in addressing threats and deforestation drivers (Participatory Forest Management, Protected Areas, fire management, tree growers organizations, conservation agriculture) 1.1.2. Support FBD to develop the National REDD Framework covering all aspects of the REDD Production Chain and clarifying the roles and responsibilities of different actors 1.1.3. Support National REDD task force to clarify and provide recommendations on the ownership of carbon and emissions reductions under Tanzanian law 1.1.4 Develop a stakeholder participation plan that defines how stakeholders will participate in the REDD process, building on existing policies on participatory forest management. 1.1.5 Provide Technical Assistance for Tanzania to conduct an options analysis for marketing REDD, covering different market scenarios (voluntary, retail or fund-based approaches) 1.1.6. Support FBD to finalise, print and distribute the new Forest Policy incorporating issues relating to the implementation of REDD	Mar 09 to Jun 09	Staff	$110,000
				Jun 09 to Nov 09	Contracts	$90,000
				Oct 09 to Nov 09	Workshops	$40,000
				Jun 09 to Nov 09	Travel	$20,000
				Aug 09 to Dec 09	Misc.	$40,000
				Feb 10 to Mar 10	**Total**	**$300,000**
1.2: Cross-sectoral institutional and	UNDP	FBD IRA VPO; Agric	1.2.1 Delivery of a training programme that covers (a) potential REDD methodologies proposed to SBSTA (Carbon Stock Approach; dual markets approach, Stock-	Aug 09 to Dec 09	Staff	$130,000
					Contracts	$110,000

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					Worksh ops	$50,000
individual capacities built to deliver the REDD production chain.		ulture Ener gy and Mine rals; PMO RAL G	Flow Approach, etc.), (b) EIA/ SEA; and (c) social and biodiversity safeguards			
			1.2.2 Train the trainers materials developed to enhance capacity of Forestry Officers at national and district levels (covering REDD business and contract models, sustainable use oversight, enforcement, policing, reporting, survey/ monitoring work, participatory management)	Jan 10 to Mar 10	Travel	$20,000
					Misc.	$40,000
					Total	**$350,000**
1.3 FBD has greater capacity to develop and implement the national REDD Strategy in collaboratio n with other partners	UNDP	FBD	1.3.1. Assess capacity of FBD to undertake REDD functions in Tanzania (planning, monitoring and enforcement).	Mar 09 to Jun 09	Staff	$400,000
					Contrac ts	$70,000
			1.3.2. Technical assistance/ advisory services provided to FBD pertaining to the REDD Production chain (planning, monitoring, enforcement)		Worksh ops	$50,000
				Mar 09 to Mar 10	Travel	$100,000
			1.3.3 Essential equipment supplied		Misc.	$80,000
			1.3.4 One UN support provided to Tanzania REDD programme		**Total**	**$700,000**
1.4 Cost curves for REDD in Tanzania established	UNDP	IRA UND P WB	1.4.1. Establish an independent group to advise on the methodologies to be followed to calculate the costs of REDD.	Apr-09	Staff	$5,000
					Contrac ts	$245,000
			1.4.2. Establish and agree categories of REDD costs in Tanzania and assess the distribution of costs and benefits (social, private, budget, etc).	May 09 to Jul 09	Worksh ops	$20,000
				Aug 09 to Dec 09	Travel	$20,000
			1.4.3. Build capacity of stakeholders to understand the methodology and participate in the costs and benefits analysis		Misc.	$10,000
			1.4.4. Develop a REDD cost curve for Tanzania plotting abatement costs against abatement potential for different land uses (protected areas, production forests, village lands, etc), and deforestation drivers	Jan 10 to Mar 10	**Total**	**$300,000**
Outcome 2: Increased capacity for capturing REDD elements within National Monitoring, Assessment, Reporting and Verification Systems						
2.1: A system for REDD information synthesis and sharing established at FBD and linked to NAFOBE DA.	FAO	FBD	2.1.1. Development of a FBD clearing house through collection of all REDD related studies consultancy reports/ findings	April 09 to Jun 09	Staff	$10,000
					Contrac ts	$100,000
			2.1.2. Identify and assess the needs and feasibility for MARV at the various levels of the REDD supply chain		Worksh ops	$50,000
				Jul to Sep 09	Travel	$20,000
			2.1.3. Study to collect and analyse the existing methodologies and options for carbon accounting for Tanzania		Misc.	$20,000
					Total	**$200,000**
2.2 Training	FAO	FBD,	2.2.1 Development of training modules on	April 09	Staff	$10,000

provided to forest staff on monitoring, reporting and verification (MRV)		SUA	remote sensing, GIS and data interpretation	to Jun 09	Contracts	$100,000
			2.2.2 Delivery of training on remote sensing, GIS and data interpretation	Jul to Sep 09	Workshops	$50,000
			2.2.3 Delivery of training on IPCC good practice guidance		Travel	$20,000
				Oct 09 to Nov 09	Misc.	$20,000
					Total	**$200,000**
2.3 Forest degradation indices provided for forest landscapes	FAO	FBD, SUA	2.3.1 Assess forest degradation on the ground linked to remote sensing data in a FRA 2010 RSS sample tile	Apr 09 to Jul 09	Staff	$100,000
			2.3.2. Assess impact of degradation on carbon storage across the land cover types of Tanzania	Aug 09 to Oct 09	Contracts	$100,000
			2.3..3. Assess complete carbon stocks for various land cover types	Nov 09 to Dec 09	Workshops	$50,000
			2.3.4. Overlays of impacts of degradation on forest carbon added to the forest inventory in pilot districts.	Nov 09 to Dec 09	Travel	$200,000
			2.3.5. Purchase equipment	Apr-09	Misc.	$150,000
			2.3.6. Training provided on degradation assessment methodology	Nov 09 to Dec 09	**Total**	**$600,000**
2.4 National maps inform delivery of the REDD Framework	FAO/ UNEP-WCMC	IRA FBD SUA	2.4.1 Development of a refined map and associated data on carbon storage and changes in carbon stocks based on available GIS data, modeling and compiled field inventories	Aug 09 to Oct 09	Staff	$10,000
					Contracts	$300,000
			2.4.2 Spatial carbon and biodiversity overlay maps developed for the entire country	Jan 10 to Mar 10	Workshops	$20,000
			2.4.3. Predictions made of future carbon distribution under climate change and development scenarios.	Jan 10 to Mar 10	Travel	$20,000
			2.4.4. Workshop, ground truthing opportunities and training provided for Tanzanian collaborators	Feb 10 to Mar 10	Misc.	$50,000
					Total	**$400,000**
Outcome 3. Improved capacity to manage REDD and provide other forest ecosystem services at district and local levels						
3.1 Decentralized REDD Governance Framework developed and tested in pilot districts	UNDP	Districts	3.1.1 Undertake participatory process that defines how districts can best deploy financial and human resources to manage REDD (funds, staff, equipment)	Apr 09 to Jul 09	Staff	$10,000
					Contracts	$120,000
			3.1.2 Assess best practice in existing village governance systems as potential mechanisms for implementing REDD	Jun 09 to Aug 09	Workshops	$100,000
					Travel	$50,000
			3.1.3. Assess where REDD management strategies would fit into District and Village Land Use planning	Oct 09 to Nov 09	Misc.	$20,000
					Total	**$300,000**
3.2 Payment	UNDP	District,	3.2.1 Identify and assess the efficacy of different payment distribution options	Apr 09 to Jul 09	Staff	$10,000
					Contracts	$50,000

distribution system outlined		FBD	(governance, accountability, costs, likely effectiveness) 3.2.2. Propose options for REDD payments in Tanzania (taking consideration of timing)		ts	
					Worksh ops	$10,000
				Aug 09 to Oct 09	Travel	$20,000
					Misc.	$10,000
					Total	**$100,000**
3.3 REDD payments combined with payments for non-carbon services	UNDP	Distri ct, FBD	3.3.1 Undertake a study of opportunities and challenges to realize the economic values of non-carbon services that can be linked to the carbon value to produce premium REDD credits (Payments for Water provision, climate adaptation, biodiversity)	May 09 to Jul 09	Staff	$10,000
					Contrac ts	$60,000
					Worksh ops	$50,000
			3.3.2 Develop an action plan for combining REDD finance with other sources of carbon markets (e.g. CDM, adaptation) and non-carbon finance (i.e. water) in two pilot landscapes (Uluguru, East Usambara).	Dec 09 to Jan 10	Travel	$20,000
					Misc.	$10,000
					Total	**$150,000**
Outcome 4. Broad based stakeholder support for REDD in Tanzania						
4.1. Improved awareness of REDD at national level	UNEP / FBD/ TFCG	IRA	4.2.1 Awareness raising campaign at national level on the potential for REDD and how it might reduce carbon emissions	May 09 to Jul 09	Staff	$10,000
					Contrac ts	$80,000
					Worksh ops	$60,000
			4.2.2 Connecting experiences from the 9 pilot countries (information exchange)	Aug 09 to Nov 09	Travel	$40,000
					Misc.	$10,000
					Total	**$200,000**
4.2. Broad consensus built with forest communitie s regarding the REDD Framework	UNDP	IRA, FBD	4.2.1 National and Regional workshop(s) where Ward and Village representatives from selected Districts provide stakeholder feedback on the potential for REDD.	Aug 09 to Oct 09	Staff	$10,000
					Contrac ts	$50,000
					Worksh ops	$80,000
			4.2.2 Pilot rural appraisal to establish community opinions on the potential for REDD	Nov 09 to Dec 09	Travel	$50,000
					Misc.	$10,000
					Total	**$200,000**
5. UNDP Management Oversight						
5.1 UNDP Managemen t Oversight	UNDP	FBD	Management Oversight (administration, oversight and project monitoring)	Mar 09 to Mar 10	Staff	$70,000
					Equip ment	$50,000
					Project Review	$50,000
					Travel	$20,000
					Misc.	$10,000
					Total	**$200,000**

Please present the early ideas or ToR for work to be carried out. If you decided to merge Components 2b and 2c, you may also wish to merge Annexes 2b and 2c. TO BE COMPLETED

Annex 2d: Social and Environmental Impact Assessment

Context

Activities that reduce emissions from deforestation and forest degradation (REDD) and contribute to conservation, sustainable management of forests and enhancement of forest carbon stocks (REDD+) have the potential to deliver significant social and environmental co-benefits. Yet many have also highlighted the serious risks, particularly for Indigenous Peoples and other forest-dependent communities. Strategic environmental and Social issues includes biodiversity and ecosystem services loss micro-climate, water services soil degradation ,food security, displacement, cultural erosion and social conflict as result of migration and immigration, loss of land ownership, land tenure insecurity, land access, loss of access to woodfuel energy Recognizing growing awareness at both international and national levels of the need for

effective social and environmental safeguards, R-PP aims to define and build support for a higher level of social and environmental performance from REDD+ policy. United Republic of Tanzania as a country will benefit in terms of gaining greater recognition for the high social and environmental performance that achieved by conducting SESA, both within their own countries and from the international community.   More broadly at a global level, the SESA are expected to build support for a more effective, equitable and sustainable approach to REDD+.

2. Justification and objectives of the Strategic Environmental and Social Assessment

The purpose of this component is to assess the likely impacts (positive and negative) of the REDD strategy options and implementation framework identified in Sections 2b and 2c or that will be identified in the course of the preparation work. The spirit is that REDD, starting with the preparation for REDD readiness, should 'do no harm' and, instead, should 'do good'.

Apart from The Bank's Safeguard Policies that are designed to avoid, limit and/or mitigate harm to people and the environment, and strive to achieve benefits instead, Tanzania has legal framework that provide directives for conducting EIA/SESA to various projects and programmes. The legal Frameworks are provided under Environmental Management Act of 2004 and National Forest Acts of 2002. Both of these Acts specifies projects and programmes that are mandatory for Environment Impacts Assessment which also covers social aspects. Social and environmental assessments help minimize or eliminates, mitigate, or duly compensate negative consequences if these are inevitable, and shed light on ways to create benefits for people and the environment The SESA is a tool that seeks to integrate social and environmental considerations into the policy-making process, leading to sustainable policies and programs.

3.TOR for SESA

Tanzania is facing challenges related to deforestation and depleting forest resources from various drivers of deforestation and forest degradation. Most of the forest resources are obtained from few plantations that are already stressed due to various factors including inadequate management regimes. The Government has now embarked on the REDD+ policies that will improve such situation in collaboration with other stakeholders.

It is within this context that SESA are important component in the implementation of REDD+ policy. World Bank Safeguard Policy and Section 81 of the National Environmental Management Act (EMA, 2004) compels developers to undertake EIA/SESA prior to development activities if these activities are taking place in classified areas that require EIA. Item 3 (i) (ii), (vi) of the First Schedule in the Environmental Impact Assessment and Audit Regulations, 2005 directs developers to do environmental impact assessment for activities related to forest as listed in this item. The proposed development falls under mandatory list for projects/programmes requiring full EIA. The following terms of reference are intended to guide the SESA process for the proposed Tanzania REDD+ policy.

3.1 Objectives

The objective of these Terms of Reference (ToR) is to ensure a comprehensive and participatory Strategic Environmental and Social Assessment (SESA) for the proposed REDD scheme. The Terms of Reference outlines activities, methodology to be followed and expected outputs.

3.2 Activities

The SESA team will undertake the following activities:

I. Must consult with all key stakeholders including, indigenous people/forest dependant communities vulnerable segment of society in order to capture their views and concerns regarding the proposed REDD+ policy
II. Provide detailed baseline condition covering all key social, economic, cultural, institutional and legal issues that may have potential negative and positive impacts arising from the proposed REDD scheme.
III. Consider all alternatives including the " no REDD policy alternative"
IV. Ensure adequate stakeholder participation throughout the EIA process and show stakeholders views and concerns in the EIA report
V. Identify all possible negative and positive impacts and propose mitigation and enhancement measures
VI. Prepare Social and Environmental Management Plan (EMP) for the all the negative and positive impacts and clearly define responsibilities for the implementation of the EMP;
VII. Carry out cost benefit analysis of the proposed REDD scheme;
VIII. Assess the viability of the proposed development also to benefit from CDM arrangement considering current Kyoto Protocol provision on carbon trade and national policies;

3.3 Methodology

A SESA is an open participatory process; the team is therefore required to ensure that appropriate methods that would ensure maximum participation of all key stakeholders are followed. Methods such as consultations with key stakeholders, interviews, meetings, and focus group discussions are encouraged. Also, the team should strategically visit the potential REDD areas/sites and consult with relevant stakeholders for detailed information. Other methods include literature review. The team should also use relevant techniques in data analysis. The SESA team my propose the best methods as deemed necessary.

3.4 Expected Output

The SESA team should produce A Strategic Environmental and Social Impact Statement /framework that should

ensure REDD+ policy/REDD+ scheme 'do no harm' and, instead, should 'do good' to all environmental and social aspects.

4. Expertise to be involved

This assignment requires a multidisciplinary team consisting of experts from various filed of specialization. The minimum qualification is Msc degree in respective specialization and over 5 years in similar experience. The proposed expertise may include
   a) Land use expert
   b) Forest ecologist and Forest Management expert
   c) Lawyer in human rights
   d) Economist
   e) Sociologist /Social Anthropologist
   f) Energy expert
   g) Market specialist
   h)

Annex 3a: Terms of reference for development and application of approaches to deliver short and long term data on forest carbon stocks across Tanzania

BACKGROUND/CONTEXT

Deforestation and forest degradation is the cause of around 20% of greenhouse gas emissions responsible for global warming. In recognition of this, at the 13th Conference of Parties to the United Nations Framework Convention on Climate Change in December 2007, it was agreed that Reducing Emissions from Deforestation and Degradation (REDD) should be considered for inclusion in a post-Kyoto Protocol. It is envisaged that after 2012, an internationally-approved, performance-based system for forest carbon trading will have been negotiated to provide additional incentives to countries that address REDD.

More than 34% of the Tanzanian land area (34 million hectares) is forestland[4], of different vegetation types. Sound management of these forests can generate a number of environmental services such as water catchment, scenic beauty, biodiversity, and carbon sequestration, which in principle could be valued and paid for by various consumers. There is also a growing market for forest carbon due to the increasing recognition of the importance of forest management in reducing emissions and storage of carbon dioxide gas (CO_2) to mitigate climate change and its effects.

JUSTIFICATION

A key aspect of determining the carbon benefit of any forest carbon project is to accurately quantify the levels of carbon changes to known levels of precision. Determination of carbon changes requires baselines i.e. historical trends against which additional carbon benefits as a result of carbon project can be determined. Under REDD, the reference scenario will be the baseline against which achievements made by a country can be measured and credited. Possible options for crediting forest carbon management include reduction in emissions from deforestation; reduction in emissions from degradation; forest enhancement; forest conservation; and conservation of the existing carbon stock. The last two options relate to forests with long protection status which would be credited based on the maintenance of carbon stock which would be compensated through a "conservation" fund that would be included under REDD.

Since the REDD policy is likely to be undertaken nationally, the country deforestation baseline need to be determined by depicting historical land use changes from satellite imageries and typical carbon stock data for different types of forests to calculate the changes in terms of tons of carbon. However, Tanzania has inadequate resources to access remote sensed data and even the available ground data on forest carbon stock(s) are in patches and inadequate to be able to predict changes.

OBJECTIVES

To undertake baseline studies and develop baseline scenarios and methods for estimating deforestation, carbon sequestration and emissions including participatory methods for monitoring, assessing, reporting and verification

Specifically Activities:

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[4] "Forestland" means an area of land covered with trees, grass and other vegetation but dominated by trees.

Establishment of baseline carbon plots and their measurements in different vegetation/cover types building on work that has been initiated the Valuing the Arc Program and expanding this network of field plots to cover additional habitat types and geographical regions of Tanzania – including the Coastal Forests, Miombo Woodlands, Acacia Woodlands, Savannah Grasslands and Wetlands to enable more accurate estimates of carbon stocks in different cover types. Both degraded, degrading and intact forests will be selected in order to be able to estimate carbon lost through forest degradation process. About 100 permanent plots expected to be established in 10 different vegetation types in different geographic regions.

Preparation of simple carbon baseline maps to provide a simple way to visualize the distribution of carbon in the country and better estimates of carbon through linking to the improved carbon baseline plots. The maps will show carbon density (t ha^{-1}) as distributed across different vegetation types across the country.

Backcasting of carbon lost using existing maps of the past extent of forest cover, the developed carbon maps and estimated carbon density to enable refined estimates of carbon lost from 1975 to date. in Tanzania. Using this information, show the amount of carbon likely to have been lost through deforestation.

Undertake future scenario mapping through development of future land use change scenarios up to 2025 based on potential changes in land cover across the entire country according to a business as usual and a more hopeful environmental future of Tanzanian development.

METHODOLOGY

The approach to be used will be an extension of the already completed work to map forest carbon by the Valuing the Arc Programme which has been done through partnership between WWF Tanzania, Sokoine University of Agriculture, University of Dar es Salaam, five British Universities and with additional technical expertise from WWF US.

Carbon Baseline Plots

Most of the field carbon data available in Tanzania comes from forest plots. Very little data are available for other land / forest cover types, thus constraining the accuracy of estimating the overall carbon stocks, carbon predictions and mapping of carbon distribution. Given the variations in vegetation types in Tanzania and the differential capacity for carbon storage and sequestration the country needs to develop baseline data for adequate areas of the different cover types, and to include an assessment of soil carbon storage as well.

The Valuing the Arc Program, through SUA with other collaborators have been implementing a series of detailed permanent carbon assessment and monitoring plots across the Eastern Arc Mountains region. The approach to be used will the 1 Ha Tropical Ecology assessment and Monitoring (TEAM) methodology

It is therefore proposed to expand this existing network of field plots to include additional cover types and geographical regions of Tanzania concentrating on cover types where there is least existing data, which includes woodlands, wetlands and degraded versions of all land cover types.

Simple Carbon Baseline Maps.

Mapping carbon stock across the entire country using available literature on carbon storage in different land cover types, and supplementing this with ground field data already generated and those to be generated and map carbon distribution across larger areas. This should build on the relatively detailed work in the Eastern Arc and coastal forests, incorporating the data from the permanent plots already established and further expand across the Miombo, acacia savanna woodlands, grasslands and bushlands/thickets. The improved carbon baseline plot data collected and information from literature linked to the land cover data will be used to make better estimates and mapping of carbon distribution in Tanzania forests, woodlands and other vegetation types across Tanzania.

The Valuing the Arc project, with technical support from the Natural Capital Project, has developed a model and methodology for using the Tanzanian land cover map and available carbon data (above and below ground) to map the distribution of carbon across the eastern part of the country to provide a simple way to visualize the distribution of carbon in Tanzania.

3)   Backcasting of Carbon Lost.

For some areas of Tanzania there are existing maps of the past extent of forest cover, primarily the Eastern Arc and Coastal Forests regions and some of the intervening woodlands. Existing forest cover maps for the periods will be used to estimate the forest cover changes that have occurred across this period. The estimates in cover change to be linked to the carbon maps and carbon density estimates outlined above, to make some refined estimates of carbon lost in the past depending on the period over which data on land cover change will be available. Given the more refined carbon estimates from the permanent carbon monitoring plots across different land cover/vegetation types make fairly accurate estimates of the carbon that has been lost through deforestation based on past land cover changes over the period.

4)   Future Scenario Development and Mapping for Carbon Distribution

Valuing the Arc project has been working to develop future land use change scenarios up to 2025. These have been developed for the Eastern Arc region and allow land cover to be changed according to a business as usual and a more hopeful environmental future of Tanzanian development. Using the same rules and general mapping approach map potential changes in land/forest cover across the entire country of Tanzania under the different scenarios and possible changes in the carbon stock into the future. Use this to make predictions of the amounts of carbon that will potentially be lost, and the areas where this will occur across the entire country in the long run.

Annex 3b: Concept Note for the establishment of NCAS-T

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1. Introduction

Deforestation, land use and land-use change are the second leading causes of global warming. They account for 19% of global carbon emissions and over a third of the global emissions is from developing countries. The bulk of emissions from land use change arise when land is converted to agricultural production, especially if forests are first cleared with burning. Mature forests contain large stocks of carbon locked up within trees, vegetation and soils. Dense tropical forests have especially high carbon stocks per hectare. In recent years, maintaining existing forest has been recognized as one of the least expensive climate mitigation options. However this still remains a huge challenge for many of these countries because of the large number of people whose survival depend forest (i.e forest dependent communities) higher poverty level among most of rural communities and lack of unclear land tenure arrangements in many of the developing countries. As a consequence, in Tanzania deforestation and land-use changes accounts for 74% of Tanzania's carbon emissions according to the 1994 first National communications to the UNFCCC.

With this recognition, discussions were started during COP 13 in Bali, Indonesia to include Reducing Emissions from Deforestation and Degradation (REDD) in any of the post-Kyoto climate change regime. These discussion continued to COP 15 held in Copenhagen, Denmark, in December, 2009 and still on going. However, despite progress being made in many fronts, some other elements of REDD implementation remained unresolved and further research and pilots are urgently being sought.

One of these elements is the issue of methodologies particularly as they relate to Measurememt, Monitoring, Reporting and Verification (MRV) as popularly known in the REDD debate. From the ongoing discussions and negotiations there seems to a general concencus that regardless of whatever type of post-Kyoto climate regime, all countries will have to put in place some form of a system for accounting its carbon if it is to confidently ensure international carbon finance flows in continuously.

Based on these Countries were called up on to collaborate with other partners and develop and present some experience on approaches and methodologies that can credibly be applied to measure report and verify emission reductions of the land-based carbon. With this in mind Tanzania decided, after COP 15, to hold the first national workshop on to discuss all issues relating MRV plot a way forward. Attended by several experts and practitioners from around the world, this workshop was successfully held in January 2010. The workshop concluded unanimously that MRV system has to be developed urgently and that given the amount available forest data and other ongoing and planned project, Tanzania is better position to quickly develop a MRV system that can serve as a reference in the region.

At the same time Tanzania is also interested and determined in developing a National Level Carbon System (NCAS) for accounting land-based carbon at multiple levels and scales (i.e nationally, sub-nationally and project levels). MRV systems are seen as key entry points, which would provide useful information to the NCAS. Development of the NCAS is in line with the UNFCCC directives to which Tanzania is a party. The details of the NCAS –the rationale, requirements, implementation and management arrangement are described in the sections that follow hereunder. Based on the Australian Model, this will be developed in Tanzania, for Tanzania under the Tanzanian local circumstances and thereby fulfill the Tanzania's national and international carbon accounting and reporting needs and interests.

2.0 Tanzania National Carbon Accounting (NCAS-T)

The Tanzania National Carbon Accounting System (NCAS-T) will provide unique circumstances for the country to account for carbon. The NCAS-T will provide a comprehensive and credible framework to account for Tanzania's land-based Green House Gas (GHG) emissions profile and C uptake. It will support Tanzania's reporting requirements under the United Nations Framework Convention on Climate Change (UNFCCC) and the Reduced Emissions from Deforestation and Forest Degradation (REDD) post-Kyoto global climate protection regime. The NCAS-T will contribute significantly to Tanzania's reputation in the area of carbon accounting, resulting in positive implications both domestically and internationally. It will allow Tanzania to develop a robust modeling and projections capacity for land based GHG accounting, and therefore robust emissions and C uptake estimates.

1.1 Rationale for NCAS in Tanzania

Deforestation, land use and land-use change are the second leading source of greenhouse gas emissions worldwide. Land use change accounts for 19% of global carbon emissions and over a third of emissions from developing countries (Figure 1). The bulk of emissions arise when forested land is converted to agricultural production, especially if forests are first cleared and burnt. Mature forests contain large stocks of carbon locked up within vegetation, debris and soils. Dense tropical forests have especially high carbon stocks per hectare. In recent years, maintaining existing forest has been promoted as one of the least expensive climate mitigation options.

In Tanzania deforestation and land-use changes were estimated to account for 74% of Tanzania's carbon emissions in 1994 according to Tanzania's first National. Communication on Climate Change. Tanzania's energy sector was the second largest emitter of greenhouse gas emissions and estimated to account for 23% of total emissions for that same year. Together these two sectors were responsible for 97% of Tanzania's carbon emissions. Tanzania is currently preparing its National REDD Strategy, and in future it shall make use of data and analysis compiled by the NCAS-to provide robust estimates of emissions resulting from land use change.

1.2   Objectives

The NCAS-T will pull together information on deforestation, land use change and land use from Tanzania's forest lands and other lands (primarily agricultural lands) to:

Inform policy development and implementation support Tanzania's position in the international sustainable development of policy and guidelines on sinks activity and greenhouse gas emissions and their mitigation from land based systems.

1.   Reduce the scientific uncertainties (particularly about emissions from land-use change) that surround estimates of emissions and removals of both CO2 and non-CO2 greenhouse gases from land-use change

2.   monitoring capabilities for existing emissions and sinks.

3.   Provide the scientific and technical basis to international negotiations and promote Tanzania's interests in the international fora.

4.   Develop a comprehensive GIS that includes digital map-based information such as carbon mapping, remotely sensed images covering the whole of Tanzania on various thematic areas at various resolutions e.g. climate and vegetation among others.

4.   Assist to predict future GHG emissions and sinks in the country.

5.   Support Tanzania's negotiations on REDD and Land Use, Land Use Change and Forestry (LULUCF) provide the necessary inputs required for establishing a credible Reference Emission Level.

1.3   NCAS-T information components

The NCAS-T will be a highly integrated system that will compile information from Tanzania's forestry and agricultural sectors on:

• Remotely sensed land cover change data
• Land use and management data
• Climate and soil data
• Growth and biomass data; and
• Spatial and temporal ecosystem modeling relevant to estimating GHG flux.

1.4   NCAS-T development approach

Consultations will be undertaken to various stakeholders in the country. A number of high level meetings will be held to agree on the development of the NCAS-T. As a quick start activity, the Forest and Beekeeping Division (FBD) REDD Unit, shall be responsible for coordinating development and housing of the NCAS-T Forest Component. (for specifically targeting REDD MRVs).

The FBD-REDD Unit under the auspices of the National REDD Task Force will be responsible for spearheading and Coordinating the reporting and making data accessible to the general public through coordinated inputs from multiple government agencies, These institutions may include: The Vice President's Office- Division of Environment, the Tanzania Meteorological Agency, the National Bureau of Statistics, Ministry of Land and Settlement, Prime Minister's Office- Regional Administration and Local Government, Research Institutions, Sokoine University of Agriculture, University of Dar es Salaam and the Institute of Resource Assessment (IRA). Inputs from non-government organizations, the broader scientific community and International Agencies and Development Partners that collect and analyze relevant information e.g. Forest Carbon Partnership

Facility (FCPF), The Clinton Climate Change Initiative (CCI), WWF, and The UN-REDD among others, may also need to be coordinated and taken aboard

A scientific support group will also be formed to guide NCAS development and implementation, review progress, ensure transparency, technical rigor and policy relevance. Members may include those from government's line ministries and departments, technical, research and academic groups, development partners, representatives from NGOs, and community based organizations

NCAS-T development will also synergize and make use of all existing initiatives/programs in the country such as NAFORMA, the UN-REDD, The FCPF, GEO-FCT,NGOs and the National REDD strategy to allow Tanzania to prepare a Reference Emission Level. NCAS-T will use key International MVR initiatives to obtain some preliminary baseline data, such as from GEO-FCT and Google Earth, Gordon & Bert Moore Foundation Forest Monitoring, MRV-Road Map of the UN-REDD etc.

2.0   Tanzania FullCAM Framework Modeling Approach

The Tanzania NCAS shall tape experiences from The Australian National Carbon Accounting System which employs the FullCAM Framework Modeling Approach.

2.1   Relevance

In Australia, it was early recognized that carbon accounting would need to rely on both the collation and synthesis of resource information and the calibration and verification of a model framework. This was primarily because the vast areas in Australia under extensive forest and agricultural management demand an approach founded on modeling – measurement approaches were not found to be practical.

A number of models were developed in Australia as components of the NCAS including: a physiological growth model for forests, 3PG (Landsberg and Waring, 1997; Landsberg et al. 2000: Coops et al, 1998; Richards and Brack (2004); Waterworth et al (2008); the carbon accounting model for forests developed by the Australian Greenhouse Office (AGO), CAMFor (Richards and Evans, 2000a), the carbon accounting model for cropping and grazing systems— CAMAg (Richards and Evans, 2000b), the microbial decomposition model GENDEC (Moorhead and Reynolds, 1991; Moorhead et al. 1999) and the Rothamsted Soil Carbon Model—Roth C (Jenkinson, et al. 1987; Jenkinson et al. 1991).

These models were independently developed for various purposes of predicting and accounting for: Soil carbon change in agriculture and forest activities (in the case of Roth C). The determination of rates of decomposition of litter (in the case of GENDEC); and The calculation of a 'forest productivity surface' that was used for the spatial and temporal scaling of many forest parameters.

CAMFor and CAMAg are carbon accounting tools developed by the Australian Greenhouse Office through which it is possible to apply management impacts such as fire, decomposition, harvest, cropping and grazing to externally generated growth and decomposition rate inputs.

All of the above models were integrated in one model, known as FullCAM, which provides a linkage between the various sub-models used to develop the Australian NCAS. FullCAM has components that deal with the biological and management processes which affect carbon pools and the transfers between pools in forest, agriculture, transitional (afforestation, reforestation, deforestation) and mixed (e.g. agroforestry) systems. The exchanges of carbon, loss and uptake between the terrestrial biological system and the atmosphere are also accounted for. FullCAM aims to take a holistic approach, with modeling and measurement continuous across all carbon pools and cognizant of the transfers between pools. The FullCAM model was developed in Australia to establish estimates and predictions of carbon flows associated with all biomass, litter and soil carbon pools in forest and

agricultural systems. It can also estimate non-CO2 pools and gases. The Australian FullCAM model can be used to provide guidance to the development of a similar model for Tanzania environment, taking cognizance of "Kilimo Kwanza", issues of Wildfires and free range grazing.

2.2   Objectives

To Coordinate and provide a suite of calibrated and verified models for biomass, litter and soil carbon modeling in a spatial GIS framework which includes multi-temporal remotely sensed land cover change data.

To provide an integrated, yet flexible model capable of accepting a range of available inputs (and input types) and able to perform both point-based, aspatial area-based estimation and full spatial accounting.

2.3   Tasks

2.3.1   Develop a Carbon Accounting Model for Forestry to provide capacity for both project and country scale carbon accounting.

Calibrate and test a microbial decomposition model to consider the environmental and biological drivers of microbial activity, namely temperature, moisture and substrate quality.

Develop a soil carbon model for peat and mineral soils.

Develop a forest productivity index for Tanzania to predict indices of forest growth, potential biomass at maturity and rates for biomass increment.

Develop models to predict future planned and unplanned deforestation.

Review, Simulate and utilize the Full Carbon Accounting Model developed in Australia under Tanzania's environment to deal with both the biological and management processes which affect carbon pools and the transfers between pools in forest, agricultural, transitional (afforestation, reforestation and deforestation) and mixed (e.g. agroforestry) systems.

Develop a Carbon Accounting Model for Agriculture to provide capacity for both project and country scale carbon accounting.

3.0   NCAS-T Information components

The NCAS-T information components will be influenced by the Revised 1996 IPCC Guidelines for the Land Use Change and Forestry sector and are defined as:

Land cover change
• Area cleared
• Method of clearing
• Rate of clearing
• New land use

Land Use and Management
• Crop, forest or pasture type
• Management information

Climate input
• For example, rainfall, temperature (min, mean, max),evatranspiration frost days, vapour pressure deficit

• Solar radiation

Crop Growth and Plant Parameters
• Crop growth rates
• Above ground and below ground biomass
• Carbon content
• Litter mass and decomposition rates of crops

Forest Biomass Stock and Growth Increment
• Above and below ground biomass
• Carbon content of biomass
• Regrowth increment over time for natural forests
• Plantation growth rates
• Turnover and decomposition rates for forests
• Post-clearing replacement biomass (regrowth rate)

Soil Carbon
• Pre-clearing soil carbon content
• Loss from clearance and land use
• Rate of decay/accrual
• Non-CO2 GHG emissions from soils and forest fires

Forest Products
• Total carbon content of products/by-products
• Rates of decay of products/by-products

NCAS-T Activities

1   Establishment of operating environment

 Objectives:
To Consolidate FBD REDD Unit to have a mandate for coordinating inputs and housing the NCAS-T
and spearhead quick start activities under CAMFor
To provide a supporting team that can guide strategic development and implementation, and provide
advice and scientific rigor together with the National REDD Task Force.

2. Land cover change
Objectives:
To provide long-term monitoring of land cover change commencing from 1990.
To provide a multi-temporal, fine resolution data series identifying through time, for any land unit,
land cover change (removal of forest cover and forest re-growth) that is attributable to direct human
actions.

3. Land use and management
Objectives
 To describe the land use and management practices that affect soil and biomass C stocks.

A Proposed National Forest Carbon Measurement, Reporting, and Verification System for Tanzania (MRV)

Through the National REDD Framework's vision of a Low Carbon Development Strategy (LCDS), Tanzania is poised to be a leader in dealing with climate change and forestry. The Government of Tanzania (GoT) sees an opportunity to implement a LCDS by reducing emissions of greenhouse gases (GHGs) from deforestation and forest degradation, and to receive payments for the reduction. Tanzania has recognized the United Nations' Reducing Emissions from Deforestation and Forest Degradation (REDD) mechanism as a key part of the LCDS, and is one of the countries that are developing a REDD Preparation Proposal (RPP) under the World Bank Forest Carbon Partnership Facility (FCPF). The LCDS and the RPP will mark the first steps of a larger goal of integrating forests into the national economy and global climate change mitigation effort. This goal can only be achieved by establishing a comprehensive forest carbon measurement, reporting, and verification (MRV) system.

The design of a national MRV system should be developed from a policy perspective that prioritizes the overall objectives of lowering carbon emissions without hindering and potentially enhancing economic growth. To fulfill the policy requirements of the RPP and the LCDS the MRV system needs to support decision-making through reliable, accurate and current information on forests, forest cover change and greenhouse gas emissions (GHGs).

The information should be continuously available and focused on policy areas where action be taken. The Government of Finland (GoF) through FAO are supporting Tanzania to put in place a very robust Forest Resource Assessment and Monitoring System (NAFORMA), this will fulfill the policy requirements of the RPP and the LCDS the MRV system needs to support decision-making through reliable, accurate and current information on forests, forest cover change and greenhouse gas emissions (GHGs).

The Clinton Climate Initiative (CCI) has been working with the GoT/UN-REDD to develop such a comprehensive MRV system for emissions of GHGs resulting from changes in land use. While The system and the tools proposed here will allow the GoT to meet the United Nations Framework. Convention of Climate Change (UNFCCC) and the Intergovernmental Panel on Climate Change (IPCC) criteria of robustness, transparency, and verifiability while helping to meet the challenges of monitoring permanence, avoiding leakage, and establishing the additionally of emissions reduction. The actions proposed will bolster the on-ground and satellite data measurement base for Tanzania, and will incorporate this into a flexible GHG accounting, reporting and decision support system. The system and tools are consistent with the IPCC guidelines and in line with the suggested GOFC-GOLD methods and the emerging standards and protocols of the intergovernmental Group on Earth Observations (GEO).

A 9-step process will be developed to ensure the MRV system will meet any eventuality of an UNFCCC agreement. The 9-step process would ensure that both international reporting and national policy needs (e.g. entity level crediting) will be met. The 9-steps can be divided in three phases that can be implemented in parallel:

1. Design a comprehensive system capable of consistent estimation at national and subnational scales and be able to incorporate results into a decision-making environment;

2. Develop models, time-series consistent inventory, reference emission levels, and define research needs and other data and methodological needs; and

3. Develop standard operational procedures including capacity building; data infrastructure, hardware and software implementation; and quality assurance, quality control and verification.

Recognizing the need to show results and start building capacity in a short time frame, the proposal presents a phased approach, starting with two parallel tracks. The first builds the overall framework of the three phases, while a second track prioritizes the development and improvement of data on deforestation rates and associated carbon changes on a faster track. This approach allows the system to begin providing information as soon as possible, while maintaining the goal of an end-to-end view of the full decision support process. The end-to-end process serves both international reporting needs and the national and sub-national regulatory systems needed to secure desired REDD outcomes. The 9 step process will commence at an IPCC Tier 2 level (i.e. some country-specific carbon data), Approach 3 (spatially explicit land conversion information), which will allow rapid deployment of the system to achieve early reporting. However, the proposal suggests a move to Tier 3 (highly disaggregated national data of carbon pools) with subsequent inventory improvements. The move to Tier 3 is necessary to ensure that the reported carbon pool data will not be discounted by some factor, based on the uncertainty that is inherent to Tier 2 methods, and thus reducing the emissions reduction estimate and presumably reducing any incentive payments to Tanzania. Furthermore, using Tier 3/Approach 3 ensures that the GoT will be prepared for REDD involvement whatever the outcomes of future REDD negotiations within the UNFCCC

will be. The higher level of Tier and Approach will also ensure confidence internationally in the system that may be translated into a higher carbon value for Tanzania.

To develop a Tier 3 method it will be necessary to develop a systematic measurement of a network of forest plots. The proposed national system integrates traditional forms of resource inventory (e.g. forest plot networks) with contemporary technologies such as (1) remote sensing of changes in forest cover, (2) a digital national spatial data infrastructure, and (3) models of carbon stock change and greenhouse gas emissions. Each of the three major technology components of the MRV have been widely used and tested for more than 30 years, and the confidence in their ability to perform is high. An important foundation of this proposal is that it is geared towards building Tanzania's own capacity in MRV to allow self sufficiency in the near future. This involves promotion of governance as well as technical capacity building. This approach does increase short term costs in terms of both time and money but ensures a long-lasting and sustainable system. Several cobenefits are envisioned from the development of the MRV system such as the national spatial data infrastructure (NSDI) that needs to be developed for a successful MRV.

The proposal includes but is not limited to the current partners but will actively seek engagement of other initiatives and partners and make use of existing commitments and initiatives. Partners in the MRV system implementation will be encouraged to present reports and papers, serve on committees, attend conferences, and work within the MRV framework.

CCI envisions that a comprehensive MRV system (all 9-steps) can be developed for an estimated 3.5 million USD over 3 years. This does not include the establishment of permanent plots for ground measurements, valued at approximately 3.7 million USD, nor does this include the donations of satellite data, hardware, and software with a list cost of approximately 10 million USD from the Australian Government and from Environmental Systems Research Institute (ESRI) and their regional distributor Spatial Innovations.

Annex 6: Program Monitoring and Evaluation

Monitoring, Evaluation and Reporting.

Monitoring of international support functions occurs throughout the project implementation. The table below presents the REDD Monitoring Framework.

REDD Monitoring Framework (RMF)

Expected Outcomes	Expected Outputs	Indicators	Means of Verification	Collection Method	Responsibilities (Lead Agencies)	Risk and Assumptions
1. National governance framework and institutional capacities strengthened for REDD						
	1.1 A Policy Framework for REDD is in place and operational.	Agreed Policy Framework exists; REDD Framework incorporated into Forest and other related policies	Results of Stakeholder engagement; Production of new Forest Policy	Assess Stakeholder Participation Plan; Assessment of new Policy	TF &VPO supported by IRA	Strong stakeholder participation and technical assistance required
	1.2 Cross-sectoral institutional and individual capacities built to deliver the REDD outputs and benefits	Training Programme Produced; Training of Trainers provided	Level of capacity in REDD methodologies increased	Assess training materials; assess level of understanding of trainees	TF &VPO supported by IRA and LGAs	Complex training methodologies required; risks of limited understanding
	1.3 FBD and LGAs have greater capacity to develop and implement	Capacity of FBD to undertake	Technical Assistance	Assess outputs of Technical	TF &VPO	Technical Advisor

Expected Outcomes	Expected Outputs	Indicators	Means of Verification	Collection Method	Responsibilities (Lead Agencies)	Risk and Assumptions
	the national REDD Strategy in collaboration with other partners (NGOs, Private sector).	REDD increased	provided; equipment provided	Advisor; Inventory of Equipment		operating at sufficient capacity
	1.4 Cost curves for REDD in Tanzania established	Stakeholders understand and produce cost curves methodologies	Group established; cost benefit categories agreed	Assess outputs of cost curves group; assess stakeholder capacity	TF &VPO supported by IRA and LGAs	Complex economic training required on cost curves
2. Increased capacity for capturing REDD elements within National Monitoring, Assessment, Reporting and Verification Systems						
	2.1: A system for REDD information synthesis and sharing established at FBD and linked to NAFOBEDA.	REDD related studies collated and analysed; system created	Clearing house of REDD studies exists	Database of REDD studies; methodologies understood	TF, NAFORMA, UNDP, FAO, LGAs	Thorough collection and analysis of REDD studies required
	2.2 Training provided to forest staff on monitoring, reporting and verification (MRV)	Training modules developed and delivered	Level of understanding of MARV increased	Assess level of understanding on MARV in trainees		Precise training methods and training are delivered
	2.3 Forest degradation indices provided for forest landscapes	Forest degradation impacts assessed and equipment available	Impacts of forest degradation incorporated into forest inventories in pilot districts	Assessment of forest inventories; assess equipment in use		Complex training on forest degradation indices required
	2.4 National maps inform delivery	Availability of	Maps referred to	Copies of		Strong

Expected Outcomes	Expected Outputs	Indicators	Means of Verification	Collection Method	Responsibilities (Lead Agencies)	Risk and Assumptions
	of the REDD Framework	maps	in national REDD framework documentation and utilized within capacity building	REDD framework documentation		coordination with the various initiatives for establishing national carbon stocks
3. Improved capacity to manage REDD and provide other forest ecosystem services at district and local levels						
	3.1 Decentralized REDD Governance Framework developed and tested in pilot districts	Participatory process on resource management practices completed	District officials understand and agree on best practices in resource management and governance	Assess capacity of district officials in understanding governance framework		Participatory process required in bringing up levels of capacity in district officials
	3.2 Payment distribution system outlined	REDD payment options identified and proposed	REDD Payment distribution scheme exists and is agreed upon	Assess documentation on REDD payment options		Strong participation required in identifying payment options
	3.3 REDD payments combined with payments for non-carbon services	Economic values of non-carbon services are understood and incorporated	Payment scheme action plan exists detailing REDD and non carbon services	Assess documentation; challenges and opportunities understood by stakeholders		Clear training provided on linking REDD payment scheme with non carbon services

Expected Outcomes	Expected Outputs	Indicators	Means of Verification	Collection Method	Responsibilities (Lead Agencies)	Risk and Assumptions
4. Broad based stakeholder support for REDD in Tanzania						
	4.1. Improved awareness of REDD at national level	National awareness raising campaign carried out	Widespread increased awareness of REDD countrywide	Analysis of media, government and NGO responses		Effective campaign strategy delivered in practice
	4.2. Broad consensus built with forest communities regarding the REDD Framework	National and regional workshops provided; community opinions gathered	Workshop minutes assessed; information provided on pilot community opinions towards REDD	National, regional and community documentation of consensus building approaches assessed		Participation of national regional and community level stakeholders is essential; elite capture avoided