UNITED REPUBLIC OF TANZANIA

VICE PRESIDENT'S OFFICE

NATIONAL STRATEGY

FOR REDUCED EMISSIONS FROM DEFORESTATION AND FOREST DEGRADATION

(REDD+)

FEBRUARY, 2013

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Finally, the Government would like to extend its sincerely appreciation to the National REDD+ Secretariat team from the Institute of Resource Assessment (IRA) of the University of Dar es Salaam for their hard work, enthusiasm and commitment throughout the process of facilitating the development of this strategy and action plan in Tanzania.

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Permanent Secretary
Vice President's Office
United Republic of Tanzania

FOREWORD

It is clear and understood that climate change is the greatest challenge of our time. In developing countries like Tanzania it even threatens to reverse decades of hard gained development. In order to address the problem, a number of global and national efforts have been initiated. In the forest sector, the policy to Reduce Emissions from Deforestation and Forest Degradation is envisaged to play a significant role in climate change mitigation and adaptation, for generation of new financial streams for sustainable development.

In April, 2008, the Governments of Tanzania and the Kingdom of Norway signed a letter of intent for the establishment of a partnership to address climate change challenges in Tanzania. The partnership focused on developing pilot programmes to address issues of deforestation and related matters; developing methodologies for carbon accounting; and promoting research and capacity building programmes related to climate change. The partnership was also meant to promote Public Private Partnerships (PPP) to enhance investments in sustainable management of forest resources, and assist Tanzania in preparing itself to tap into a future REDD+ funding based mechanism.

This National REDD+ Strategy and Action Plan have been developed to guide implementation of REDD+ activities in the country. Key issues addressed include: establishment of baseline, monitoring, reporting and verification system; financial mechanism and incentive schemes; stakeholders engagement; coordination of REDD+ schemes; financing options; governance; training and infrastructure for REDD+; researches; information and communication system; and strategies to address drivers of deforestation and forest degradation.

The Strategy and its Action Plan have been developed through extensive stakeholders' consultations to ensure that all key perspectives are considered. The main goal of the Strategy is to facilitate effective and coordinated implementation of REDD+ related policies, processes and activities so as to contribute to climate change agenda and overall sustainable humane development. Objectively, the strategy envisages to guide the implementation and coordination of 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 and other aspects of REDD+.

There are challenges ahead, but, by working collaboratively with other levels of central government, local authorities and the private sector, implementation of the strategy will enable the country to find practical and cost-effective ways to make a real difference. Actions resulting from this Strategy and its Action Plan and your feedback will have enabled Tanzania to contribute to the global efforts being directed towards reduction of greenhouse gas emissions and help the world become more resilient to climate change impacts.

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Hon. Dr. Terezya L. Huvisa (MP)
Minister of State - Environment,
Vice President's Office
United Republic of Tanzania

LIST OF ACRONYMS AND ABBREVIATIONS

BAP	The Bali Action Plan
CBFM	Community Based Forest Management
CDM	Clean Development Mechanism
CERs	Certified Emission Reductions
CoP	Conference of Parties
CoFM	Community Forest Management
CSOs	Civil Society Organisations
DoE	Division of Environment
EIA	Environmental Impact Assessment
FAO	Food and Agriculture Organization
FBD	Forestry and Bee-keeping Division
FCPF	Forest Carbon Partnership Facility
FRA-RSS	Forest Resources Assessment Remote Sensing Survey
FVPO	First Vice President's Office
GEO	Group on Earth Observations
GIS	Geographical Information Systems
GHGs	Green House Gases
GNI	Gross National Income
GoT	Government of Tanzania
GPG	Good Practice Guidance for LULUCF
GMPs	General Management Plans
GOFC-GOLD	Global Observation of Forest and Land Cover Dynamics
IPCC	Intergovernmental Panel on Climate Change
IRA	Institute of Resource Assessment
JFM	Joint Forest Management
JMA	Joint Management Agreement
KK	Kilimo Kwanza
LDCs	Least Developed Countries
LGA	Local Government Authorities
MDAs	Ministries, Departments and Agencies
MAFC	Ministry of Agriculture, Food Security and Cooperatives
MFIC	Ministry of Foreign Affairs and International Cooperation
MITC	Ministry of Industry, Trade and Cooperatives
MJUMITA	Mtandao wa Jamii wa Usimamizi wa Misitu Tanzania
MLHS	Ministry of Land and Human Settlements
MNRT	Ministry of Natural Resources and Tourism
MRV	Monitoring and Measurement, Reporting and Verification
NSGRP	National Strategy for Growth and Poverty Reduction
NAFOBEDA	National Forest and Bee-Keeping Data
NAFORMA	National Forest Resources Monitoring and Assessment
NAMAs	Nationally Appropriate Mitigation Actions
NAPA	National Adaptation Programme of Action
NCCSC	National Climate Change Steering Committee

NCCTC	National Climate Change Technical Committee
NCMC	National Carbon Monitoring Centre
NGOs	Non Governmental Organisations
NEMC	National Environment Management Council
PFM	Participatory Forest Management
PMO-RALG	Prime Minister's Office- Regional Administration and Local Governments
PS	Permanent Secretary
REDD	Reduced Emissions from Deforestation and Forest Degradation
REDD+ SES	REDD+ Social and Environmental Standards
RS	Remote Sensing
SESA	Strategic Environmental and Social Assessment
SFM	Sustainable Forest Management
SIS	Safeguard Information System
SEDCA	South Environmental and Development Conservation Association
SUA	Sokoine University of Agriculture
TAFORI	Tanzania Forestry Research Institute
TANAPA	Tanzania National Parks
TIC	Tanzania Investment Centre
ToR	Terms of Reference
UDSM	University of Dar Es Salaam
UNFCCC	United Nations Framework Convention on Climate Change
VCC	Village Conservation Committees
VCT	Voluntary Carbon Trading
VLFR	Village Land Forest Reserve
VPO	Vice President's Office
WB	World Bank

1. INTRODUCTION

1.1 Background

1.1.1 REDD+ Initiative: The global scene

Adverse impacts of climate change are already noticeable in many countries. There are a number of global and national efforts to address the problem, including Reduced Emission from Deforestation and Forest Degradation (REDD).

The role of forests in sequestering carbon and helping to mitigate climate change was recognized in the Kyoto Protocol. However, only afforestation and reforestation activities were accepted for inclusion in CDM. Reducing emissions from avoided deforestation was reintroduced into UNFCCC negotiations at CoP 11. This was based on the fact that forests perform better as carbon sinks when their area or productivity increases; they also act as a source of carbon when burned or as they go into decaying process. The IPCC estimates that 18-20% of current global annual carbon emissions are the result of loss of tropical forests.

At the thirteenth (13) CoP, reducing emissions from avoided deforestation was formally proposed to be included in the official negotiation agenda for a post-2012 regime. Under BAP countries needed to take Nationally Appropriate Mitigation Actions (NAMAs) to reduce their greenhouse gas emissions. The Parties were also to specify policy reforms and positive performance-based incentives on issues relating to REDD to be included in the NAMAs that countries can undertake.

At the fifteenth (15) CoP, a consensus was reached among some of the Parties under the Copenhagen Accord that agreed on the need to provide positive incentives to such actions through the immediate establishment of a mechanism to enable the mobilization of financial resources from developed countries. During CoP sixteen (16), the Cancun Agreement adopted REDD+[1].

1.1.2 REDD+: The Tanzanian scene

Tanzania has the potential to participate in climate change mitigation by enhancing the role of forests.

Currently, the country has put more effort in addressing drivers of deforestation and forest degradation through adoption of legal frameworks that promote Participatory Forest Management (PFM) approaches; however, limited financial resources compel her to identify innovative financing mechanisms to attract new sources of investment in forest management outside the traditional channels. The adoption of REDD+ provides an opportunity for Tanzania to benefit from a financial mechanism that takes cognizance of the increasing

[1] REDD+ includes five major activities; reduction of emissions from deforestation; reduction of emissions from forest degradation; conservation of forest carbon stocks; pursuance of sustainable management of forests, and enhancement of forest carbon stocks.

importance of sustainable forest management in reducing emissions and increasing forest Carbon sequestration to mitigate climate change and its impacts.

1.2 Goal and Objectives

1.2.1 Goal

The goal of the Strategy is to facilitate well coordinated and effective implementation of REDD+ related policies, processes and activities so as to contribute to climate change agenda and overall sustainable human development.

1.2.2 Objectives

The Strategy envisages to guide the coordination and implementation of 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 and other aspects of REDD+.

Specifically, the strategy intends:

i. To establish robust baseline scenarios and an effective MRV system for determining forest carbon changes,
ii. To establish and operationalize a fair and transparent REDD+ financial mechanism and incentive schemes,
iii. To engage and enhance active participation of the stakeholders in REDD+ processes,
iv. To strengthen a national system for governance and coordination of REDD+ processes,
v. To build capacity in terms of training, infrastructure, systems and equipment to support the REDD+ policy,
vi. To generate knowledge and promote scientific understanding on REDD+ issues through research,
vii. To strengthen public awareness, communication and information sharing systems on REDD+ issues,
viii. To strengthen mechanisms to address drivers of deforestation and forest degradation in various agro-ecological zones,
ix. To ensure that gender is mainstreamed in the implementation of REDD+ process and Action Plan

2. THE STRATEGY DEVELOPMENT PROCESS

2.1 Overview

This Strategy has been developed in a participatory manner involving various stakeholders at different levels. The National Framework for REDD+ was the basis for developing the Strategy. The Strategy is also closely linked to the current national policies, strategies, plans, and programmes.

2.2 The Strategy Development Process

An interim Task Force was established by the government to oversee the implementation of technical and operational issues in relation to REDD readiness. The Task Force consisted of technical officers drawn from key Sector Ministries from both the Mainland Tanzania and Zanzibar, and representation from CSOs. The Task Force was assisted by five Technical Working Groups on thematic areas related to Legal, Governance and Safeguards, Financial Mechanisms, REDD+ Fund, MRV, Energy and Agricultural Drivers.

The strategy development process has undergone three interrelated phases. These included a preliminary analytical phase, stakeholders' consultation and piloting phase and strategy development and consolidation phase. Preliminary analytical phase involved undertaking scoping studies to identify potentials for REDD+ in Tanzania, to assess capacities for REDD+ implementation, and to identify gender issues to be addressed.

Stakeholders' consultation and piloting phase involved nation-wide awareness raising on climate change issues including REDD+. This phase also involved piloting of different REDD+ related activities through CSOs in different parts of the country. Lessons learnt and experience acquired from implementation of the REDD+ pilot projects provided an important input in the development of this Strategy.

The consolidation phase involved sharing the Draft Strategy with various stakeholders at both national and local levels. This intended to ensure that various stakeholder concerns and priorities, including gender consideration, were adequately addressed both in the Strategy and the Action Plan.

3. BASELINE CONDITIONS AND SITUATION ANALYSIS

3.1 The Forest Resource Base

By 2010 Tanzania Mainland had a total of 33.428 million hectares (ha) of forests. Woodlands occupying about 90% of the total forest area. The rest are mangrove forests, montane forests, small patches of coastal forests and plantations of softwood and hardwood. Of the total forest area, 16 million ha are reserved forests, 2 million ha are forests in national parks and the rest (15.4 million ha) are unprotected forests in Village and General Land subjected to 'open access' and heavy pressure and consequently converted into other competing land uses.

The most important use of wood in Tanzania is for fuel; hence about 95% of the country's energy supply is met from wood. For this reason, there are high rates of deforestation and degradation in both reserved and unreserved forests. Between 2005 and 2010, high rates of deforestation led to a loss of 403,000 ha of forest per year which was equivalent to 1.16% of forest area. Apart from deforestation and degradation, there is growing evidence that climate change is impacting on forests and forest ecosystems of Mainland Tanzania, and therefore livelihoods of forest dependent communities as well as national economic activities that depend on forest products and services are heavily stressed. Under a warmer climate forest ecosystems may also shift their ranges and lose some of their biodiversity.

Forest vegetation in Zanzibar covers about 63,908 ha equivalent to 23.7% of the total land area. This involves bush and tall trees in coral rag areas (6,964 ha), mangroves (19,748 ha), high forest and forest plantations (9,505 ha), coconut plantations (6,958 ha) and mixed wood vegetation (19,733 ha). Forest Protected Areas (FPAs) under government administration are 11,960 ha. A total of 65 Community Forest Management Agreements (CoFMAs) are finalised in Zanzibar to support the *Shehia* (village/s) communities in managing community forest resources.

Zanzibar's forests form part of the East Africa Coastal Forests Eco-region, one of the world's 200 biodiversity hotspots. Despite their global significance and importance, deforestation rates are estimated to be at least 1% per annum. Despite a favourable policy environment for the implementation of pro-poor CoFM, deforestation and forest degradation in the community forests is on the increase and CoFM practice in Zanzibar remains a challenge due to several reasons such as insecure forest land tenure and rights**,** inadequate economic incentives for forest conservation, inadequate incentives for men and women in local communities to engage in CoFM, limited capacity of community-based institutions and local governments to deliver quality forestry support services and influence forest policies, weak communication and limited access to information on best practices and heavy dependence by the Zanzibar population on forest goods and services.

3.2 Past Experiences with Reducing Deforestation and Forest Degradation

3.2.1 Participatory Forest Management (PFM)

Tanzania has benefited from many years of implementing PFM programmes which have helped to integrate communities into forest management and thus address some of the policy and critical forest governance issues concerned with deforestation and forest degradation. By the mid-1990s a global shift towards decentralized forest management was taking place, with delegation of forest management rights and responsibilities to the local level as a strategy to achieve SFM and development. This led to a major review of the forest policy and legislation. The Forest Act of 2002 makes it possible to transfer forest resource ownership and management responsibilities to local communities feasible. PFM has emerged as a central element in ensuring sustainable management and conservation of Tanzania's forests. There are three main objectives of PFM in Tanzania 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. The two approaches differ in terms of forest ownership and cost/benefit flows. CBFM, where trees are owned and managed (using a management plan) by a village government through a Village Natural Resources Committee (VNRC), applies on village or private land. Table 1 summarises the status of PFM implementation by 2008.

Table 1: Overview of PFM implementation in Mainland Tanzania

Summary	Coverage/area
Total area of forest covered by PFM arrangements	412,2500 ha
Percentage of total forest area under PFM	12.8%
Number of villages involved in PFM	2328
Percentage of total villages involved in PFM	22%
Number of villages with declared/gazetted village forest or signed Joint Management Agreements	550
Number of districts where PFM is operational	63

Source: URT, 2008

3.2.1.1 The implementation of CBFM

In CBFM forests are owned and managed by a village government through a Village Natural Resources Committee (VNRC), applies on village or private land. By 2008, the area under CBFM was 2,345,000 ha which represents 11.6% of unreserved forests. Under CBFM villagers take full ownership and responsibility of forest resources. A number of PFM studies have since reported improved forest regeneration, biodiversity, forest growth and well-being of community members. This experience provides a valuable basis for rapid REDD+ readiness.

3.2.1.2 The implementation of JFM

JFM is currently a 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. Villagers enter into agreements to share management responsibilities with the forest owner. The Forest Act requires joint management agreements 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. By 2008, the area under JFM was 1,780,000 ha.

3.3 Drivers of Deforestation and Forest Degradation

The major direct causes of deforestation and forest degradation (D&D) for which this Strategy is put in place are:

- Charcoal and firewood demand for domestic and industrial use
- Illegal and unsustainable harvesting of forest products
- Forest fires
- Agricultural expansion
- Overgrazing and nomadic pastoral practices
- Infra structure development
- Settlement and resettlement
- Introduction of alien and invasive species

These direct causes of deforestation and forest degradation are indirectly driven by market and policy failures, rapid rural settlement expansion and urbanization (population growth) and poverty.

3.4 Forest Carbon Trading Mechanisms

Carbon trade involves the sale of carbon credits. The trade is a market-based mechanism for helping mitigate the increase of Carbon dioxide gas in the atmosphere. There are two main types of Carbon Trading Schemes; Voluntary Carbon Trading (VCT) and the official Kyoto Protocol Carbon Trading Mechanisms.

The VCT involves companies offsetting GHGs emissions from their activities and products on a voluntary basis as part of their corporate responsibility. The conditions to participate in the VCT are relatively less stiff, and have no international legal binding requirements. The official forest carbon trading is possible through the Clean Development Mechanism (CDM) of the Kyoto Protocol of the UNFCCC. Under the Kyoto Protocol developed countries, during the period 2008–2012, were required to reduce their emission of GHG by about 5% below their 1990 emission levels.

Reduced deforestation and forest degradation were not considered under the Kyoto Protocol, however it is now recognized that forests may play a significant role in climate change mitigation and adaptation, and may generate a new financial stream for sustainable forest management in developing countries. Under REDD+, developing countries would, on a voluntary basis, aim to reduce the rate at which their forests are being lost, and receive compensation in proportion to carbon emissions saved compared to a baseline which would represent the ‘without intervention’ scenario or some other agreed target.

The government of Tanzania considers the REDD+ policy a viable option for providing opportunities for the country to meet its obligations of managing her forests and woodlands on a sustainable basis and at the same time responding to poverty reduction initiatives accordingly. In this regard the government is envisaging Tanzania's participation in the REDD+ policy and in its development under fund based financing arrangements.

3.5 Capacity Building and REDD+ Infrastructure Development

Given that REDD+ is a new policy initiative requiring application of new and complex technologies in various areas, capacity building in terms of training and infrastructure development is needed at all levels.

Although Tanzania has made a deliberate effort to ensure that the capacity to understand REDD+ mechanism by local institutions was built during the REDD+ piloting phase, available capacity and infrastructure for effective implementation of the carbon accounting system are still limited, especially in the areas of modelling, GIS simulation, monitoring and evaluation and carbon stock assessments. This Strategy has put considerable emphasis on capacity building and infrastructure development at the national and sub-national levels.

3.6 Research

The actual field implementation of REDD+ and its education and training programmes require support from research. The global scope of climate change necessitates that the national research programme should aim at findings which obtain international recognition. This therefore, calls for international collaboration among national and international research institutions to establish scientific networks to meet the global challenges of climate change. With this approach, it will be expedient to develop comprehensive methodologies to promote focused researches in support of REDD+ implementation in Tanzania.

3.7 Information Dissemination and Networking

For specific countries and the international community to benefit from REDD+, an efficient communication and information sharing mechanism is of paramount importance. However, in most developing countries, including Tanzania there is inadequate and often ineffective communication and information sharing networks. In this regard, a modality to coordinate horizontally across sectors and vertically from central to lower levels of local government institutions is desirable.

A problem solving approach encompassing multi-sectoral collaboration through the formation of an expanded partnership in management of REDD+ knowledge and information, networking and communication has been recommended as a way forward in the path to resolving conflicts and improving the quality of management of the forest resource base in the context of REDD+.

4. GOVERNANCE OF FOREST RESOURCES FOR REDD+

4.1 Overview

Although PFM has been found to be effective in halting deforestation and reversing degradation in unreserved forests, currently owing to lack of funds and capacity, only 12.8% (about 4.1 million ha) of the country's forests are under such management. The current pace under which PFM projects are established is also very low. Access to REDD+ finances through fund based financing arrangements could facilitate and speed up this process and possibly reduce the high levels of deforestation and forest degradation.

To improve governance at local level that will facilitate sustainable PFM, the village institutions need capacity development in 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. For successful implementation of REDD+ activities, this Strategy intends to address governance shortfalls by creating a robust institutional framework for REDD+ governance.

4.2 Institutional Structure and Coordination

4.2.1 National level

The government has put in place a National Climate Change Steering Committee (NCCSC) and National Climate Change Technical committee (NCCTC) to oversee and guide the implementation of climate change activities in the country. The NCCSC is an inter-ministerial committee which comprises Permanent Secretaries (PS) from the Vice President's Office - Environment, the First Vice President's Office - Environment (Zanzibar) and relevant sector ministries.

The NCCTC made up of Directors of various departments/divisions/Agencies of the ministries represented in the NCCSC, plus one representative each from CSOs and the private sector, higher learning and research institutions,; has also been established to oversee and guide the implementation of climate change activities in the country.

It is also envisaged to establish a National REDD+ Fund and National Carbon Monitoring Centre (NCMC) to, consolidate and distribute funds to different stakeholders based on efforts in implementing REDD+ Strategy, and provide technical services on measuring, reporting and verification of REDD+ activities across the country respectively. Other permanent bodies will be established to ensure that REDD+ issues are sustainable.

4.2.2 Regional and District level coordination

The coordination of REDD+ activities at regional and district levels adheres to the existing local government structure. The Regional Administrative Secretariat serves as the link between the ministries and the district councils. At the district and municipal levels, Environmental Management Committees as established by the Environmental Management Act (2004) will serve as coordinators for REDD+ activities in their respective areas.

In Zanzibar, REDD+ activities are coordinated by the Department of Forestry and Non-Renewable Natural Resources (DFNR) under the Ministry of Agriculture and Natural Resources. The DFNR serves as a link between Government and all REDD+ practitioners at national, district and *Shehia* levels. The Zanzibar First Vice President Office (FVPO) which is coordinating all climate change matters through the Department of Environment is also part of REDD+ development process.

4.3 Policy Environment and Legal Framework

4.3.1 Policy environment

This Strategy takes cognizance of a number of relevant policies that need to be considered when implementing it. Policies relevant to REDD+ interventions in Tanzania Mainland include the Tanzania Development Vision 2025, National Strategy for Growth and Poverty Reduction (NSGRP I and II), the National Environment Policy (1997), the Forest Policy (1998) and the Land Policy (1995). Others are the National Energy Policy (2003) and the National Agricultural and Livestock Policy (1997).

For Zanzibar the relevant policies include the National Forest Policy (1995), the Environmental Policy (1992), Agricultural Sector Policy (2002) and Strategic Plan (SP) that recognize the importance of forests in agricultural productivity. The other is the Tourism Policy (2004) that underlines the importance of environmental conservation in tourism development.

4.3.2 Legal framework

Tanzania has had several pieces of legislation on natural resources, which touch on some aspect of the environment. Most of these pieces of legislation aim at regulating use and management of natural resources and have evolved along sector lines governing specific environmental issues. A notable development in Tanzania has been the change in approach by legislating on management of natural resources and the environment. There has been a gradual shift from the historical "command and control" approach to more participatory type of management of resources.

Also, most of the pieces of legislation enacted after the Rio Conference in 1992 have provisions on conservation of biodiversity and the use of environmental management tools such as General Management Plans (GMPs) and Environmental Impact Assessment (EIA). Hence, although it fails to mention specific issues on climate change mitigation and adaptation, the legal framework in Tanzania promotes sustainable forest management and protection, which are important for the implementation of this Strategy.

The instruments that are specifically relevant in this case include the Environmental Management Act (2004), the Forest Act (2002), the Beekeeping Act (2002), the Wildlife Act (2009), the Land Act (1999) and Village Land Act (1999) for Tanzania Mainland, and the Fisheries Act (2010) and Forest Resources Conservation and Management Act (1996 Zanzibar

5. NATIONAL FOREST MONITORING AND MEASUREMENT, REPORTING AND VERIFICATION SYSTEM

5.1 Overview

The basic requirement for a country to implement REDD+ is setting-up forest Reference Emission Level (REL) and/or forest Reference Level (RL). While REL estimates the gross emissions from deforestation and forest degradation (REDD), RL covers also removals through sustainable management of forests, conservation and enhancement of forest carbon stocks.

5.2 National Forest Monitoring and MRV System

Tanzania envisages participating in the implementation of REDD+ and has started setting up her Monitoring and Measurement, Reporting and Verification (MRV) system for the determination of REL/RL. In line with the methodological guidance for activities related to REDD+ under discussion by UNFCCC (Durban decision -/CP.17), Tanzania is undertaking her national forest resources inventory, estimating historical deforestation and forest degradation and or growth rates. However, there is flexibility in determining REL/RL to enable countries to progressively include more REDD+ activities as data becomes available.

The IPCC guidance and guidelines require that on submission of information on reference levels, each developing country Party aiming to undertake REDD+ should include in its submission transparent, complete, consistent and accurate information for the purpose of allowing a technical assessment of the data, methodologies and procedures used in the construction of the REL/RL. The MRV system and tools should also be consistent with the suggested GOFC-GOLD methods and the emerging standards and protocols of the Group on Earth Observations (GEO).

MRV provides a system on how to account for the amount of forest carbon, including changes over time. Monitoring and Measurement for REDD+ refer to collection of data and information for the estimation of emissions and removals of GHGs from deforestation and forest degradation, forest conservation, sustainable management of forests and enhancement of forest carbon stocks. It involves determination of changes in carbon stocks and GHG emissions from changes in forest cover, and the enhancement of forest carbon stocks.

Reporting in the MRV system implies the compilation and availability of national data and statistics for information in the format of a GHGs inventory. The core elements of the national communications are information on emissions and removals of GHGs and details of the activities a country has undertaken to fulfil its commitments under UNFCCC.

Verification refers to the process of independently checking the accuracy and reliability of reported information or the procedures used to generate information. This verification is done by a totally independent and external review. The UNFCCC Secretariat through its experts will verify the data reported. The verification process concerns all the variables that were reported under REDD+. All the data, including the satellite and national forest inventory data will have to be made available in order to allow the verification of the GHG inventory.

In setting up Tanzania's MRV system considerations are also taken to include Safeguard Information System (SIS) that will provide information on how REDD+ safeguards are being addressed and respected throughout the implementation of REDD+ activities according to the Cancun Agreement. This system will require spatial and temporal monitoring information as illustrated in the Figure 1.

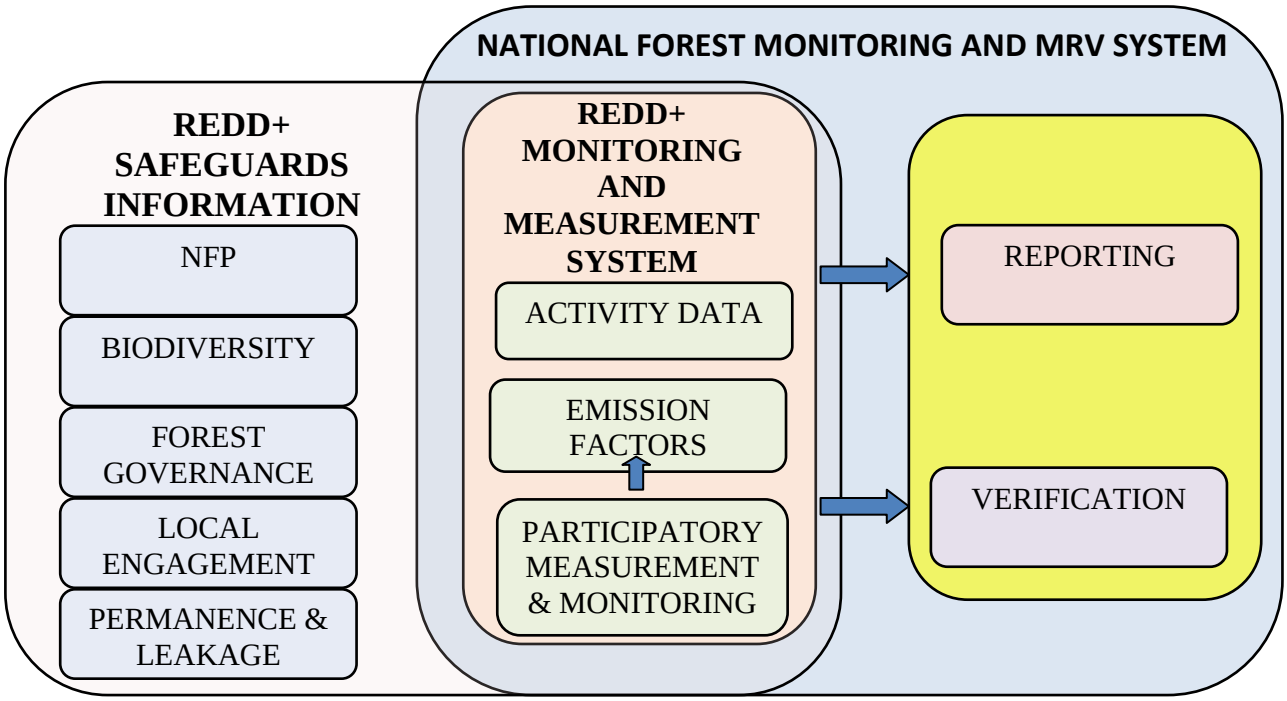

Figure 1: The Conceptual model for REDD+ MRV System for Tanzania

5.3 Determination of REL/RL, Regular Reporting, and Verification at Sub-National and Project Levels

The determination of REL/RL addresses issues at national level. However, different stakeholders will contribute internally to the countries effort to attaining REDD+. A system of nested baseline/REL/RL will be therefore adopted in order to provide incentives to stakeholders within the country; and to enable the state to account in a fair way for gains and losses and to reward stakeholders who are responsible for reductions in carbon losses.

Reporting will be needed at various stages and levels. Individual projects need to report on the carbon data to the national REDD+ scheme for official monitoring. This should be done regularly. The government and project developers will then account for carbon to the international community, which also requires regular reporting to the UNFCCC. Reporting on the financial flow, livelihood issues and REDD+ Safeguards will also be required at all levels.

Within the country the independent party would have to be a licensed and registered agent, in the same sense as a chartered accountant, but would not necessarily have to be external to the country. Ideally the verifier will undertake ground spot measurements to check the accuracy of the field measurements. After verification, carbon will be purchased through a national REDD+ scheme and other voluntary schemes. The NCMC will verify carbon data using approved guidelines.

6. THE STRATEGIC IMPLEMENTATION OPTIONS

6.1 Overview

The Bali Road Map (Decision 2/CP.13) requires Parties to explore a range of actions, identify options and undertake efforts to address the drivers of deforestation relevant to their national circumstances. Tanzania is participating in implementing REDD+ pilot activities in that line. The focus is to reduce emissions from deforestation and forest degradation thus enhancing forest carbon stocks through sustainable management of forests.

6.2 Key Issues and Strategic Interventions

This National REDD+ Strategy identifies ten (10) main key result areas for the REDD+ implementation process in Tanzania. These areas are derived from key issues identified from the drivers of deforestation and forest degradation and their underlying causes as elaborated therein. The sections below summarize the strategic statements, rationale and goal for each key result area.

Key Result Area 1: REDD+ baseline scenario, monitoring, reporting and verification systems established

The transactions of carbon credits require an effective MRV system that will ensure reliable and accurate measurements and reporting for validation. A national baseline scenario and reference emission levels are key aspects of determining carbon benefits of any forest carbon scheme. Accurate determination of carbon changes based on a historical trend against which additional carbon benefits are made as a result of any scheme is thus also important. Integrated methods to quantify REDD+ and other forest benefits are as well important to realize equitable co-benefit sharing. The goal is to set up a Reference Emission/Reference Levels and Monitoring, Reporting and Verification System.

Key Result Area 2: Financial mechanisms and incentive schemes for REDD+ established

Development of a clear, equitable and transparent mechanism for receiving and handling REDD+ funds is a pre-requisite for REDD+ schemes. Active participation of all stakeholders is important in ensuring effective implementation of REDD+. Provision of sufficient incentives to motivate stakeholders to reverse the drivers of deforestation and forest degradation is central to a REDD+ scheme. Analyzing aspects of social safeguard policies so as to assess likely positive or negative impacts is imperative for equitable distribution of resources accruing from REDD+ activities. The goal is to set a gender sensitive, transparent and sustainable financing mechanism and incentive schemes for implementation of REDD+.

Key Results Area 3: All stakeholders are engaged and actively participate in the REDD+ implementation process

Active participation of LGA, the private sector and CSOs is important in ensuring effective achievement of REDD+ implementation. The goal is to engage and ensure equal and active participation of stakeholders in the implementation of REDD+ schemes.

Key Result Area 4: All REDD+ schemes are well coordinated

For effective and transparent implementation of REDD+ schemes, a coherent and credible framework for coordination of all REDD+ activities at national and sub-national levels is necessary. The goal is to coordinate diverse stakeholders in the implementation of REDD+ activities.

Key Result Area 5: All REDD+ financing options are well understood

For the country to benefit and make right decisions it will need relevant information on fund based financing options. The goal is to explore, analyze and negotiate for REDD+ financing options.

Key Result Area 6: Governance mechanism for REDD+ in place

For the country to effectively participate in the REDD+ regimes, efforts should be made to study and develop an appropriate institutional framework for REDD+ governance. For the country to have a conducive and an enabling environment for the implementation of REDD+ regimes it is important to review existing REDD+ related policies and legal frameworks. The goals are to develop institutional arrangement for REDD+ governance, and to harmonise policies and legal frameworks in the context of REDD+.

Key Results Area 7: Training programme and infrastructure for REDD+ developed

For the country to effectively participate in REDD+, a training programme in key aspects of REDD+ is necessary. For REDD+ to be effectively implemented a national REDD+ infrastructure development is necessary. The goals are to develop a comprehensive national training programme for REDD+ actors, and to develop and put in place appropriate infrastructure for REDD+.

Key Result Area 8: Current knowledge and scientific understanding of REDD+ issues improved through research

REDD+ implementation, education and training programmes require support from research findings. The global scope of climate change necessitates that the research programme should aim at findings that receive international recognition. This calls for international collaboration among research institutions to establish scientific networks to meet the global challenges of climate change.

There is a general lack of comprehensive research methodology development programme for climate change adaptation and mitigation activities in Tanzania. There is also lack of focused research in support of REDD+ implementation. The goal is to develop a comprehensive, demand driven and a well-funded national research programme for REDD+.

Key Result Area 9: An effective information and communication system on REDD+ issues developed

Effective and successful implementation of REDD+ will depend on how best Tanzania, other REDD+ countries and stakeholders will share experiences, lessons learnt and challenges encountered. The goal is to establish an accessible national REDD+ information communication and networking system.

Key Result Area 10: REDD+ strategy options for addressing drivers of D&D developed

Tanzania has multiple drivers of direct and indirect drivers of deforestation and forest degradation (D & D) which interact in a complex structure. Major direct causes of deforestation and forest degradation are:

- Charcoal and firewood demand for domestic and industrial use;
- Illegal and unsustainable harvesting of forest products;
- Forest fires;
- Agricultural expansion;
- Overgrazing and nomadic pastoral practices;
- Infrastructure development;
- Settlements and resettlement; and
- Introduction of alien and invasive species.

These direct causes of deforestation and forest degradation are indirectly driven by market and policy failures, population growth including rapid rural settlement expansion and urbanization, poverty and the poor state of the economy. The impact of these drivers differs according to geographical locations and socio-economic setup of respective regions. The drivers manifest themselves in different patterns which could either be temporal and spatial. For immediate reduction of Carbon emission and for active and beneficial participation of Tanzania in REDD+ initiatives, strategic interventions have to be prioritized accordingly.

7. REDD+ SOCIAL AND ENVIRONMENTAL SAFEGUARDS

7.1 Overview

A properly designed implementation mechanism is expected to contribute to multiple benefits, depending on the location and type of REDD+ activity. These benefits include poverty alleviation, maintenance of forest dependent communities' rights, improved community livelihoods, technology transfer, sustainable use of forest resources and biodiversity conservation.

However, REDD+ schemes do not automatically guarantee a capacity to link carbon sensitive policies with 'pro-poor' strategies. REDD+ induced changes to legal frameworks that regulate incentives, rights, financing options and practices do not necessarily ensure environmental Safeguards and possible impacts on the environment as well as livelihoods and rights of communities. Safeguards for REDD+ have, therefore, been included in the Cancun Agreement to ensure that REDD+ actions do not cause negative social or environmental impacts. At CoP 16 Parties to the UNFCCC adopted the decisions to include a list of safeguards for REDD+, which address both social and environmental aspects.

7.2 Development and Operationalisation of Safeguards

Tanzania affirms the implementation of REDD+ activities in accordance with these Safeguards by the development of a system for providing information on how the safeguards would be addressed and respected throughout the implementation of the activities.

The Strategy aims to address these issues by development of a system for providing information on Safeguards that is consistent with Annex 1 of Decision 1/CP.16 and in line with World Bank policies on Environmental Assessment (OP/BP 4.01), Natural Habitats (OP/BP 4.04), Forests (OP/BP 4.36), Involuntary Resettlement (OP/BP 4.12), and Indigenous Peoples (OP/BP 4.10).

It will also address these issues by operationalisation of Social and Environmental Safeguards as stipulated by the UNFCCC through the Cancun Agreement, the UN-REDD Social and Environmental Principles and Criteria, and the requirements of the REDD+ Social and Environmental Standards (REDD+ SES).

Tanzania's own national legal and policy framework provides important environmental and social safeguards that apply to REDD+ including laws and policies relating to land and forest property rights, and environmental impact assessment.

8. RISKS ASSOCIATED WITH REDD+ DESIGN AND IMPLEMENTATION

Tanzania is likely to face certain risks as it implements the National REDD+ Strategy. These risks, which will be from the external and internal environments, will have to be constantly monitored and relevant mitigation measures taken. Table 2 summarizes some of the major risks and proposed mitigation measures.

Table 2: Major risks associated with design and implementation of REDD+ and proposed mitigation measures

Risks	Probability	Level of Impact	Proposed mitigation measure
a) External			
1. It has been estimated that investments of US$13–33 billion will be needed every year to halve GHG emissions from forests globally by 2030. In the context of economic recession and lack of commitment, money of this scale may not be realizable.	Very high	Very high	• Diversification of REDD+ funding mechanisms. • Formulation and enforcement of legal binding agreements at the international level (e.g. Polluter Pays Principle) • Promote regional integration on economic and environmental issues
2. Investors in a REDD forest will want to see their investment protected over the long term (i.e. the issue of permanence). Sustaining the forest in the long term may, therefore, lead to developed nations with a stake in forest carbon to have a say in what developing-country governments like Tanzania do with their land.	Very high	Very high	• Address and respect national and international safeguards. • Promote genuine international agreements on permanence related to REDD+ activities • Promote the concept of allocation of shares to communities and government for dual ownership of the forest
3. International leakage as a result of wood market demand	High	Low	• Promote regional programmes and treaties on environmental issues
4. Delay of agreement on REDD+ mechanism at international level	High	Very high	• Active participation in international negotiations by all Parties • Promote common position among developing countries
5. Possible change of political commitment at the international level	Very high	Very high	• Formulation and enforcement of legally binding agreements at the international level. • Ensure high performance on REDD+ by recipient countries
6. External influences on the design and implementation of REDD+ processes.	Very high	Very high	• Promote country-driven design and implementation of REDD+ processes.
7. Refugee factor	High	High	• Support development and implementation of Land Use Plan • Promote regional cooperation

Risks	Probability	Level of Impact	Proposed mitigation measure
			and conflict resolutions • Promote law enforcement measure • Support disaster preparedness strategies
b) Internal			
8. Insufficient support due to complexity of the REDD+ concept	High	High	• Awareness raising at all levels.
9. Insufficient appropriate alternative sources of energy to wood biomass may make it difficult for some communities to participate in the implementation of this Strategy.	High	Very high	• Promote sustainable and effective wood biomass utilization • Promote alternative sources of energy (solar, biogas, wind etc) • Enforcement of laws and regulations
10. Insufficient appropriate technology on efficient utilization of wood biomass.	High	Very high	• Promote research on appropriate technology for efficient utilization of wood biomass
11. Market uncertainty to fulfill expectations	High	Very high	• Diversification of REDD+ financing mechanism
12. REDD+ revenues may not be sufficient to address drivers of D&D	High	Very high	• Promote other types of investments to address direct drivers of D&D
13. The possibility of leakage at project level, whereby deforestation is simply shifted from project site to other places; makes the permanence of emissions reductions uncertain.	High	High	• Promote nested approach in implementing REDD+. • Implement measures in 9 above • Intensify law enforcement measures • Improve land tenure and security
14. Uncertainities in accuracy, fairness and effectiveness of monitoring, reporting and verification of REDD+ schemes may be a disincentive for continued participation of some communities in the schemes.	High	High	• Harmonize methodological approaches. • Translate and simplify methodologies into user friendly Swahili versions. • Abide by generally acceptable methodologies
15. Behavioral change in adopting REDD+ initiatives may take a long time and thereby becoming costly.	High	High	• Awareness raising campaigns. • Promote REDD supportive alternative income generating activities in the bridging period (e.g. ecotourism, beekeeping, mushroom collection, butterfly farming)
16. Competing land uses, including land grabbing.	High	High	• Promote participatory village land use plans. • Engage fully and transparently, good governance institutions.

CHAPTER ONE

INTRODUCTION

1.1 Background

1.1.1 REDD+ Initiative: The global scene

Climate change is one of the biggest global problem posing challenges to sustainable livelihoods and economic development, particularly for Least Developed Countries (LDCs). The adverse impacts of climate change on environment, human health, food security, human settlements, economic activities, natural resources and physical infrastructure are already noticeable in many countries. There are a number of global and national efforts to address the problem of climate change through adaptation and mitigation activities. The UNFCCC recognises various mitigation and adaptation options, including pro-REDD+ forestry related activities.

Forests play an important role in climate change mitigation as sinks of carbon dioxide (CO_2). Forests act as carbon sinks when their area or productivity increases, resulting in an increased uptake of CO_2 from the atmosphere. They absorb CO_2 and release oxygen into the atmosphere through the natural process of photosynthesis in which CO_2 is converted to carbon and stored in the woody tissue of the plant. It is because of this that some forms of forestry activities are used as valid means for atmospheric CO_2 reduction as they contribute significantly to climate change mitigation. On the other hand, forest biomass acts as a source of carbon when burned or when it decays. Also, when the soil is disturbed it releases CO_2 and other greenhouse gases into the atmosphere. The IPCC Report for 2001 estimates that 18-20% of current global annual carbon emissions are the result of loss of tropical forests.[2]

The importance of forests and woodlands to human life cannot be over-emphasized. They are crucial as a source of livelihoods and provide direct benefits like firewood, charcoal, fruits, poles, timber, traditional medicines and many others. The forests and woodlands also have very important and critical ecological values and are a source of vital services such as conserving soils and water sources, harbouring rich biodiversity and important genetic resources, providing bee nectar, ameliorating climate, serving as habitats for wildlife, providing a wide range of cultural, spiritual and recreational benefits and are important sinks for CO_2 from the atmosphere.

Although the role of forests in sequestering carbon and helping to mitigate climate change was recognized in the Kyoto Protocol, only afforestation and reforestation activities were accepted for inclusion in the Protocol's Clean Development Mechanism (CDM). Reducing emissions from deforestation, also known as avoided deforestation, was thus excluded as an emissions reduction strategy - until its reintroduction into United Nations Convention on Climate Change (UNFCCC)

[2] The IPCC Report for 2007 is, however, more affirmative on this. It puts these estimates at 17.4% of the annual global carbon emissions.

negotiations at CoP 11 in Montreal in 2005 as a result of the Stern Report and a formal proposal by the Coalition of Rainforest Nations, led by Costa Rica and Papua New Guinea.

It was at the thirteenth (13) CoP of the UNFCCC that took place in December 2007 in Bali, that the Coalition of Rainforest Nations formally proposed that REDD and forests be included in the official negotiation agenda for a post-2012 regime, whose key elements would be negotiated under the so-called Bali Road Map. By December 2009 the 191 Parties to the UNFCCC were expected to have drawn up the next global climate agreement. The Bali Action Plan (BAP), on which the UNFCCC Parties agreed in December 2007, provides the road map for this new agreement.

Under the BAP, both developed and developing countries needed to take nationally appropriate mitigation actions, known as NAMAs, to reduce their greenhouse gas emissions. The Parties were also to specify policy reforms and positive performance-based incentives on issues relating to reducing emissions from deforestation and forest degradation (REDD) in developing countries to be included in the NAMAs that countries can undertake.

At the fifteenth (15) CoP, a consensus was reached among some of the Parties under the Copenhagen Accord that agreed on the need to provide positive incentives to such actions through the immediate establishment of a mechanism to enable the mobilization of financial resources from developed countries (UNFCCC, 2009a). During the sixteenth (16) CoP which was held in Cancun, Mexico in 2010, REDD+ was adopted as part of the Cancun agreement and its activities were extended to include: Reduction of emissions from deforestation, Reduction of emissions from forest degradation, Conservation of forest carbon stocks, Sustainable management of forests and Enhancement of forest carbon stocks.

1.1.2 REDD+: The Tanzanian scene

There are a number of global and national efforts to address the problem of climate change through adaptation and mitigation activities. The UNFCCC, of which Tanzania is a party, recognises various mitigation and adaptation options, including pro-REDD+ forestry related activities.

Tanzania has the potential to participate in addressing the problem of climate change through enhancing the role of forests in climate change mitigation. The country has a total of 33.428 million hectares of forestland out of which 16 million ha comprise of reserved forests; 2 million ha are forests in national parks and the rest15.4 million ha are unprotected forests in Village and General Land[3] (FAO, 2010). Unreserved forests on village and general land are ‘open access’, characterized by unsecured land tenure, shifting cultivation, annual wild fires, harvesting of wood fuel, poles and timber, and heavy pressure for conversion to other competing land uses, such as agriculture, livestock grazing, settlements and industrial development.

[3] According to GOT (2011b), 70 percent of Tanzania’s land area is Village Land, 28 percent is Reserve Land and 2 percent is General Land.

Tanzania is putting efforts in addressing drivers of deforestation and forest degradation through adoption of legal frameworks that promote Participatory Forest Management (PFM) approaches. In Tanzania, the main sources of finance for forest management are currently: charges levied on the major forest products and services, state budget allocation to the forestry administration and development partners' grants for forestry projects. However, limited financial resources are at present compelling the country to identify innovative financing mechanisms to attract new sources of investment in forest management outside these traditional channels. The adoption and implementation of REDD+, therefore, provides an exceptional opportunity for Tanzania to benefit from financial mechanisms that take cognizance of the increasing importance of sustainable forest management in reducing emissions and increasing storage of CO_2 to mitigate climate change and its impacts.

1.2 Goal and Objectives of the Strategy

1.2.1 Goal

The main goal of the National REDD+ Strategy (hereafter the Strategy) is to facilitate well coordinated and effective implementation of REDD+ related policies, processes and activities so as to contribute to climate change agenda and overall sustainable human development, enabling Tanzania to benefit from a system based on results-based payments for demonstrated emissions reductions from deforestation and forest degradation.

1.2.2 Objectives

The Strategy envisages to guide the coordination and implementation of 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 and other aspects of REDD+.

Specifically, the Strategy intends:

- To establish robust baseline scenarios and an effective MRV system for determining forest carbon changes,
- To establish and operationalize a fair and transparent REDD+ financial mechanism and incentive schemes,
- To engage and enhance active participation of the stakeholders in REDD+ processes,
- To strengthen a national system for governance and coordination of REDD+ processes,
- To build capacity in terms of training, infrastructure, systems and equipment to support the REDD+ policy,
- To generate knowledge and promote scientific understanding on REDD+ issues through research,
- To strengthen public awareness, communication and information sharing systems on REDD+ issues,
- To strengthen mechanisms to address drivers of deforestation and forest degradation in various agro-ecological zones,
- To ensure that gender is mainstreamed in the implementation of REDD+ process and Action Plan

1.3 Structure of the Strategy

The Strategy is divided into eight chapters. Chapter One is an introductory section which provides the background of REDD+ from global to national perspectives. Chapter Two describes the Strategy development process. After that, Chapter Three provides an overview of the forest estate in Tanzania and highlights some of the major efforts made to conserve it in an increasingly participatory manner. Chapter Four gives an overview of forest governance for REDD+, while Chapter Five outlines the modalities for baseline establishment, monitoring, verification and reporting. Chapter Six illustrates the key strategic elements for REDD+ implementation in Tanzania. Chapter Seven provides a framework for safeguards, and strategic environmental and social impact assessment of the Strategy. Finally, Chapter Eight highlights some of the potential risks that Tanzania may face as it implements the Strategy and proposes some mitigation measures for those risks.

CHAPTER TWO

THE STRATEGY DEVELOPMENT PROCESS

2.1 Overview

The National REDD+ Strategy in Tanzania has been developed in a participatory manner involving various stakeholders at different levels. Some of these have included key central and local government officials responsible with forest governance and related issues, NGO's/CSO's, Private Sector Representatives and Development Partners. The National Framework for REDD developed in 2009 was the basis for developing this strategy. The REDD+ Strategy is also closely linked to the current national growth and development strategies such as the Five-Year Development Plan, the two National Growth and Poverty Reduction Strategy Programmes (MKUKUTA – Tanzania mainland and MKUZA - Zanzibar), the National Forest Programme and other strategies which contribute to effective conservation and utilization of Tanzania's natural and renewable resources and improving the livelihoods of its people.

2.2 The Strategy Development Process

A National REDD Task Force (NRTF) was appointed by the Government as an interim arrangement to oversee implementation of technical and operational issues in relation to REDD readiness. The NRTF consisted of technical officers drawn from Sector Ministries and a representation from Civil Society Organizations. Such ministries included the Vice President's Office-Environment, Ministry of Natural Resources and Tourism/Tanzania Forestry Services, Prime Minister's Office Regional Administration and Local Governments, Ministry of Energy and Minerals , Ministry of Lands, Housing and Human Settlements Development, Department of Forestry and Non-Renewable Natural Resources-Zanzibar, Ministry of Agriculture Food and Cooperatives, Ministry of Community Development, Gender and Children, Department of Environment-Zanzibar and the Ministry of Finance. The NRTF was assisted by five Technical Working Groups (TWGs) dealing with; Legal, governance and safeguards, Measurement, Reporting and Verification (MRV), Financial Mechanisms, Agriculture and Energy drivers. Both the NRTF and TWGs were facilitated by a Secretariat hosted by the Institute of Resource Assessment (IRA), University of Dar es Salaam.

The Strategy development process has undergone three interrelated phases. These included a preliminary analytical phase, a strategic analysis and piloting phase and a consolidation phase as illustrated below.

2.2.1 Preliminary analytical phase

This phase involved the scoping studies to identify potentials for REDD+ in Tanzania, assess capacities for REDD+ implementation, and to identify gender issues (both quantitative and qualitative) to be addressed. The first important step was the development of the National Framework for REDD+ (URT, 2009). The main purpose of the framework was to provide

overall vision and guidance towards development of a comprehensive and gender sensitive National REDD+ Strategy and Action Plan.

2.2.2 Strategic analysis and piloting phase

a. Stakeholders' consultation

Stakeholders' consultative meetings for development of the Strategy and awareness raising on REDD+ issues were conducted nationwide involving national, regional, district, and local level representatives, in both Tanzania mainland and Zanzibar. More specifically, the consultations were done in eight zones involving representatives from different sectors related to REDD+ such as forestry, agriculture, livestock, land and energy. Overall, there was adequate gender representation.

b. Piloting REDD+

This phase involved piloting of different REDD+ related activities through CSOs, especially those working at grassroots level. The REDD+ pilot projects focused on the following main themes:

- Approaches to organizing REDD+ work at the local level, with a focus on governance and tenure;
- Incentive schemes that provided equitable benefit sharing mechanisms, especially to local communities;
- Baseline studies and methods for estimating deforestation, carbon sequestration and emissions;
- Participatory methods for monitoring, assessing, reporting and verifying carbon sequestration; and
- Approaches to address drivers of deforestation and forest degradation.

During the implementation process CSOs were expected to build capacity of both men and women to participate in REDD+ processes and activities. In addition to the specific piloting projects, a number of projects and programmes are on-going among public, CSOs, and the private sector on REDD+ related issues. Lessons learnt and experience acquired from implementation of the REDD+ pilot projects provided an important input in the development of this Strategy.

2.2.3 Consolidation phase

The consolidation phase involved sharing the Draft Strategy with various stakeholders at different levels who were initially not involved in the designing of the Strategy. This ensured that various stakeholders concerns and priorities were adequately addressed both in the Strategy and the Action Plan. Furthermore, during this stage the Strategy was reviewed by a team of local gender experts to ensure that gender issues and concerns are adequately mainstreamed in the Strategy and the Action Plan, respectively.

CHAPTER THREE

BASELINE CONDITIONS AND SITUATION ANALYSIS

3.1 The Forest Resource Base

3.1.1 Tanzania mainland

Tanzania is endowed with vast forest resources. In 2005 Tanzania Mainland had a total forest area of 33.428 million hectares (ha) representing 38% of the total land area. Woodlands occupy most of the forest area, which cover about 90% of the total forest area. The rest are mangrove forests, montane forests, small patches of coastal forests and plantations of softwoods and hardwoods. However, 57% of all of these forests are on village land or 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 Timber, and Non-timber Forest Products (NTFP) primarily within local villages and households. The most important use of wood in Tanzania is for fuel, hence about 95% of the country's energy supply is met from wood. The NTFP consist of game meat, medicinal plants, fodder, latex, beverages, dyes, fibres, gums, resins, oils, beeswax and honey, tannins and toxins and others. Several of these are subsistence products providing valuable source of nutrition.

In some places traditional medicine is the only affordable alternative medication available to rural and urban populations. Ecosystem services which accrue from the forests include: watershed functions, maintenance of soil fertility, and conservation of biodiversity. Others include sustaining cultural values, carbon dioxide (CO_2) sequestration, climatic amelioration and eco-tourism. Some fforest areas also support agriculture and livestock keeping.

Despite all the invaluable goods and services provided by natural forests, there are also high rates of deforestation and degradation. Deforestation and forest degradation is most acute in Sub Saharan Africa (SSA) where it is characterized by decreasing production of forest products and food that worsens levels of poverty and malnutrition. For Tanzania, between 2005 and 2010, deforestation led to a loss of 403,000 ha of forest per year which was equivalent to 1.16% of forest area (FAO, 2010). Deforestation and forest 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).

Apart from deforestation and forest degradation, there is growing evidence that climate change is impacting on forests and forest ecosystems and hence also on livelihoods of forest dependent communities as well as national economic activities that are based on the forestry industry and the ecological services that it offers. Climate change is manifesting itself through unusually high

temperatures, floods, droughts, hurricanes, epidemics, poor crop yields, unreliable water supplies and increasing wild forest fire incidences and intensity.

According to projections by IPCC, river flows and water quantity in reservoirs may decline considerably under a warmer climate while forest ecosystems may shift their ranges and lose some of their biodiversity. However, currently little is known about climate change's effect on forests and how this may impact on the livelihoods of forest dependent communities. Evaluation of the impacts of climate change on forest ecosystems and livelihoods is an urgent area of study.

The challenge to manage forest resources as a national heritage in an integrated and sustainable manner to optimize their environmental, economic, social and cultural values have been in a constant threat by human activities which in Tanzania are already established as encroachment into reserved forests, shifting cultivation, wildfires, illegal logging, mining, overgrazing, wood-fuel extraction and, more recently, the introduction of large-scale farming for bio-fuel production, among others. These deforestation and forest degradation activities do not only contribute to emissions of GHGs, but they also reduce the capacity of forests to sequester Carbon.

The progressive decline in the value of harvested woody resources in different parts of the country suggests existence of unsustainable logging (Milledge, *et al.,* 2007). At current levels of demand and rates of exploitation, it was predicted that there will be no high-value timber species remaining in Tanzanian coastal forests up to 220 km from the city of Dar es Salaam by 2010 and up to the southern Tanzanian border within 37 years. A recently opened bridge across the Ruvuma River at the southern Tanzanian border is likely to facilitate encroachment and accelerated forest degradation and deforestation into Mozambique. This is also firmly established in Ahrends, *et al.,* 2010 and it serves as a good example of international leakage.

Similarly, charcoal production is predicted to continue increasing in line with increasing urban demand and a lack of affordable alternatives sources of energy and the inner wave of charcoal extraction is very likely to continue expanding outwards. It is probable that these trends will be accompanied by further reductions in public goods such as carbon storage, biodiversity retention, and supply of water. An ability to predict the future spatial-temporal dynamics of forest degradation in Tanzania, for possible application in the rest of Africa South of Sahara, may provide a vital tool for targeted policy interventions for biodiversity conservation, climate change mitigation and human development, particularly within the context of REDD+.

3.1.2 Zanzibar

Forest vegetation in Zanzibar covers about 63,908 ha; equivalent to 23.7% of the total land area. This involves bush and tall trees in coral rag areas (6,964 ha), mangroves (19,748 ha), high forest and forest plantations (9,505 ha), coconut plantations (6,958 ha) and mixed wood vegetation (19,733 ha). Forest Protected Areas (FPAs) under government administration total around 11,960 ha.

Zanzibar's forests form part of the East Africa Coastal Forests Eco-region, one of the world's 200 biodiversity hotspots. Despite their global significance, deforestation rates are relatively high; estimated to be at least 1% per annum. Zanzibar's Forest Policy and the Poverty Reduction Strategy recognize the importance of Community Forest Management (CoFM) to combat deforestation and reduce poverty. Almost all forest areas in Zanzibar could potentially be managed as CoFM to directly benefit local communities.

Hence, CoFM essentially provides the legal framework for community groups and government to both own and manage forests and woodlands for their own benefits. A total of 65 Community Forest Management Agreements (CoFMAs) have thus been finalised in Zanzibar to support *Shehia* communities in managing community forest resources. Of these, 28 CoFMAs are located around Protected Areas of Jozani National Park (9 CoFMAs), Ngezi-Vumawimbi Nature Forest Reserve (10 CoFMAs), Kiwengwa-Pongwe Forest Reserve (5 CoFMAs) and Msitu Mkuu Forest Reserve (4 CoFMAs). The remaining 37 CoFMAs are outside FPAs of Unguja (16) and Pemba (21).

Despite a favourable policy environment for the implementation of pro-poor CoFM, deforestation and forest degradation in the community forests is on the increase and CoFM practice in Zanzibar remains a challenge due to insecure forest land tenure and rights**,** inadequate economic incentives for forest conservation, inadequate incentives for men and women in local communities to engage in CoFM, limited capacity of community-based institutions and local governments to deliver quality forestry support services and influence forest policies, weak communication and limited access to information on best practices and experience, and heavy dependence of the Zanzibar population on forest goods and services.

3.2 Past Experiences with Reducing Deforestation and Forest Degradation

3.2.1 Participatory Forest Management (PFM)

- **Overview**

Tanzania has benefited from many years of implementing (PFM) programmes which have helped to integrate communities into forest management and thus address some of the policy and critical forest governance issues concerned with deforestation and forest degradation. PFM has emerged as a central element in ensuring sustainable management and conservation of Tanzania's forests. This experience provides a value basis for rapid REDD+ readiness.

By the mid-1990s a global shift towards decentralized forest management was taking place, with delegation of forest management rights and responsibilities to the local level as a strategy to achieve SFM and development. This led to a major review of the forest policy and legislation. The Forest Act of 2002 thus makes it possible to transfer forest resource ownership and management responsibilities to local communities feasible. There are three main objectives of PFM in Tanzania 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. The two approaches differ in terms of forest ownership and cost/benefit flows. In 2006, FBD undertook a detailed survey of PFM in the country (URT, 2008). Table 1 shows the results of this survey and how far PFM had spread in mainland Tanzania by then.

Table 1: Overview of PFM implementation in Mainland Tanzania

Total area of forest covered by PFM arrangements	412,2500 ha
Percentage of total forest area under PFM	12.8%
Number of villages involved in PFM	2328
Percentage of total villages involved in PFM	22%
Number of villages with declared/gazetted village forest or signed Joint Management Agreements	550
Number of districts where PFM is operational	63

Source: URT (2008)

a. The implementation of CBFM

In CBFM forests are owned and managed (using a management plan) by a village government through a Village Natural Resources Committee (VNRC), applies on village or private land. By 2008, the area under CBFM was 2,345,000 ha which represents 11.6% of unreserved forests. A number of PFM studies have since reported improved forest regeneration, biodiversity, forest growth and well-being of community members.

The factors that may negatively influence communities as regards to taking up CBFM are unfair benefit sharing or fears of this, lack of availability of forest land, lack of community interest in forest management (which may itself relate to opportunity cost involved in foregoing other activities, or to the availability of alternative income sources), an unfavourable legal and policy environment, lack of facilitation capacity, and lack of availability of up-font internal and external financing. Experience shows that village leaders, particularly the members of the village forest reserve committee, participate more than others in different forest activities, especially those involving payment of wages.

This situation can only be expected to become worse when the REDD+ funds become available to villages. A major consideration is that if villagers as a whole do not see any benefits, then they are likely to withdraw their cooperation from the communal effort for increasing carbon stock. This might jeopardise the anticipated contribution of CBFM to the REDD+ policy. Therefore, for the success of CBFM under REDD+, a system to ensure equitable sharing of benefits needs to be established.

b. The implementation of JFM

Joint Forest Management (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. 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 joint management agreements 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. By 2008, the area under JFM was around 1,780,000 ha, mostly montane and mangrove FRs (Table 2).

Table 2: An overview of JFM in mainland Tanzania, 2008

Area of forest covered by JFM management plans	1.777 million (ha)
Percentage of total area reserved by central or local government under JFM	12.8%
Primary forest types where JFM has been promoted	Montane, mangrove and coastal forests
Number of National Forest Reserves with JFM	75
Number of Local Authority Forest Reserves with JFM	171
Primary regions where JFM is implemented	Morogoro, Iringa, Coast, Tanga, Kilimanjaro
Number of villages with JFM has been established or in process	863
Number of villages that have signed JMAs	155

Source: URT (2008)

The main challenges of JFM include high donor dependency, and short term duration to effectively empower communities to manage the forests. Moreover, JFM has proven to be a very long process. Some villages involved for at least three to five years have still not completed the process. Other challenges have been poor exit strategies by some NGOs, cost-benefit sharing mechanism under JFM still not fully operational, and lack of awareness on legal framework for JFM. All these make JFM almost incompatible with REDD+.

3.2.2 Forest plantations

Tanzania embarked on large scale plantations development in the 1950s. Currently, there are 19 state owned industrial plantations covering 89,000 hectares mainly planted with softwoods and a few hardwood species. There are nearly 70,000 ha of privately owned plantations. Other private areas are established under the village afforestation programme and farm forestry for the market. The productivity of government plantations is generally low (15 $m^3ha^{-1}yr^{-1}$) due to use of

unimproved seed and low intensity management. With improved seed and good forestry practice a yield of up to 30 $m^3ha^{-1}yr^{-1}$is possible.

On the other hand, privately owned plantations have been found to have high productivity due to careful site selection, intensive cultural practices and selection of genetically improved seed/propagates. 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. 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.

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. 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 is low, given high domestic and export demand for forest products and the fact that Tanzania is one of the few African countries with potential areas for expansion of forest plantations.

3.2.3 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 Non Wood Forest Products (NWFP), as well as improve environmental services. Trees on Farm constitute a vast tree resource in Tanzania and form a major source of wood and NWFPs for domestic use and for sale. 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. The sale of wood and NWFPs produced from ToF has often been challenging. Farmers need to be assisted in all aspects of marketing and value addition to improve their returns from sale of wood and NWFPs.

3.2.4 Forest landscape restoration

Forest landscape restoration is a process for re-establishing ecological integrity and enhancing human well-being in deforested or degraded landscapes. Natural regeneration, assisted natural regeneration, enrichment planting, plantations, agro forestry and various soil and water conservation techniques are all used in forest landscape restoration.

In Tanzania, techniques already in use include plantations, natural regeneration, agro forestry and various soil and water conservation techniques. Plantations are too restricted in extent to provide sustainable livelihoods and environmental services for the large land areas demanding restoration, while assisted natural regeneration and enrichment planting have been tried only in research activity. Studies concluded that natural regeneration through active involvement of local

communities promoted under PFM, and supported by the new forestry legislation and programme, is 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 forest land rights, and traditional knowledge and practices are taken into account.

An example of a successful forest landscape restoration is the *ngitili* system of agro-pastoral communities in Shinyanga Region. Studies have found that more than 350,000 ha of land were 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 US$ 14 per person per month, which is much higher than the average monthly spending per person in rural Tanzania (US$ 8.5).

The success stories on forest landscape restoration 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.

3.2.5 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 Integrated Conservation and Development Projects (ICDPs) were introduced to attend 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. The projects aimed at biodiversity conservation, increasing agricultural productivity and reducing poverty by encouraging communities to undertake alternative income generating activities.

There are success stories from some of these projects, and there are many lessons learnt. Despite the efforts to improve the management of the FRs and community activities in the projects outlined above, problems of natural resource degradation, biodiversity loss and rural livelihood decline persist. To reverse this situation, increased, long term and landscape focused investment is key.

3.3 Drivers of Deforestation and Forest Degradation

Major direct causes of uncontrolled deforestation and degradation in the forests (D&D) are: settlement and agricultural expansion, overgrazing, firewood and charcoal production, uncontrolled fires, timber extraction, development of infrastructure/industry, mining, refugees and most recently the introduction of large scale agriculture of bio-fuel production. These direct causes of uncontrolled deforestation and thus forest degradation are driven by market and policy

failures, rapid (and uncontrolled) rural settlement expansion and population growth and rural poverty, and the state of economy.

3.3.1 Direct causes of D&D

The major direct causes of uncontrolled deforestation and forest degradation include:

- **Agricultural expansion, human settlements and population increase:** shifting cultivation and permanent agriculture, development of human settlements, wood for curing tobacco, wood for fish smoking and making burned bricks. The loss for different forest and woodland ecosystems: tropical closed forest (6.6million ha), mangroves (0.13million ha.), dry woodlands (10.1million ha) and wooded grassland (3.1million ha) and bridge bushland/thicket (2.0 million ha) (URT, 2008).

- **Overgrazing:** mainly due to large herds of cattle among livestock owners. In addition to large herds of cattle, overgrazing has been a result of decreased pasture lands due to other human activities like agriculture expansion, infrastructure development, expansion of conservation areas and human settlements.
- **Firewood and charcoal production:** 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. About 85% of the total urban population depends on charcoal for household cooking and energy for small and medium size enterprises (Sawe, 2004). In 1992, the total amount of charcoal consumed nationwide was estimated to be about 1.2 million cubic tons. The FBD estimates an annual forest reduction of between 130,000-500,000ha, against only 25,000 ha planted annually. According to FAO (2010) estimates forests in Tanzania are declining by 1.16 percent annually mainly due to firewood and charcoal production, timber extraction, infrastructure development, agricultural expansion and wild fires.
- **Uncontrolled fires** during land preparation for shifting cultivation, collection of bush honey, charcoal making, hunting or livestock owners burning to stimulate growth of a lush of pasture for livestock and to control pests such as ticks. Late season fires are the most destructive.
- **Timber extraction** is one of the major causes of loss of forests. It can also damage the remaining smaller trees, destroy much of the original forest and disturb the topsoil. Other effects include suppression of regeneration by weeds or failure to regenerate and damage to the watershed functions of the forests.
- **Development of infrastructure/industry:** Investments in road and railway construction, industries, hydroelectric projects and mineral and oil extraction, necessary to meet development objectives, often entail environmental trade-offs that end up clearing many trees.

- **Bio-fuel production:** Large areas of natural forest habitats (e.g. Coastal forests) with high biodiversity are being cleared to give way to bio-fuel crop farming. It is estimated that Tanzania has 30m ha suitable for bio-fuel plantation. By 2008 the total area allocated for bio-fuel plantations was 650,000 ha out of the 4 million ha requested. Due to weak environmental enforcement it is estimated that over half of the bio-fuel investors did not carry out appropriate EIAs (Mutch, 2009).

The relative importance of these factors to D&D and eventually to global GHG emissions has not been determined. However, recent land use/cover change studies such as those by FAO (2010) and Malimbwi and Zahabu (2002) show that these processes result into a total forest loss of between 0.09 – 0.41 m ha per annum, or from 38.5 to 175.5 mega tonnes of Carbon per annum.[4]

3.3.2 Underlying or indirect causes of D&D

The causes of uncontrolled deforestation and thus land degradation are driven by several underlying factors, including policy failures, population growth including rapid urbanization and rural settlement growth and rural poverty.

a. Policy failures

Policy failures are a result of, among other things, inadequate capacity of the government to implement strictly the instituted centralised and decentralised management systems due to inadequate financial and management capacity, which result into inefficient management of forest resources; inability of government to adequately define resource tenure rights thereby subjecting forests to "open access" with the consequent risk of over-exploitation and general resource degradation and inability to create the right investment incentives in forest activities; and inadequate mechanisms to charge a sufficiently high forest rent which reflects the real financial cost of managing forests.

The low forest rent leads to inefficient use and over-exploitation of forest resources. The implementation of old forest policies for a long period since independence made it almost impossible to adequately address emerging opportunities and constraints imposed by national aspirations, international agreements and conventions. Non-forest incentives (pricing policies, tax incentives and other subsidies) encourage private investments in leading sectors such as agriculture, energy, mining and transportation thus getting forest areas converted to these uses.

Effects of implementing structural adjustment programmes (SAP) have had implications of reducing financial capacity of forest departments to manage forest resources effectively. Consequent to family expansion and population growth, small holder farmers who, hitherto, depended on subsidized farm inputs have been compelled to encroach on forests in order to

[4] Calculations of Carbon losses have used rates adopted from results by Mujumba and Lyaruu (2011).

expand farmlands to meet the rising demand for food . This has lead to an upsurge in deforestation and forest degradation.

b. Rapid population growth, urbanization/ and rural poverty

Studies show that there is a significant correlation between population pressure and deforestation, especially where poverty prevails, land tenure system is ambiguous, and there is policy failure as well as lack of agricultural intensification and markets. Rapid population growth in general and urbanization in particular often intensifies pressure on forest areas converting them to other uses, as well as accelerating forest resources exploitation for short-term benefits in terms of food production and fuel wood supply.. While some traditional rural communities have developed comparatively sustainable forms of resource use, poverty-led environmental degradation is still responsible for much of the deforestation and forest degradation taking place in the country. This has vividly been shown by the in-depth studies and material from literature reviews and consultative workshops, the majority of rural poor rely heavily on forests and woodlands for income and subsistence

3.4 Forest Carbon Trading Mechanisms

Carbon trade involves the sale of carbon credits. The trade is a market-based mechanism for helping mitigate the increase of CO_2 in the atmosphere. Basically, there are two main types of Carbon Trading Schemes that are operating globally to-date. These are Voluntary Carbon Trading (VCT), which is not operated under the Kyoto Protocol and the official Kyoto Protocol Carbon Trading Mechanisms.

The VCT involves companies offsetting GHG emissions from their activities and products on a voluntary basis as part of their corporate responsibility. The conditions to participate in the VCT are relatively less stiff, and have no international legal binding requirements. The official forest carbon trading is possible through the Clean Development Mechanism (CDM) of the Kyoto Protocol of the UNFCCC. Under the Kyoto Protocol developed countries were required to reduce their emissions of GHG by about 5% of their 1990 levels by the years 2008 – 2012. These countries were expected to meet their reduction targets for CO_2 emissions in a variety of ways such as: through improved energy efficiency, by substituting fuels that produce less CO_2, and by using renewable energy sources. Through CDM and by undertaking project activities, often in cooperation with developing countries, developed country parties can generate carbon credits which can be used to offset their reduction commitments.

The CDM essentially provides a market mechanism for the sale of carbon credits or CERs, from developing countries. It was agreed that in the first commitment period (2008-2012), CDM project activities were to be limited to afforestation and reforestation only. Improved forest management and avoided deforestation are at present not eligible under CDM.

Reduced deforestation and forest degradation plays a significant role in climate change

mitigation and adaptation, and may generate a new financial stream for sustainable forest management in developing countries. This prompted re-negotiation of climate change policy for the post-2012 period to include REDD+. Under REDD+, developing countries would, on a voluntary basis, aim to reduce the rate at which their forests are being lost, and receive compensation in proportion to carbon emissions saved compared to a baseline which would represent the 'without intervention' case or some other agreed target. This new approach to climate change mitigation is currently under discussion by Parties to the UNFCCC regarding crediting or otherwise rewarding reductions in carbon emission by reducing rates of deforestation and forest degradation.

The government of Tanzania considers the REDD+ policy a viable option for providing opportunities for the country to meet its obligations of managing her forests and woodlands sustainably while at the same time implementing the poverty reduction strategies in place i.e. MKUKUTA and MKUZA. In this regard the government is envisaging participating in the REDD+ policy and in its development under fund based financing arrangements.

3.5 Capacity Building and REDD+ Infrastructure Development

Tanzania, like other developing countries has been left behind in important international policy negotiations and participation in policy implementation due to lack of capacity and the necessary technology to assist the country to benefit from emerging opportunities such as REDD+. Given that REDD+ is a new policy initiative requiring intensive application of new and complex technologies in various areas, capacity building in terms of training and infrastructure development is needed at all levels. Tanzania has committed itself to making a deliberate effort to ensure that the capacity of local institutions is built accordingly during REDD+ piloting phase. In this regard available capacity and infrastructure for effective implementation of the carbon accounting system are limited, especially in the areas of modelling, GIS simulation, monitoring and evaluation, and carbon stock assessments.

This Strategy has put considerable emphasis on capacity building and infrastructure development at the national and sub-national levels. Research and training programmes on Climate Change, Impacts, Adaptation and Mitigation in Tanzania (CCIAM) have been initiated to support the REDD+ implementation capacity in the country. The purpose of these programmes is to develop and sustain adequacy in national capacity to participate in climate change initiatives and address the effects and challenges of climate change. The emphasis of the programmes is on better management of forest and other land based resources for REDD+ readiness. The programmes also address socio-economic and gender aspects related to climate change. The focus is on developing and undertaking training and educational programmes contributing to scientific knowledge on climate change with particular emphasis on the REDD+ initiatives. The programmes are also contributing to capacity building among other REDD+ actors at all levels of society in the country.

3.6 Research

The actual field implementation of REDD+ and its education and training programmes require support from research. The global scope of climate change necessitates that the national research programme should aim at findings which obtain international recognition. This therefore, calls for international collaboration among national and international research institutions to establish scientific networks to meet the global challenges of climate change. With this approach, it will be expedient to develop comprehensive methodologies to promote focused researches in support of REDD+ implementation in Tanzania.

There is generally lack of comprehensive research and methodology development programme for climate change adaptation and mitigation activities in Tanzania. Equally challenging is the inadequacy of focused research in support of REDD+ implementation. Carrying out focused research in the areas of REDD+ relevant to Tanzania is, therefore, necessary. The CCIAM Programme discussed above is an effort towards this end.

3.7 Information Dissemination and Networking

For specific countries and the international community to benefit from REDD+ an efficient communication and information sharing mechanism is of paramount importance. However, in most developing countries, including Tanzania there is inadequate and often ineffective communication and information sharing networks. An in-depth study on information and communication needs and REDD+ knowledge management has shown, for example, that although through innovative ways the forest resource managing agencies have attempted to address the conflict between rural livelihood security issues experienced by the primary forest resource user and their respective conservation aims, poor inter-agency cooperation and collaboration is an obstacle and constraint that places the entire forest resource base under jeopardy. This has led to compromising each stakeholder underlying interest of a well-managed forest regime for sustainable livelihood and for REDD+.

The study also notes that the present collaborative mechanisms are not equipped in dealing with the conflicting information on REDD+/Forests, REDD+ knowledge management and need for communication on REDD+, respectively. A modality to coordinate horizontally across sectors and vertically from central to lower levels of local government institutions is desirable.

Consequently, a problem solving approach encompassing multi-sectoral collaboration through the formation of an expanded partnership in management of REDD+ knowledge and information networking and communication has been recommended as a way forward in the long path to resolving conflicts and improving the overall quality of management of the country's forest resource base in the context of REDD+.

CHAPTER FOUR

GOVERNANCE OF FOREST RESOURCES FOR REDD+

4.1 Overview

About 18 million hectares (ha) of forests (50%) have been gazetted as forest reserves under the central government, local authorities, village land forests and plantation forests. The rest of the forests are unreserved on Village and/or General Lands. Most of the deforestation occurs in unprotected village and general land forests. However, studies have revealed a considerable level of human disturbance even inside the reserved forests.

Although PFM has been found to be effective in halting deforestation and reversing degradation in unreserved forests and is now included as a major element in Tanzania's National Forest Policy and its subsequent Forest Act of 2002, owing to lack of funds and capacity, currently only 12.8% (about 4.1 million ha) of the country's forests are under such management. The current pace under which PFM projects are established is also very low. Access to REDD+ finances through fund based financing arrangements could potentially facilitate and speed up this process and possibly reduce the high levels of deforestation and forest degradation.

Centralized forest management and PFM are the main strategies used in Tanzania to ensure the sustainable management and conservation of 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 are (i) corruption, (ii) elite capture and/or (iii) minority marginalization in terms of access to forest resources, (iv) low accountability, (v) inadequate transparency, (vi) low participation, and (vii) weak law enforcement. At higher levels, the main issues are corruption, weak law enforcement, and accountability.

To improve governance at local level that will eventually facilitate sustainable PFM, the village institutions need 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. For successful implementation of REDD+ activities, this strategy intends to address governance shortfalls by creating a robust institutional framework for REDD+ governance.

4.2 Institutional Structure and Coordination

REDD+ is anchored on the forest resource base. Findings from the REDD+ for Rural Development, and the Legal and Institutional Arrangement in-depth studies reveal that through innovative ways in accordance with various respective policies, the forest resource managing agencies, i.e. the forest department and forest adjacent communities, among others, have made

attempts to address the conflict between rural livelihood security issues experienced by the primary forest resource users and their respective conservation aims. Each approach incorporates unique elements of conflict management through varying levels of stakeholder participation that have produced significantly different results. The analysis also demonstrates that the present policy and institutional environment on forests has had a large impact on the success of various participatory interventions.

4.2.1 Institutional framework for REDD+ activities

a. National level

The Environmental Management Act, 2004, mandates the Division of Environment in the Vice President's Office (VPO) to coordinate all climate change issues, including their adaptation and mitigation. The government has put in place a National Climate Change Steering Committee (NCCSC) and National Climate Change Technical committee (NCCTC) to oversee and guide the implementation of climate change activities in the country. In addition, it is envisaged to establish a national REDD+ Fund and National Carbon Monitoring Centre (NCMC). Other permanent bodies will be established to ensure that REDD+ issues are sustainable.

b. National Climate Change Steering Committee (NCCSC)

The NCCSC which advices the government on all climate change related issues in Tanzania will provide overall guidance and supervision on the implementation of REDD+. The NCCSC is an inter-ministerial committee which comprises Permanent Secretaries (PS) from Vice President's Office-Environment, First Vice President's Office-Environment (Zanzibar) and sector ministries responsible for Energy, Water, Gender, Fisheries, Investment and Economic Empowerment, Agriculture and Natural Resources (Zanzibar and Mainland Tanzania), Finance, Industry, Justice and Constitutional Affairs Land, Livestock Development, and Foreign Affairs and International Cooperation.

c. The National Climate Change Technical Committee (NCCTC)

The National Climate Change Technical Committee (NCCTC) is made up of Directors of various departments/divisions/Agencies of the ministries represented in the NCCSC. The committee also comprises of one representative each from CSOs and the private sector and higher learning and research institutions, respectively. Its function is to oversee all technical issues related to the implementation of climate change issues, including the implementation of this National REDD+ Strategy.

d. The National REDD+ Fund

The National REDD+ Fund will be established to consolidate and distribute funds to different stakeholders based on efforts in implementing REDD+ strategy. It will operate at the national level. The fund will observe issues of transparency and accountability. Also, the performance of

past forest revenue management systems, benefit sharing and incentive schemes will be assessed to provide lessons for REDD+.

e. National Carbon Monitoring Centre (NCMC)

At the operational level a National Carbon Monitoring Centre (NCMC) will provide technical services on measuring, reporting and verification of REDD+ activities across the country. It will be a depository of all data and information concerning REDD, including the NCAS. The centre is envisaged to be semi-autonomous, overseen jointly by the ministries responsible for forests and environment - climate change.

4.2.2 Regional and District level coordination

The coordination of REDD+ activities at regional and district levels adheres to the existing local government institutional structure. The Regional Administrative Secretariat serves as the link between the Ministries and the District Councils. At the district and municipal levels, Environmental Management Committees as established by Environmental Management Act, 2004, will serve as coordinators for REDD+ activities in their respective areas (Figure 1). In Zanzibar, REDD+ activities are coordinated by Department of Forestry and Non-Renewable Natural Resources (DFNR) under the Ministry of Agriculture and Natural Resources. The DFNR serves as a link between Government and all REDD+ practitioners at National, District and *Shehia* levels. The Zanzibar First Vice President Office (FVPO) which is coordinating all climate change matters through Department of Environment is also part of REDD+ development process.

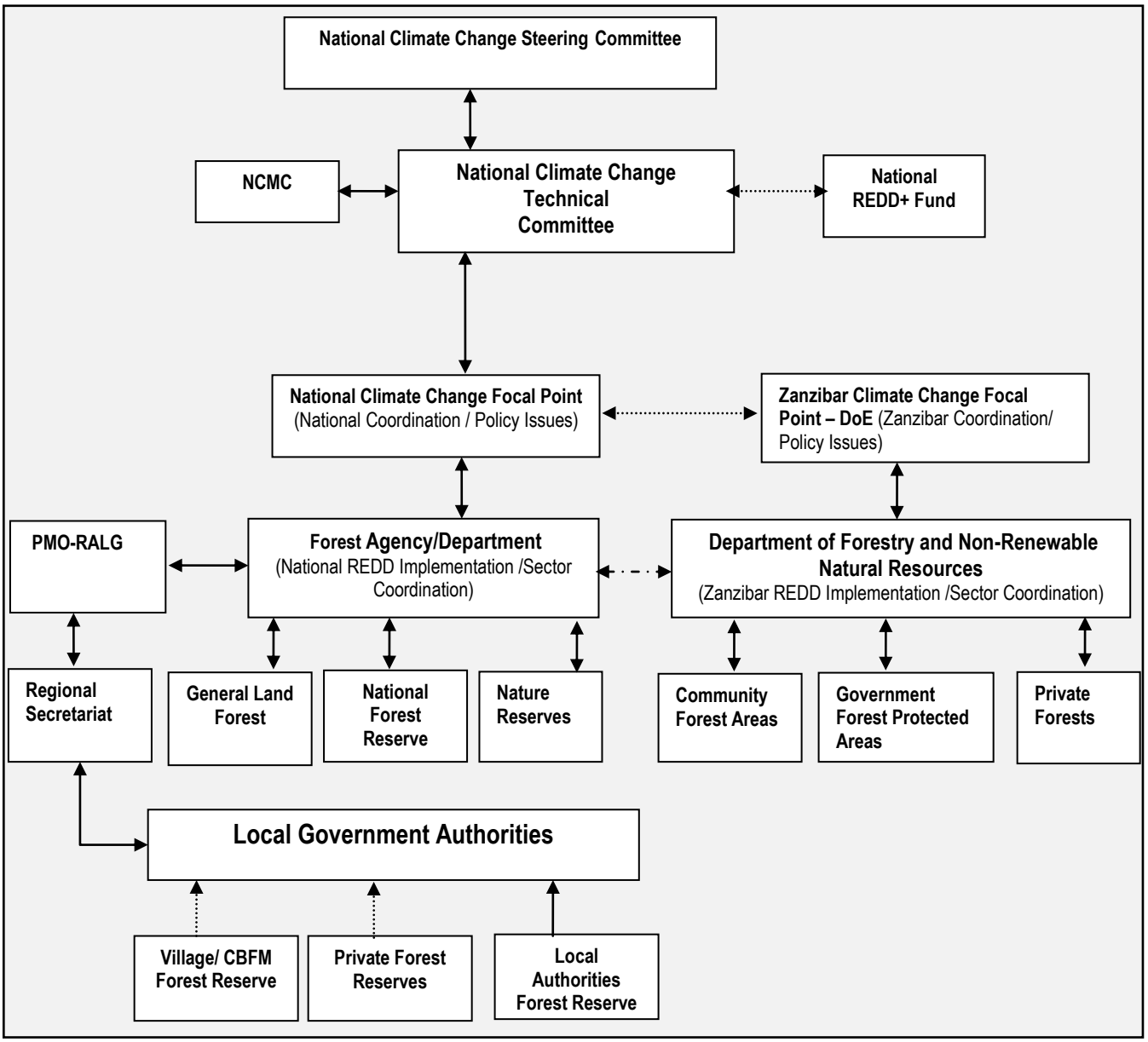

Figure 1: Institutional Structure for REDD+ Implementation and Reporting.

4.3 Institutional Capacity to Manage and Coordinate REDD+ Activities

For effective and transparent implementation of REDD+, a coherent and credible institutional framework with well informed and capable personnel to manage and coordinate REDD+ activities at national and sub-national levels is necessary. In view of the fact that REDD+ is a cross-sectoral initiative involving stakeholders at ministerial and local government levels, civil society and the private sector, it invokes challenges on effective coordination, decision making and governance. These possible sources of inefficiencies can be minimized through, among other things, effective capacity building, political will and awareness raising.

4.4 Policy Environment and Legal Framework

4.4.1 Tanzania Mainland

An enabling policy environment and legal framework are important for the implementation of the REDD+ policy. They are both needed to recognize the importance of forests in climate change mitigation and call for responsible ministries to put measures to appreciate climate change and address its impacts as a result of global warming.

a. Policy environment

This Strategy takes cognizance of a number of relevant policies and legislations that need to be considered when implementing it. Policies and legislations provide highlights of key policy issues that need to be taken on board to ensure that both livelihoods and environmental concerns are clearly addressed in the Strategy in order to ensure that forest resources are conserved or used in a sustainable manner and poverty levels of the communities living adjacent to them is reduced. Policies and legislations relevant to REDD+ interventions in Tanzania include National Vision of development to 2025, National Strategy for Growth and Poverty Reduction (NSGRP), the National Environmental Policy (1997), the Forest Policy (1998) which encourages participatory forest management and seeks to integrate biodiversity values in forest management, and the Land Policy (1995). Others are the Energy Policy, National Agricultural and Livestock Policy (1997).

- **Tanzania Development Vision 2025**

The Tanzania Vision of 2025 is to graduate the country from a least developing country to a middle-income country with a strong competitive economy by improving socio-economic opportunities, public sector performance and environmental management. The Vision encourages sustainable development path as well as inter-generation equity, such that the present generation derives benefits from the existing national stock of natural resources without compromising the needs of future generations.

- **National Strategy for Growth and Poverty Reduction (NSGRP)**

The Cabinet and Parliament adopted NSGRP I, the second Poverty Reduction Strategy, in early February 2005. It was reviewed in 2010 into NSGRP II to be implemented between 2010/11 and 2014/15. NSGRP II makes linkages with Vision 2025 and is committed to the Millennium Development Goals (MDGs) as internationally agreed targets for reducing poverty. NSGRP aims at poverty reduction through three broad outcomes: Growth and reduction of income poverty; improved quality of life and social well being and Good governance and accountability.

- **National Environmental Policy (1997)**

Tanzania has promulgated the National Environmental Management Policy (NEP) of 1997and other sector specific policies, which provide the policy guidance on how its environment and

natural resources will be sustainably managed. There is in place a solid institutional framework mandated among institutions to coordinate the implementation of policies and enforce laws that have been enacted by the Parliament for the conservation and management of the environment and natural resources. The role of NEP, 1997 can be summarized to include the following:

i. Developing consensual agreement at all levels for the challenge of making trade-offs and the right choices between immediate economic benefits to meet short term and urgent development needs, and long term sustainability benefits;

ii. Developing a unifying set of principles and objectives for integrated multi-sectoral approaches necessary in addressing the totality of the environment;

iii. Fostering Government-wide commitment to the integration of environmental concerns in the sectoral policies, strategies and investment decisions, and to the development and use of relevant policy instruments which can do the most to achieve this objective;

iv. Creating the context for planning and coordinating at a multi-sectoral level, to ensure a more systematic approach, focus and consistency, for the ever-increasing variety of players and intensity of environmental activities.

One of the major thrusts of NEP is that it provides for the need to develop ways for encouraging a holistic multi-sectoral approach to environmental management by integrating environmental concerns in sectoral policies, strategies and decisions. In that way it creates the context for cross-sectoral planning and coordination.

NEP articulates the concept of shared responsibility and distinct accountability for environmental management so as to inculcate collective responsibility in environmental management without blurring specific mandates and responsibilities that have been assigned to each institution.

The NEP is a framework policy and covers environmental mandates assigned to other sectors. Paragraphs 45 to 60 of the Policy provides on sectoral policies covering agriculture, livestock, water and sanitation, health, transport, energy, mining, human settlement, industry, tourism, wildlife, forestry and fisheries. This position is also reciprocated and reflected in sectoral policies by including paragraphs on environment management in general and specifically on the requirement to undertake EIA.

The NEP in its diagnosis of the state of the environment in Tanzania identified six major problems that require urgent attention. These are challenges associated with:-

i. Land degradation;
ii. Lack of accessible, good quality water for both urban and rural inhabitants;
iii. Environmental pollution;
iv. Loss of wildlife habitats and biodiversity;
v. Deterioration of aquatic systems; and
vi. Deforestation.

In finding solutions to tackle these challenges, the NEP outlines its overall objectives as follows:-

i. to ensure sustainability, security and equitable use of resources for meeting the basic needs of the present and future generations without degrading the environment or risking health or safety;

ii. to prevent and control degradation of land, water, vegetation, and air which constitute life support systems;

iii. to conserve and enhance our natural and man-made heritage, including the biological diversity of the unique ecosystems of Tanzania;

iv. to improve the condition and productivity of degraded areas including rural and urban settlements in order that all Tanzanians and aesthetically pleasing surroundings;

v. to raise public awareness and understanding of the essential linkages between environment and development, and to promote individual and community participation in environmental action;

vi. to promote international cooperation on the environment agenda, and expand our participation and contribution to relevant bilateral, sub-regional, regional, and global organizations and programs, including implementation of Treaties.

Challenges and problems identified in the NEP as well as the overall objectives have informed the enactment of the Environmental Management Act, 2004.

- **National Forest Policy (1998)**

The first National 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 envisioned responsibilities. 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 general (public) lands (57% of total forest area).

Thus for over four decades, Tanzania has been implementing the Forest Policy of 1953, until in 1998 when a new policy was approved by the government. The overall goal of the National Forest Policy (1998) 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:

i. Ensured sustainable supply of forest products and services by maintaining sufficient forest area under effective management;

ii. Increased employment and foreign exchange earnings through sustainable forest-based industrial development and trade;

iii. Ensured ecosystem stability through conservation of forest biodiversity, water catchments and soil fertility; and

iv. 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[31].

The forest Policy has been revised to take into consideration significant changes and climate change issues which have occurred in the country since 1998. The revised forest policy awaits government approval. Following approval of the forest Policy, the National Forest Programme (NFP) is being revised to accommodate REDD+ issues.

Similarly, both the current National Forest Policy of 1998 and its subsequent National Forestry Programme of 2001 recognizes and promotes sustainable forest management and utilization. This is demonstrated by the three policy objectives which put emphasis on: i) improved forest quality through sustainable management practices, ii) improved livelihoods through increased forest revenues and secure supply of subsistence forest products, and iii) improved forest governance at village and district levels through effective and accountable natural resource management institutions. However, these legal documents are not explicitly pointing out on climate change issues.

- **National Land Policy (1995)**

Land tenure issues are fundamental to the sustainable utilization of land resources. Security of land tenure and forest resources influences the level of investment on land and conservation of land based natural resources thus, forest resource management depends on land tenure and local community tenure rights. According to the National Land Policy (1995), in Tanzania, the President owns the land in trust for present and future generations. The Commissioner for Lands

acts on behalf of the President and administers the land. Granted right of occupancy, which is the main form of tenure, can either be acquired through a grant by the Commissioner for Lands or through customs and tradition.

The deforestation and degradation reported in the previous paragraphs has been a result of among other things insecure land tenure resulting from absence of village land use plans. While the land policy 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. 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. 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.

- **National Water Policy (2002)**

The main objective of the National Water Policy of 2002 is to develop a comprehensive framework for sustainable development and management of the nation's water resources and putting in place an effective legal and institutional framework for its implementation. The policy aims at ensuring that beneficiaries participate fully in all stages of water resource development.

The Policy recognizes the fundamental but intricate linkages between water and socio-economic development, including environmental requirements. The Policy expounds on the importance of water for domestic use, agriculture, livestock keeping, mining, energy, fisheries, environment, human health, wildlife and tourism, forestry, navigation and trans-boundary requirements.

In view of this, the Policy calls for an Integrated Water Resource Management in Tanzania so that “there is equitable and sustainable use and management of water resources for socio-economic development, and for maintenance of the environment". Several policy measures are proposed to ensure sustainable conservation and utilization of the water resources. Some of these measures include the conservation of catchment forests which is of interest to REDD+.

- **National Energy Policy (2003)**

This Policy takes into account the structural changes in the economy and political system at national and international levels. The economic liberalization has had major implications on energy development and consumption. Increased private investment in mining, tourism, manufacturing, finance and communication has increased demand for reliable and cost effective energy. Human population and urbanization have also increased pressure on energy.

The main objective of the Energy Policy is to improve the welfare and living standards of Tanzanians. The Policy aims to provide input in the development process of the country by establishing a reliable and efficient energy production, procurement, transportation, distribution

and end-use system in an environmentally sound manner and with due regard to gender issues. The strategic focus of the Policy in meeting the main objective is to undertake the following activities:

i. Develop domestic energy resources, which are least cost-effective.
ii. Promote economic energy pricing.
iii. Improve energy reliability and security, and enhance energy efficiency.
iv. Encourage commercialization and private sector participation.
v. Reduce forest depletion; and
vi. Develop human capacity for energy resources management.

Even with the Energy Policy in place since 2003, Tanzania is still facing major problems regarding energy. Only about 10 % of the 35 million people in Tanzania are connected to the national grid, and in rural areas, this is about 1% of the population. Over 90% of the energy consumed is from fuel wood and charcoal, thus putting more pressure on forest resources. Power cuts in urban areas are also so frequent - even when there have been sufficient rains to fill the dams - that energy switch to save the forests may prove an uphill task.

- **National Human Settlements Development Policy (2000)**

The overall objective of the National Human Settlements Development Policy (NHSDP) is to promote the development of sustainable human settlement and to facilitate the provision of adequate and affordable shelter to all people, including the poor. The policy outlines a number of objectives including environmental protection within human settlements and protection of natural ecosystems against pollution, degradation and destruction.

The NHSDP recognizes planning and management of human settlement areas as one of the broad human settlement issues. Within this regard, the NHSDP identifies environmental protection as one of the strategic issues in human settlement planning and development. NHSDP also addresses the following issues:

i. Lack of solid and liquid waste management, leading to environmental deterioration;

ii. Emission of noxious gases from vehicles and industrial activities as a major cause of air pollution in urban areas;

iii. Encroachment into fragile and hazardous lands (river valleys, steep slopes and marshlands) leading to land degradation, pollution of water sources, etc;

iv. Increasing dependence on firewood and charcoal as a main source of energy in human settlements leading to depletion of forest, environmental deterioration and air pollution; and

v. Unauthorized sand mining in river valleys leading to environmental degradation.

b. Legal framework

All along, Tanzania has had several pieces of legislation on natural resources, which touch on some aspect of the environment. Most of these pieces of legislation aim at regulating use and management of natural resources and have evolved along sector lines governing specific environmental issues. Nevertheless, a notable development in Tanzania has been the change in approach in legislating on management of natural resources and the environment. There has been a gradual shift from the historical "command and control" approach to more participatory type of management of resources.

Also, most of the pieces of legislation enacted after the Rio Conference in 1992 have provisions on conservation of biodiversity and the use of environmental management tools such as General Management Plans (GMPs) and Environmental Impact Assessment (EIA). Hence, although it fails to mention specific issues on climate change mitigation, the legal framework in Tanzania promotes sustainable forest management and protection, which are important for the implementation of this Strategy.

The instruments that are specifically relevant in this case include the Environmental Management Act (2004), the Forest Act (2002), the Beekeeping Act (2002), the Wildlife Conservation Act (2009), the Land Act (1999) and Village Land Act (1999) for Tanzania Mainland, and the Fisheries Act (2010) and Forest Resources Conservation and Management Act Zanzibar (1996).

- **Environmental Management Act (2004)**

The enactment of the Environmental Management Act (2004) has provided framework legislation for environmental management in Mainland Tanzania. This is a framework 'comprehensive' piece of legislation providing for mechanisms and forums of coordination as well as tools and instruments for environmental management.

- **Forest Act No 14 of 2002 (Cap 323) and Beekeeping Act (2002)**

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

- **Land Act (1999) and Village Land Act (1999)**

Forests are dependent on what happens to the land they grow - on. Hence there is a strong linkage between land and forest legislation. In 1999 the Land Ordinance of 1923, which used to be the principal governing statute regarding land tenure and management in Tanzania, was repealed and replaced by two pieces of legislation, the Land Act No. 4 of 1999 and Village Land Act No. 5 of 1999, which came into force on May 1, 2001.

The National Land and Village Land Acts of 1999 provide the legal framework for 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 FRs, 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 that in one way or other belongs to a village. Hence, the Village Land Act deals with the management of the latter category of land, while the Land Act deals primarily with the management of Reserved Land and General Land in line with the sectoral pieces of legislation that the reserved lands are established under.

The authority to demarcate and register villages lies with the Commissioner for Land. Most of the villages are not yet registered and their lands may easily be categorized as General Land. The insecurity with the general lands stems from its definition, which is provided in the Land Act: "'general land' means all public land which is not reserved land or village land." There are no provisions in either Act that clarify to what exactly the definition refers. There is little doubt that this definition raises concern of freeing 'surplus' land from villages, including forest lands, for 'public investments' such as REDD+ activities or for external investors.

4.4.2 Zanzibar policy and legal framework to support forestry

- **National Forest Policy (1995)**

The Zanzibar National Forest Policy sets forth the interest of the government and the people of Zanzibar in the conservation and development of forest resources. The general goal of the policy derived from the principles of sustainability and welfare of the people is that the government shall: "Protect, conserve and develop forest resources for the social, economic and environmental benefits of present and future generation of the people of Zanzibar".

- **Environmental Policy (1992)**

The policy aims at conservation and protection of environment and efficient utilization of natural resources assets for sustainable development. The environmental policy priorities largely concur with the forest policy strategies on educating the public on the need for environmental protection and conservation, promoting agro-forestry practices, intensifying genetic resource conservation programmes and promoting conservation of soil and water resources.

- **Agricultural Sector Policy (2002)**

The Agricultural Sector Policy (ASP) and Strategic Plan (SP) recognize the importance of forests in agricultural productivity. The policy acknowledges that, major limitation facing agricultural sector in achieving high agricultural productivity is the depletion of on-farm natural resources base, including soil fertility and moisture. Thus the SP emphasizes sustainable approach to on-farm conservation and biodiversity.

- **Tourism Policy (2004)**

The National Tourism Policy underlines the importance of environmental conservation in tourism development especially conservation of ecologically sensitive areas such as Jozani Chwaka Bay National Park, Ngezi–Vumawimbi Nature Forest Reserve and Kiwengwa-Pongwe Forest Reserve for the development of eco-tourism activities. It calls for the enforcement of Environmental Management and Sustainable Development Act pertaining to Environmental Impact Assessment (EIA) in all tourism development activities.

- **National Land Policy (1995)**

The National Land–use Policy among other things, provides background information on population, human settlements and community resources, and provides planning recommendations for different sectors such as forestry, agriculture, tourism, coastal and marine resources management. It identifies areas for forest development activities.

- **Fisheries Act (2010)**

The Fisheries Act recognizes that fishing is an important economic activity for the people and puts emphasis on increasing awareness on the need of sustainable management of marine resources and calls for community participation in coastal resources management. Development of Marine and Coastal Environment Management Programme under which mangrove is a component of concern, provides opportunity to ensure mangroves are effectively managed so as to improve fish breeding grounds, and hence increase fisheries productivity.

- **Energy Policy (2009)**

As the energy policy is being formulated, the working agenda under the department of energy recognizes the contribution of forest sector in support of energy production for the people of Zanzibar. The fact that over 90% of the population depends on wood as a source of energy for cooking and heating is a result of the escalating tariffs of electricity and petroleum products, which in turn puts more pressure on the remaining natural vegetation.

- **Forest Resources Conservation and Management Act No. 10 of 1996**

This legislation on forest management supports the implementation of forest policy and provides legal opportunity for communities to participate and engage in forest management programmes in Zanzibar Islands. Formulation of Community Forest Management Agreements is a result of this Act.

CHAPTER FIVE

NATIONAL FOREST MONITORING AND MEASUREMENT, REPORTING AND VERIFICATION SYSTEM

5.1 Overview

The basic requirement for a country to implement REDD+ among other things includes setting-up forest Reference Emission Level (REL) and/or forest Reference Level (RL). While REL estimates the gross emissions from deforestation and forest degradation (REDD), RL covers also removals through sustainable management of forests, conservation and enhancement of forest carbon stocks.

5.2 National Forest Monitoring and MRV System

Tanzania envisages participating in the implementation of REDD+ and has started setting up her Monitoring and Measurement, Reporting and Verification (MRV) system for the determination of REL/RL. In line with the methodological guidance for activities related to REDD+ under discussion by UNFCCC (Durban decision -/CP.17), Tanzania is undertaking her national forest resources inventory, estimating historical deforestation and forest degradation and or growth rates. However, as also suggested by the guidance, there is flexibility in determining REL/RL to enable countries to progressively include more REDD+ activities as data becomes available.

These guides require that on submission of information on reference levels, each developing country Party aiming to undertake REDD+ should include in its submission transparent, complete, consistent with agreed guidance by the Conference of the Parties (CoP), and accurate information for the purpose of allowing a technical assessment of the data, methodologies and procedures used in the construction of REL/RL. It is further guided that the information provided should follow the most recent guidance and guidelines of the Intergovernmental Panel on Climate Change (IPCC), as adopted or encouraged by the CoP, as appropriate. The MRV system and tools should also be consistent with the suggested Global Observation of Forest and Land Cover Dynamics (GOFC-GOLD) methods and the emerging standards and protocols of the Intergovernmental Group on Earth Observations (GEO).

MRV provides a system on how to account for the amount of forest carbon, including changes over time. Monitoring and Measurement for REDD+ refer to collection of data and information for the estimation of emissions and removals of GHGs from deforestation and forest degradation, forest conservation, sustainable management of forests and enhancement of forest carbon stocks. It involves determination of changes in carbon stocks and GHG emissions from changes in forest cover, and the enhancement of forest carbon stocks.

In the IPCC Good Practice Guidance for Land Use, Land-Use Change and Forestry (*GPG-LULUCF*), REDD+ activities are covered in three categories:

(i) "forest land converted to other land" – deforestation

(ii) "forest land remaining as forests" – degradation, forest conservation, sustainable forest management, and enhancement of carbon stocks

(iii) "other land converted to forest" – afforestation/reforestation of non-forest land.

The IPCC GPG is at present a widely acceptable official document that provides methodologies for the estimation of emissions and removals of GHGs. It refers to two basic data inputs:

i. **Activity data,** i.e. extent of emission/removal category in the case of REDD+, refers to area of deforestation, forest degradation, forest conservation, sustainable management of forests and enhancement of forest carbon stocks presented in hectares over a known period of time. This can be determined using the following approaches:
   - Approach 1. Identifies the total area for each land category and provides net area changes i.e deforestation minus afforestation
   - Approach 2. Involves tracking of land conversions between categories, resulting in a non-spatially explicit land-use conversion matrix
   - Approach 3. Extends Approach 2 by using spatially explicit land conversion information, derived from sampling or wall to wall mapping techniques

   Under a REDD+ mechanism, land cover/land use changes will need to be identifiable and traceable. Thus Approach 3 is the only option that will meet this goal.

ii. **Emission factors,** i.e emission/removals of GHGs per unit area, eg. CO_2 emitted or sequestered per hectare. The carbon changes are determined in the five IPCC pools: above ground biomass, below ground biomass, litter, dead wood and soil organic carbon. There are three Tiers of data for emission factors in the IPCC GPG that are derived from ground measurements:
   - Tier 1: The use of IPCC default values such as above ground biomass in six ecological zones per Africa, Asia and Latin America (IPCC Emission Factors Data Base – EFDB). This provides crude estimates of ±70% of the mean.
   - Tier 2: This is the improvement of Tier 1 where country specific data collected within the national boundary are used. More detailed strata may also be delineated to improve the precision of estimations.
   - Tier 3: Uses actual inventory with repeated measurements from permanent sample plots for the direct determination of forest biomass changes. This is the most rigorous approach associated with highest level of efforts.

Moving from Tier 1 to Tier 3 increases the accuracy and precision of the estimates, but also increases the complexity and the cost of measurement and monitoring. Therefore, before moving to Tier 3, Approach 2 for activity data and a combination of Tier 1 and 2 for emission factors could be used. This information can be provided through National Forest Inventory (NFI). As

more data will be generated from demonstration activities during the REDD+ piloting phase, higher tier levels will be used in the MRV system. Internationally acceptable methods, guidelines, and standards will be used for the collection of high quality data.

Reporting in the MRV system implies the compilation and availability of national data and statistics for information in the format of a GHGs inventory. Reporting requirements to the UNFCCC (National Communications) may cover issues other than just those subject to measurement. The core elements of the national communications are information on emissions and removals of GHGs and details of the activities a country has undertaken to fulfil its commitments under UNFCCC.

Verification, on the other hand, refers to the process of independently checking the accuracy and reliability of reported information or the procedures used to generate information. This verification is done by a totally independent and external review. The UNFCCC Secretariat through its experts will verify the data reported. The verification process concerns all the variables that were reported under REDD+. All the data, including the satellite and national forest inventory data will have to be made available in order to allow the verification of the GHG inventory.

In setting up Tanzania's MRV system, considerations are also taken to include Safeguard Information System (SIS) that will provide information on how REDD+ safeguards are being addressed and respected throughout the implementation of REDD+ activities according to the Cancun Agreement (Refer Chapter 7). This system will require spatial monitoring information that is:

i. Consistent with the objectives of National Forest Programme (NFP) and international agreements;
ii. Transparent and effective national forest governance structures;
iii. Respect for the knowledge and rights of local communities;
iv. The full and effective participation of relevant stakeholders;
v. Consistent with the conservation of natural forests and biological diversity;
vi. Actions to address the risks of reversals (permanence) and,
vii. Actions to reduce displacement of emissions (leakage).

Figure 2 below shows how the MRV system is integrated with the REDD+ Safeguards Information System.

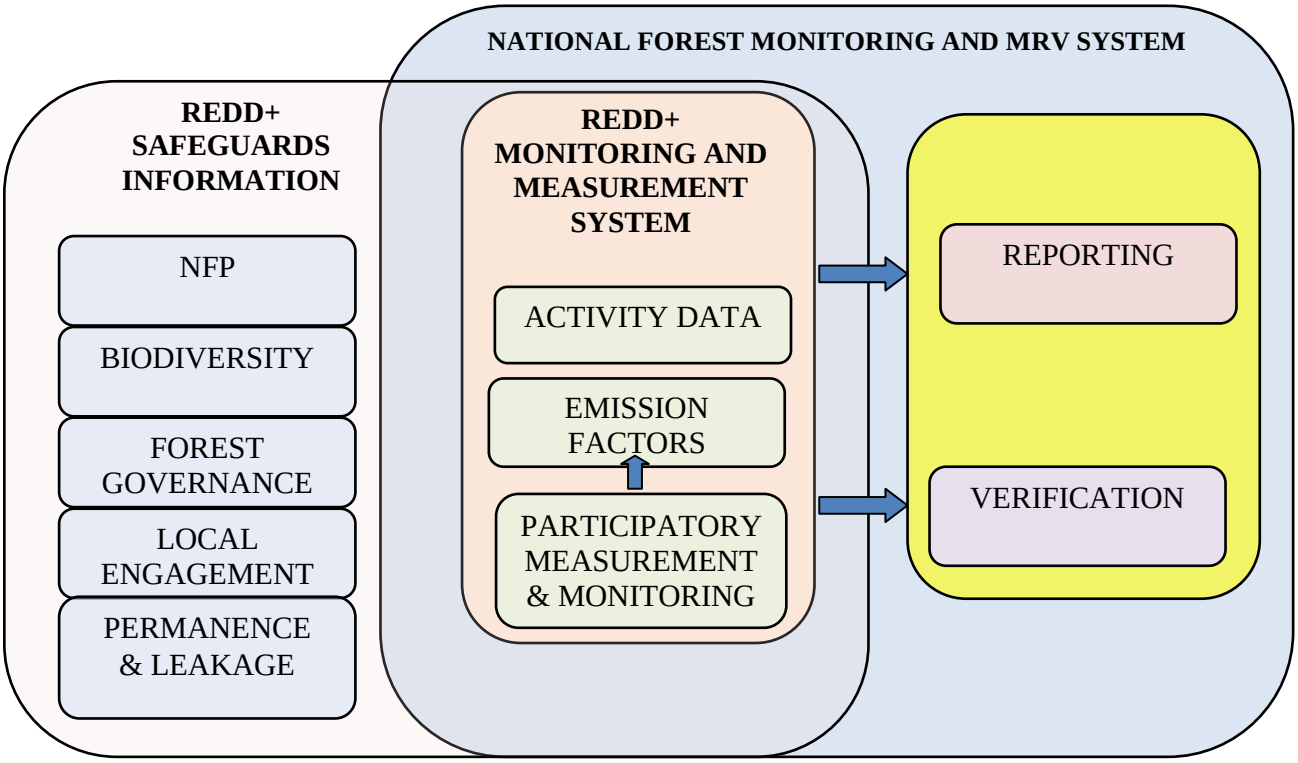

Figure 2: The Conceptual model for REDD+ Monitoring and Measurement, Reporting and Verification (MRV) System for Tanzania

5.3 Establishing the Reference Emission Level/Reference Level

For the determination of the Reference Emission Level/Reference Level the following information is required: total forest area (ha), average growing biomass stock (t/ha), the rate of deforestation (ha/yr), degradation rate (t/ha/yr) and biomass growth rate (t/ha/yr). Based on FAO Global Forest Resources Assessment (FRA) of 2010, the total forest area in Tanzania is 33.4 million ha with a deforestation rate of 403,000 ha per annum. Using an average biomass stock of 103 t/ha the annual CO_2 emissions due to deforestation are estimated to be 76 million tons.

For the purpose of estimating annual biomass increment for the entire country, a rate of 1.25 tons/ha/year suggested by Millington and Townsend (1989) was used. Taking a low rate of biomass loss of 2 tons/ha/year through degradation, the net CO_2 emission from degradation at the national level is estimated to be 46 million tons annually (Table 3). The total annual CO_2 Emissions due to deforestation and forest degradation are, therefore, estimated to be 122.14 million tons.

Table 3: Current Net Annual CO_2 Emission Due to Deforestation and Forest Degradation

Total Forest Area (million ha)		33.4		
Average Growing Biomass Stock t/ha		103		
[1] Growing Biomass Stock (million t)		3636		
			Losses	**Gains**
Deforestation	Annual rate of Deforestation (million ha/yr)	0.40		
	Annual CO_2 Emission due to Deforestation (million t)		**76.17**	
Degradation	[2] Biomass Growth Rate t/ha/yr through forest enhancement	1.25		
	Annual Growing Biomass increment (million t)			41.75
	Annual Biomass loss at the degradation rate of 2 t/ha/yr (million t)		66.80	
	Net biomass loss due to degradation (million t)		25.05	
	Annual CO_2 Emission due to Degradation (million t)		**45.97**	
Total annual CO_2 Emission due to Deforestation & Degradation (million t)		**122.14**		

For reporting to FAO FRA 2010, for example, Tanzania used satellite imagery interpreted data of 1984 (Millington and Towsend, 1989) and compared these with 1995 data by Hunting Technical Services (1997) for the determination of land cover changes in the country. The annual deforestation was 403,000 ha/year for the forest land use cover, while that of Other Woodlands (OWL) was 1,174,538 and the remaining Other Land (OL) area increased by 1,586,817 ha annually. The deforestation in the forest category is within the range of the common quoted annual rate of deforestation in Tanzania of between 130,000 and 500,000 ha but that of OWL seems to be unrealistically very high. This could be explained by an oversight on the analysis of the two data.

Also in this reporting, a default value derived from data obtained from the Centre for Energy, Environment, Science and Technology (1999) was used to estimate stocking levels in observed forests. From that study five ecotypes were distinguished: tropical closed forest (185 m^3/ha), mangrove forests (120 m^3/ha), miombo woodlands (32 m^3/ha), wooded grassland (32 m^3/ha), and thicket and shrubs (10 m^3/ha). This gave rise to a weighted standing volume value of 36 m^3/ha which was applied as an average stocking for all the forest types. This value was also used to estimate the standing forest biomass. These standing volume figures and the resulting default value used were very low compared to different studies in Tanzania which show for example that miombo woodlands have 39 to >120 m^3/ha (Temu, 1980; Kielland-Lund, 1990; Malimbwi *et. al.,* 1994; Malimbwi, 2000) while montane forests have 1500 to 2600 m^3/ha (Zahabu and Malimbwi, 1998; Munishi *et. al.,* 2004).

Tanzania is currently undertaking her National Forest Resources Monitoring and Assessment (NAFORMA) in mainland and Zanzibar Wood Biomass Survey (ZWBS) for the determination of REL/RL. The country is also estimating historical deforestation and forest degradation and or growth rates in line with the methodological guidance for activities related to REDD+ under discussion by UNFCCC. As also suggested by the guidance, this process will follow a step-wise approach that allows progressively determination of REL/RL for REDD+ as data becomes available.

5.4 National Forest Resources Monitoring and Assessment (NAFORMA) and Zanzibar Wood Biomass Survey (ZWBS)

The country has not carried out national forest inventories in the past. Therefore the starting point was to initiate a NAFORMA and ZWBS. NAFORMA and ZWBS will:

i. Build the capacity on national forest inventories and remote sensing,
ii. Determine the current land use cover/forest extent,
iii. Determine the current forest growing stock,
iv. Carry out a social survey to identify drivers of deforestation and forest degradation and assessment of REDD+ safeguards, and
v. Design a forest monitoring system using permanent sample plots.

NAFORMA and ZWBS will therefore produce most of the essential inputs to the REL/RL establishment. They will also capture most of the data required for the determination of REDD+ safeguards. The construction of the REL/RL will therefore start as the data becomes available.

5.4.1 Approaches for assessing historical Carbon stocks and emissions

The remote sensing community has proposed several ways to measure deforestation accurately and reasonably cheap. Measuring forest degradation (loss of biomass within a forest) remotely is much more problematic. An alternative way to measure changes on standing carbon is carrying out a ground inventory basing on permanent sample plots.

Tanzania like other developing countries has very little reliable data on forest stock changes. The absence of forest data is the outcome of the fact that continuous forest stock monitoring in PSPs is not adequately carried out. While NAFORMA and ZWBS provide future solution to this problem, existing PSPs from previous research with re-measurements within the present time can be utilised for the current uses. The Government through the UN-REDD Tanzania programme has commissioned institutions with PSPs to assess degradation/carbon sequestration in different vegetation types across the country. Data from these studies will be used to determine degradation indices for different forest types in the country.

For the estimation of historical forest area change, FAO Forest Resources Assessment Remote Sensing Survey (FRA-RSS) approach will be adopted. FRA-RSS is a continuous process of assessing the global forest condition over a 5 to 10 years interval. This assessment is done by

means of Remote Sensing Survey (RSS) sampling tiles all over the globe and produces data at continental level – not national level. There are 79 RSS tiles that fall in the territory of Tanzania. This is, however, too little to measure national forest cover change with any degree of accuracy. With technical assistance from FAO, the FRA-RSS tiles will be relocated over the 850 NAFORMA PSPs clusters. Currently, the forest cover change is being determined by assessing trends of two periods of 1990-2000, and 2000-2010. This assessment will also generate data for REDD+ safeguards monitoring.

5.4.2 Monitoring for REDD+

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. After setting up a REL/RL as pointed out earlier, a system of monitoring the changes needs to be established.

The continuous assessment in the PSPs linked up with the continuous FRA-RSS process will also ensure monitoring of the MRV process in Tanzania. The NAFORMA and ZWBS PSPs will be re-measured in year 2 or 3 after NAFORMA and ZWBS field work. The ground data will then be used with the national updated FRA-RSS data to detect forest changes and provide a robust and efficient monitoring process for the REDD+ implementation. For Tanzania mainland, this work is currently done by the Government under the support of the UN-REDD Tanzania programme in collaboration with NAFORMA.

5.4.3 Determination of REL/RL at sub-national and project levels

The determination of REL/RL as described above addresses issues at national level. However, different stakeholders will contribute internally to the countries' effort to attaining REDD+. A system of nested baseline[5]/REL/RL will therefore be adopted in order to provide incentives to stakeholders within the country; in other words, to enable the state to account in a fair way for gains and losses and to reward stakeholders who are responsible for reductions in carbon losses.

The NAFORMA/ZWBS data is perfectly useful to the district level, which means the national REL/RL could be apportioned to the district level. Within a district, different forest regimes, e.g. national parks, forest reserves, village forest, community forests, and private forests could account for their carbon levels in a similar way to the CDM approach where the individual project is responsible for accounting for its own carbon benefits. From the start of a carbon project, monitoring is done to determine the standing stock in the project area. At any accounting time the difference between the carbon emissions or removals of the district's REL/RL and the carbon emissions or removals for project activities represent the carbon value. With this system the individual baselines will add up to the district's REL/RL and different districts will then sum up to the national REL/RL.

[5] Nested baseline here means *an interlocking set of baselines that cover the whole country and aggregates to the national baseline.*

In order to harmonise the measurement and monitoring approaches within the country, the National Carbon Monitoring Centre (NCMC) will be established. Harmonised approaches are needed for the compatibility of the data generated at project level with those at national level. It is expected that the data that will be generated at the project level will be of high resolution compared to that produced at the national level. The methods to be applied are also expected to be participatory in order to ensure engagement of local communities in the MRV process. With this high resolution data generated repeatedly throughout the country, the country will eventually be able to report at tier 3 level.

5.4.4 Regular reporting

Reporting will be needed at various stages and levels. Individual projects need to report on the carbon data to the national REDD+ scheme for official monitoring. This should be done regularly. The government and project developers will then account for carbon to the international community, which also requires regular reporting to the UNFCCC. Reporting on the financial flow, livelihood issues and REDD+ safeguards will also be required at all levels. Tanzania has adequate support to access remotely sensed data and even bridge the gap in available ground data on forest carbon stocks.

5.4.5 Verification of the measurements

Before the transactions of carbon credits take place verification of the measurements is necessary. Verification is done by an independent party and establishes that the carbon measurements are reliable and accurate. Both national and international levels of verification will be necessary since the REL/RE will be set at these levels. The verification of the national REL/RL will be done by an independent verifier. Within the country the independent party would have to be a licensed and registered agent, in the same sense as a chartered accountant, but would not necessarily have to be external to the country. Ideally the verifier will undertake ground spot measurements to check the accuracy of the field measurements. After verification, carbon will be purchased through a national REDD+ scheme and other voluntary schemes. The National Carbon Monitoring Centre (NCMC), an independent semi-autonomous institution will verify carbon data using approved guidelines. The NCMC will among other things undertake the following core tasks:

i. Development and updating of national baseline database using data from NAFORMA and other sources,
ii. Development and improvement of approved carbon assessment methods,
iii. Training on the approved carbon assessment methods,
iv. Development and maintenance of the carbon database,
v. Analysis of data,
vi. Submission of the results to the government REDD oversight authority and stakeholders,
vii. Submission of the data to the appropriate custodians including NAFOBEDA, and
viii. Verification of the amount of carbon emissions reduced.

CHAPTER SIX

THE STRATEGIC IMPLEMENTATION OPTIONS

6.1 Overview

Following the Bali Road Map (Decision 2/CP.13) the United Republic of Tanzania is participating in implementing REDD+ pilot activities. Among other provisions, the Road Map requests Parties to explore a range of actions, identify options and undertake efforts, including pilot activities, to address the drivers of deforestation relevant to their national circumstances. The focus is to reduce emissions from deforestation and forest degradation thus enhancing forest carbon stocks through sustainable management of forests.

6.2 Key Issues and Strategic Interventions

This National REDD+ Strategy identifies ten (10) main strategic interventions and/or key result areas for the REDD+ implementation process in Tanzania. These areas are derived from key issues identified in the foregoing chapters, and from the drivers of deforestation and forest degradation and their underlying causes as elaborated therein. The section below provides strategic statements and rationale for each key result area, as well as its goals, strategic objectives and activities.

Key Result Area 1: REDD+ baseline scenario, monitoring, reporting and verification systems established

Strategic Statement and Rationale

The transactions of carbon credits require an effective MRV system that will ensure reliable and accurate measurements and reporting for validation. A national baseline scenario and reference emission levels are key aspects of determining carbon benefits of any forest carbon scheme. Accurate determination of carbon changes based on historical trend against which additional carbon benefits are made as a result of any scheme is thus also important. Integrated methods to quantify REDD+ and other forest benefits are as well important to realize equitable co-benefit sharing. However, carbon monitoring, assessment and verification present technical challenges. Historical forest data, on which predictions are based, is unreliable or non-existent. There are now fast and accurate ways of measuring carbon stocks with new technologies such as satellite imaging and computer modeling so it should be possible to measure and verify carbon reductions. Nevertheless, there is the question of cost for the relatively new technology and capacity building required to carry out effective monitoring and accounting.

Goal: To set up a Reference Emission Level and Monitoring, Reporting and Verification System

Strategic Objectives

Strategic Objective 1: A National Reference Emission Level /Reference Level determined

Main strategic action is to design, acquire and maintain necessary, data, infrastructure (both soft & hard ware) and facilities for preparation of Reference Emission Level/Reference Level

Strategic Objectives 2: A National Monitoring and Measurement, Reporting and Verification System Established.

The main strategic actions include:

- Establishing and operationalizing NCMC.
- Establishing monitoring system
- Establishment of National REDD+ Reporting system
- Establishment of a national carbon verification system

Strategic Objectives 3:Integrated methods to quantify REDD+ and other forest benefits such as: Biodiversity, Ecotourism, and Water catchment related to payment for environmental services established

The main strategic action is to develop integrated methods to quantify REDD+ and other forest benefits such as biodiversity, ecotourism, and water catchment related to payment for environmental services

Key Result Area 2: Financial mechanisms and incentive schemes for REDD+ established

Strategic Statement and Rationale

Development of a clear, equitable and transparent mechanism for receiving and handling REDD+ funds is a pre-requisite for REDD+ scheme. Active participation of all stakeholders is important in ensuring effective implementation of REDD+. Provision of sufficient incentives/compensation to motivate stakeholders to reverse the drivers of deforestation and forest degradation is central objective of REDD+ scheme. Analyzing aspects of social safeguard policies so as to assess likely positive or negative impacts is imperative for equitable distribution of resources accruing from REDD+.

Goal: To set a gender sensitive, transparent and sustainable financial mechanism and incentive schemes for REDD+

Strategic Objectives

Strategic Objective 1: To develop a clear, equitable and transparent financial mechanism
The main strategic action is to design and establish a functional National REDD+ Fund

Strategic Objective 2: To develop a clear, transparent and equitable incentive/compensation scheme

The main strategic actions are:

- Design and establish National REDD+ Incentive/compensation Schemes
- Implement measures to improve incentives of REDD+ schemes
- Develop sustainable REDD + financing mechanism.

Strategic Objective 3: To establish an inclusive National REDD+ Safeguard System

The main strategic actions are:

- Build national and local levels capacities to address Social and Environmental Safeguards

- Support functioning of conflict resolution mechanisms

Key Results Area 3: All stakeholders are engaged and actively participate in the REDD+ implementation process

Strategic Statement and Rationale

Active participation of local government authorities, private sector and CSO is important in ensuring effective achievement of REDD+ implementation.

Goal: To engage and ensure equal and active participation of stakeholders in the implementation of REDD+ schemes

Strategic Objectives

Strategic Objectives 1: A participatory forest management regime is employed to ensure engagement of the local communities in implementation of REDD+ schemes.

The main strategic activities include;

- Capacity building of local communities in REDD+ implementation process

- Capacity building of the LGA and TFS in the implementation process of REDD+ activities

Strategic Objective 2: The private sector is engaged in implementation of REDD+ Schemes
The main strategic action is to engage private sector in implementation of REDD+ activities

Strategic Objectives 3. CSOs are engaged in implementation of REDD Schemes.

The main strategic actions include to:

- Engage CSOs in implementation of REDD+ activities
- Assess practices and lessons learnt from engagement of CSOs under pilot REDD+ projects implementation and other stakeholders

Key Result Area 4: All REDD+ schemes are well coordinated

Strategic Statement and Rationale

For effective and transparent implementation of REDD+ schemes, a coherent and credible framework for coordination of all REDD+ activities at national and sub-national levels is necessary.

Goal: To coordinate diverse stakeholders in the implementation of REDD+ related activities.

Strategic Objectives

Strategic Objectives 1: A national framework for coordination of all REDD+ schemes is developed to ensure effective implementation of REDD+ related activities

The main strategic actions include:

- Integrate REDD+ issues in existing government structures
- Build a REDD+ coordination capacity at LGAs

Key Result Area 5: All REDD+ financing options are well understood

Strategic Statement and Rationale

For the country to benefit and make right decisions will need relevant information on fund based financing options.

Goal: Exploration, analysis and negotiation of REDD+ financing options

Strategic Objectives

Strategic Objectives 1: To explore, analyze and negotiate financing options

The main strategic actions are:

- Explore and analyze existing financing options

- Capacity building on negotiation, exploration and analysis skills at all levels
- Engage in financing options negotiation processes

Key Result Area 6: Governance mechanism for REDD+ in place

Strategic Statement and Rationale

For the country to effectively participate in the REDD+ regimes, efforts should be made to study and develop an appropriate institutional framework for REDD+ governance. For the country to have a conducive and an enabling environment for the implementation of REDD+ regimes it is important to review existing REDD+ related policies and legal frameworks.

Goals

1. To develop institutional arrangement for REDD+ governance

2. To harmonise policies and legal frameworks in the context of REDD+

Strategic Objectives

Strategic Objectives 1: A national institutional arrangement for REDD+ governance developed to ensure effective implementation of REDD+ and equity in co-benefit sharing.

The main strategic action is to develop and operationalize institutional arrangement for REDD+ governance.

Strategic Objectives 2: Policy and legal frameworks for REDD+ implementation harmonized and endorsed by the government.

The main strategic actions are:

- Harmonize all REDD+ related policies and legal frameworks
- Subject all harmonised policies /strategies and legal framework documents to SEA/SESA

Key Results Area 7: Training programme and Infrastructure for REDD+ developed

Strategic Statement and Rationale

For the country to effectively participate in REDD+, a training programme in key aspects of REDD+ is necessary. For REDD+ to be effectively implemented a national REDD+ infrastructure development (e.g. MARV system GIS, Remote Sensing and Carbon Monitoring Centre) is necessary.

Goals

1. To develop a comprehensive national training programme for REDD+ actors.

2 To develop and put in place appropriate infrastructure for REDD+

Strategic Objectives

Strategic Objectives 1: To develop an equitable and implementable national training programme for REDD+

The main strategic actions include:

- Undertake a training needs assessment for REDD+ stakeholders
- Develop appropriate training modules for REDD+ stakeholders
- Undertake REDD+ training for various stakeholder groups

Strategic Objectives 2: To put in place and operationalize a national infrastructure for REDD+ implementation.

The main strategic actions include:

- Conduct a need assessment of infrastructure requirement for REDD+
- Establish and equip appropriate REDD+ infrastructure.

Key Result Area 8: Current knowledge and scientific understanding of REDD+ issues improved through research

Strategic Statement and Rationale

The actual REDD+ implementation, education and training programmes require support from research findings. The global scope of climate change necessitates that the research programme should aim at findings that receive international recognition. This calls strongly for international collaboration among research institutions to establish scientific networks to meet the global challenges of climate change.

There is generally lack of comprehensive research and methodology development programme for climate change adaptation and mitigation activities in Tanzania. Equally important, is lack of focused research in support of REDD+ implementation. Carrying out focused research in the areas of REDD+ relevant to Tanzania is therefore necessary.

Goal: To develop a comprehensive, demand driven and a well-funded national research programme for REDD+.

Strategic Objectives

Strategic Objectives 1: National research programme for REDD+ developed and implemented

The main strategic actions are:

- Undertake a research needs assessment for REDD+
- Develop sustainable funding mechanism for REDD+ related research
- Develop necessary infrastructure for REDD+ related research

Key Result Area 9: An effective information and communication system on REDD+ issues developed

Strategic Statement and Rationale

Effective and successful implementation of REDD+ will depend on how best Tanzania, other REDD+ countries and stakeholders will share experiences, lessons learnt and challenges encountered.

Goal: To establish an accessible national REDD+ information communication and networking system.

Strategic Objective

Strategic Objectives 1: A national REDD+, communication and networking system established

The main strategic actions include:

- Review a REDD+ information and communication strategy (RICS)
- Review national environmental education and communication strategy (NEECS) to include issues related to REDD+
- Develop Zanzibar Environmental Education and Communication Strategy (ZEECS)
- Support implementation of RICS, NEECS and ZEECS
- Developing information management system for REDD+ (e.g. Information Resource Centre)
- Dissemination of REDD+ related information (e.g. land tenure reforms and benefits) at all levels

Key Result Area 10: REDD+ strategy options for addressing drivers of D&D developed

Strategic Statement and Rationale

In order to be successful, a National REDD+ Strategy must target both direct and indirect drivers of deforestation and forest degradation (D & D). Tanzania has multiple drivers of D & D which interact in a complex structure. Major direct causes of deforestation and forest degradation are:

- Charcoal and firewood demand for domestic and industrial use
- Illegal and unsustainable harvesting of forest products
- Forest fires
- Agricultural expansion
- Overgrazing and nomadic pastoral practices
- Infra structure development
- Settlement and resettlement
- Introduction of alien and invasive species

These direct causes of deforestation and forest degradation are indirectly driven by market and policy failures, rapid population growth and poverty. The impact of these drivers differs according to geographical location and socio-economic set up of respective regions. The drivers are subjected to both temporal and spatial patterns. For immediate reduction of Carbon emission and for active and beneficial participation of Tanzania in REDD+ initiatives, strategic interventions have to be prioritized accordingly.

The Goal: To address drivers of deforestation and forest degradation.

The Strategic Objective: To develop and implement gender sensitive strategic options for addressing drivers of deforestation and forest degradation.

The Strategic Actions for each underlying cause are proposed in Table 4.

Table 4: Strategic Actions to Address Drivers of Deforestation and Forest Degradation

Driver 1: Charcoal and firewood demand for domestic and industrial use	
Underlying causes	**Strategic actions**
a. Poverty and inadequate livelihoods alternatives	• To Invest in sustainable forest based enterprises to create more employment opportunities especially for the marginalized groups in the forest sector for both timber and NTFP's • Improve Households economy to forest dependent communities.
b. Limited access to affordable alternative energy sources	• Diversification of energy sources other than traditional biomass (charcoal and fire wood) • Promote forest conservation.
c. Inefficient biomass energy use	• Diversification of energy sources other than traditional biomass (charcoal and fire wood) • Promote forest conservation. • Promote and enhance access to efficient biomass energy technologies.

Driver 2: Illegal and unsustainable harvesting of forest products	
Underlying causes	**Strategic actions**
a. Weak law enforcement	• Promote and support good governance • Review existing law enforcement mechanisms in the context of REDD+ • Scale-up Participatory Forest Management regime. • Strengthen incentive packages for both government officials and community-based forest management groups • Create awareness on forest law enforcement issues • Enforce interregional forest and environmental laws and protocols • Implement effective, participatory M&E mechanisms at different levels
b. Ineffective forest governance	• Define forest related property rights and accelerating participatory land use planning so that forests do not remain as open access resources • Ensure adequate financial, technical and managerial capacity for efficient centralized and decentralized management of forest reserves at all levels • Support forest sector institutional reform to increase accountability and transparency • Strengthen Coordination of inter-sectoral and ngos, Private Sectors and community groups for effective use of resources • Harmonise policies and legislative instruments related to forest resources • Monitor all forest investments and development projects to ensure adherence to the sector specific Environmental impact Assessment (EIA) guidelines

	• Promote integrated planning, monitoring and evaluation of all forest development projects
c. Market uncertaininties/failure	• Moving from administrative to competitive stumpage markets. • Operationalize payment for environmental services (PES) as a poverty reduction strategy for communities involved in protection of forest resources. • Promoting economic market pricing of wood products. • Studying the forest product (timber and wood fuel) value chains to identify weaknesses and "leakage" and assessing opportunities for tackling them • Developing a mechanism to engage the private sector in the forest sector for the entire value chain of forest products, from planting to end-product development • Promoting certification and sales of value added forest products to various groups and sectors.
d. High internal and cross border demand for forest products	• Establishment and management of forest plantation/ wood lots/ agro-forestry for commercial use • Knowledge and experience sharing across the borders • Awareness to communities and cross border officers on law enforcement • Strengthening checks and controls at border posts.
e. Insecure land and forest tenure	• Support participatory land use planning • Support implementation of land reforms and issuance of Customary Certificate Rights of Occupancy (CCROS)
f. Inadequate funding for forest resources management	• Approve cost –benefit sharing systems between the Government and forest adjacent communities under Joint Forest Management (JFM) • Explore other potential financing options
g. Wood species preference for timber	• Promote planting and awareness raising on timber species • Promote environmental-friendly wood utilization technologies • Promote the use of lesser known and lesser utilized timber species

Driver 3: Forest fires	
Underlying causes	**Strategic actions**
a. Low level of understanding the effects of fire to the forest ecosystems.	• Strengthening mechanisms for controlling traditional/taboos activities (agricultural farm establishment, hunting, early burning and charcoal making)
b. Uncontrolled charcoal making.	• Improve charcoal making technologies and practices.
c. Detrimental cultural practices	• Educate and advocate abandoning of unfriendly environmental, social and economical traditions and cultural beliefs. • Enforce laws, regulations and by-laws. • Enhance awareness raising campaigns on forest fires. • Support application of useful traditional knowledge and participation of influential leaders. • Promote Appropriate Beekeeping practices in forests

Driver 4: Agricultural Expansion	
Underlying causes	**Strategic actions**
a. Poor farming systems	• Review existing land-use policies, programmes and plans in the context of REDD+ • Introduction and promotion of innovations that contribute to reducing carbon emissions from productive activities. • Support the enhancement of human resource capacity for mitigating climate change impacts including REDD+ • Support interventions that ensure communities use appropriate crops and improved seed varieties with high production • Support agro-ecosystems that promote soil fertility, productivity and crop protection (conservation agriculture). • Ensure effective implementation of the relevant agricultural policies, programmes and related legislation
b. Expansion of commercial farming (e.g. Bio-fuel, tobacco, tea, sisal etc)	• Advocate for government policy on large scale farming investment in the context of REDD+ • Support development and implementation of land use planning and monitoring of commercial farming activities • Support village level awareness raising on land tenure issues • Awareness raising to Economic Processing Zone (EPZ) practitioners on REDD+ activities • Enhance green labelling systems • Support TIC, ZIPA and interested partners to develop REDD+ investment guidelines

Driver 5: Overgrazing and nomadic pastoral practice	
Underlying causes	**Strategic actions**
a. Overstocking	• Review the livestock policy and strategies to reduce overgrazing and nomadic pastoral practices • Support commercial livestock destocking campaigns • Promote communal ranching
b. Dry season fodder shortages	• Develop and execute plans to promote dry season fodder production on private, communal and general lands • Implement effective plans for sustainable management of forest that enhances forage productivity under different forest management regimes • Promote technologies for and enhance access to concentrate feed at local level e.g. through on-farm research and training • To promote Medium and Large scale entrepreneurial processing feed production • Scale up fodder reserve system, especially silage and hay, for use during slack periods

Driver 6: Infrastructure development	
Underlying causes	**Strategic actions**
New economic growth prospects (oil, gas and mining)	• Review existing policy and legal frameworks • Reinforce existing policy and legal frameworks • Credible Environmental Impact Assessment • Promote integrated sectoral planning, monitoring and evaluation of new economic prospects development projects

Driver 7: Settlement and Resettlement	
Underlying causes	**Strategic actions**
a. Uncontrolled migration	• Control migrants
b. Rapid population growth	• Support and monitor family planning programmes
c. Land use conflicts and lack of land use plans	• Promote integrated sectoral planning, monitoring and evaluation of land use planning • Promote the use of GIS technology in planning. • Support land use planning commission to develop and implement national land use plans in the context of REDD+. • Develop buffer zones and clear forest boundaries. • Document experience from the surveyed villages/*shehia*. • Develop clear engendered guidelines for land tenure. • Review, Develop and enforce by-laws. • Support demarcation, survey and mapping of village/*shehia* lands.

Driver 8: Introduction of alien and invasive species	
Underlying causes	**Strategic actions**
Introduction of alien and invasive Species (plant species)	• Conduct detailed studies before introduction of exotic species e.g. invasiveness behaviour of various species • Increase monitoring of importing and planting of exotic species • Control existing invasive species

CHAPTER SEVEN

REDD+ SOCIAL AND ENVIRONMENTAL SAFEGUARDS

7.1 Overview

The primary goal of REDD+ is reduction of greenhouse gas emissions, consistent with the goal of the UNFCCC to achieve "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." REDD+ is expected to bring much more than emissions reductions; a properly designed mechanism is expected to contribute to multiple benefits. Depending on the location and type of REDD+ activity, these benefits potentially include poverty alleviation, forest dependent communities' rights, improved community livelihoods, technology transfer, sustainable use of forest resources and biodiversity conservation (Murphy, 2011).

However, REDD+ schemes do not automatically guarantee a capacity to link carbon sensitive policies with 'pro-poor' and environmental policies (for income, employment generation, for asset/rights/biodiversity conservation and for social/cultural cohesion). REDD+ induced changes to legal frameworks that regulate incentives, rights, financing options (including taxation) and practices do not necessarily ensure environmental safeguards and possible impacts on the environment as well as livelihoods and rights of communities.

Safeguards for REDD+ have, therefore, been included in the Cancun Agreement to ensure that REDD+ actions do not cause negative social or environmental impacts. At the 16th Conference of the Parties in December 2010, Parties to the UNFCCC adopted the decisions to include a list of safeguards for REDD+, which address both social and environmental aspects, and affirm that the implementation of REDD+ activities should be carried out in accordance with the safeguards. Parties aiming to undertake REDD+ activities in the context of the provision of adequate and predictable support were requested to develop, among other things, a system for providing information on how the safeguards would be addressed and respected throughout the implementation of the activities, while respecting sovereignty.

Tanzania is committed to developing and enforcing REDD+ social and environmental safeguards during implementation of this strategy. Safeguards can be broadly understood as policies and measures that aim to address both direct and indirect impacts on communities and ecosystems, by identifying, analyzing, and ultimately working to manage risks and opportunities (Murphy, 2011). A REDD+ safeguard system in the context of this Strategy is meant to include a review of REDD+ activities against environmental, social and governance screening criteria; a redesign of activities to address risks and maximize benefits; monitoring of and reporting on overall compliance against a list of agreed standards; and verification of the results. This Strategy aims to address these issues in two major ways as elaborated below.

7.2 Development of a System for Providing Information on Safeguards

The system for providing information on how safeguards are addressed and respected envisaged for the implementation of this Strategy will be consistent with Annex 1 of Decision 1/CP.16[6]. In addition, the broader MRV principles that are relevant in this context will include: transparency, consistency over time, accuracy, international comparability, and complete coverage in addressing each of the seven safeguards as described in paragraph 2 of Appendix I to Decision 1/CP.16. Further safeguard characteristics such as the involvement of stakeholders, reliability of information, regularity, and reflection of national circumstances as well as existing national arrangements and institutions have been inbuilt in the text and in the process of developing this Strategy. It has further been operationalized in the design of the Action Plan for the Strategy. Consistency with the provision of related information to relevant international agreements will be ensured. The system will be simple and aiming for continuous improvement.

The preparation phase of this Strategy has closely complied with the World Bank's set of ten safeguard policies and the accompanying access to information policy. So will be the implementation phase. Although these policies provide guidelines for the Bank and borrowing countries in the identification, preparation, and implementation of most Bank-financed programmes and projects, they are very relevant for REDD+ in Tanzania. The Bank's safeguard policies are designed to avoid, mitigate, or minimize adverse environmental and social impacts of projects supported by the Bank. The most relevant World Bank policies, in our case, will be the policies on Environmental Assessment (OP/BP 4.01), Natural Habitats (OP/BP 4.04), Forests (OP/BP 4.36), Involuntary Resettlement (OP/BP 4.12), and Indigenous Peoples (OP/BP 4.10).

7.3 Operationalisation of Social and Environmental Safeguards

The UNFCCC through Cancun Agreement has issued operational guidelines on REDD+ safeguards, which countries are required to align to when crafting their own safeguards depending on country circumstances. Cognizant of the national laws on EIA, under this strategy, Tanzania envisages to identifying and analyzing existing global and national safeguards so as to prepare inclusive and comprehensive national social and environmental safeguards for implementation of REDD+ projects.

The World Bank policies and procedures mentioned above also apply to activities financed by the FCPF and which Tanzania is a legitimate beneficiary. However, since the policies and procedures were mainly developed with project-based lending in mind rather than strategic planning processes, it is challenging to apply them to the Readiness Planning process. The REDD+ readiness phase is meant to support analytical and preparatory work for establishing the key pillars of REDD+ readiness including the preparation of the national REDD+ strategy. The multi-sectoral, programmatic nature of REDD+ readiness requires a strategic approach for integrating social and environmental considerations. The FCPF has, therefore, adapted the application of safeguards for the "readiness" phase for REDD+ through the use of Strategic

[6] UNFCCC. "Guidance on systems for providing information on how safeguards are addressed and respected and modalities relating to forest reference emission levels and forest reference levels as referred to in decision 1/CP.16."

Environmental and Social Assessment (SESA). SESA is a tool that seeks to integrate both social and environmental impact issues into the policy-making process, leading to sustainable strategies, policies and development programmes.

UN-REDD Social and Environmental Principles and Criteria put a special emphasis on free, prior, and informed consent guidance; and complaints mechanisms guidance, especially in dealing with the rights of indigenous peoples and local communities. Most of these focus on avoiding/mitigating negative impacts of the proposed implementation options. In the context of this Strategy, the UN REDD standards explicitly align with UN Declaration on Rights of Indigenous People and other human rights instruments and multi-lateral environmental agreements to which Tanzania is Party.

Safeguards support the design and implementation of government-led REDD+ programmes to help ensure respect for the rights of indigenous peoples and local communities and to help generate significant social and environmental benefits. Although entirely voluntary, these standards explicitly go beyond minimum safeguards, and identify and elaborate additional benefits. Their development has been based on an ongoing engagement with governments, civil society organizations, community associations, international policy and research institutions, and the private sector.

Tanzania's own national legal and policy framework provides important environmental and social safeguards that apply to REDD+ including laws and policies relating to land and forest property rights, and environmental impact assessment. Each of the safeguards mentioned above has strengths and some significant gaps in terms of the social and environmental issues that are covered; the phases of REDD+ that are targeted (design, implementation, impact evaluation), the methods and tools available for operationalisation, and stakeholder participation. Therefore, it is important for Tanzania to develop an overall framework for integration of REDD+ safeguards that maximizes complementarities, and avoids duplication. The development of Social and Environmental Safeguards (SES) for this Strategy will be informed by an analysis of the current environment policies, laws and regulations, the safeguards mentioned above and any unforeseen social and environmental impacts resulting from the implementation of this Strategy.

The SES will give special consideration to livelihoods, resource use rights (including those of forest dependent Peoples), conservation of biodiversity, cultural heritage, gender needs, capacity building and good governance as reflected in the Action Plan. A monitoring system should be set in place to ensure that unforeseen impacts are detected, and a process to address negative impacts put in place during the design and implementation process of REDD+ policy.

CHAPTER EIGHT

RISKS ASSOCIATED WITH REDD+ DESIGN AND IMPLEMENTATION

Tanzania is likely to face certain risks as it implements the National REDD+ Strategy. These risks, which will be from the external and internal environments, will have to be constantly monitored and relevant mitigation measures taken. Table 3 summarizes some of the major risks and proposed mitigation measures.

Table 5: Major risks associated with design and implementation of REDD+ and proposed mitigation measures

Risks	**Probability**	**Level of Impact**	**Proposed mitigation measure**
1. It has been estimated that investments of US$13–33 billion will be needed every year to halve GHG emissions from forests globally by 2030. In the context of economic recession and lack of commitment, money of this scale may not be realizable.	Very high	Very high	• Diversification of REDD+ funding mechanisms. • Formulation and enforcement of legal binding agreements at the international level (e.g. Polluter Pays Principle) • Promote regional integration on economic and environmental issues
2. Investors in a REDD forest will want to see their investment protected over the long term (i.e. the issue of permanence). Sustaining the forest in the long term may, therefore, lead to developed nations with a stake in forest carbon to have a say in what developing-country governments like Tanzania do with their land.	Very high	Very high	• Address and respect national and international safeguards. • Promote genuine international agreements on permanence related to REDD+ activities • Promote the concept of allocation of shares to communities and government for dual ownership of the forest
3. International leakage as a result of wood market demand	High	Low	• Promote regional programmes and treaties on environmental issues
4. Delay of agreement on REDD+ mechanism at international level	High	Very high	• Active participation in international negotiations by all Parties • Promote common position among developing countries
5. Possible change of political	Very high	Very	• Formulation and enforcement

Risks	Probability	Level of Impact	Proposed mitigation measure
commitment at the international level		high	of legally binding agreements at the international level. • Ensure high performance on REDD+ by recipient countries
6. External influences on the design and implementation of REDD+ processes.	Very high	Very high	• Promote country-driven design and implementation of REDD+ processes.
7. Refugee factor	High	High	• Support development and implementation of Land Use Plan • Promote regional cooperation and conflict resolutions • Promote law enforcement measure • Support disaster preparedness strategies
b) Internal			
8. Insufficient support due to complexity of the REDD+ concept	High	High	• Awareness raising at all levels.
9. Insufficient appropriate alternative sources of energy to wood biomass may make it difficult for some communities to participate in the implementation of this Strategy.	High	Very high	• Promote sustainable and effective wood biomass utilization • Promote alternative sources of energy (solar, biogas, wind etc) • Enforcement of laws and regulations
10. Insufficient appropriate technology on efficient utilization of wood biomass.	High	Very high	• Promote research on appropriate technology for efficient utilization of wood biomass
11. Market uncertainty to fulfill expectations	High	Very high	• Diversification of REDD+ financing mechanism
12. REDD+ revenues may not be sufficient to address drivers of D&D	High	Very high	• Promote other types of investments to address direct drivers of D&D
13. The possibility of leakage at project level, whereby deforestation is simply shifted from project site to other places; makes the permanence of	High	High	• Promote nested approach in implementing REDD+. • Implement measures in 9 above • Intensify law enforcement

emissions reductions uncertain.			measures • Improve land tenure and security
14. Uncertainities in accuracy, fairness and effectiveness of monitoring, reporting and verification of REDD+ schemes may be a disincentive for continued participation of some communities in the schemes.	High	High	• Harmonize methodological approaches. • Translate and simplify methodologies into user friendly Swahili versions. • Abide by generally acceptable methodologies
15. Behavioral change in adopting REDD+ initiatives may take a long time and thereby becoming costly.	High	High	• Awareness raising campaigns. • Promote REDD supportive alternative income generating activities in the bridging period (e.g. ecotourism, beekeeping, mushroom collection, butterfly farming)
16. Competing land uses, including land grabbing.	High	High	• Promote participatory village land use plans. • Engage fully and transparently, good governance institutions.

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APPENDICES

APPENDIX 1: LIST OF STUDIES AND DOCUMENTS CONSULTED

1. National REDD Framework
2. In-depth Study for Development of National REDD Trust Fund
3. In-depth Study on Legal and Institutional Set Up for REDD
4. In-depth Study on Business Case for REDD
5. In-depth Study on REDD for Rural development: Land Use & Land Tenure
6. In-depth Study on REDD Knowledge Management & Information Communication
7. National Forest Programme
8. Proposals for Pilot REDD Demonstration Projects
9. Proceedings of REDD Consultations Workshops
10. National Environmental Policy
11. Environment Management Act 2004
12. National Forest Policy
13. National Forest Act
14. National Land Policy
15. National Land Act
16. Village Land Act
17. National Energy Policy
18. National Human Settlements Development Policy
19. Eastern Arc Mountains Conservation Strategy
20. National Environment Education Communication Strategy
21. Readiness Preparation Proposal (RPP)
22. Copenhagen Accord
23. Norway-Tanzania Letter of Intent
24. National Action Plan for Adaptation (NAPA)
25. National Strategy for Growth and Reduction of Poverty (NSGRP)/MKUKUTA
26. National Forest Resources Monitoring and Assessments (NAFORMA)Project Document
27. Hifadhi ya Misitu ya Asili (HIMA) - Piloting REDD in Zanzibar through Community Forest Management Project Proposal.

APPENDIX 2: GLOSSARY

Additionality
The requirement that an activity or project should generate benefits, such as emission reductions or carbon stock enhancements, that are additional to what would happen without the activity.

Afforestation
The conversion of non-forest land to permanent forested land for a period of at least 50 years (as defined by the Kyoto Protocol).

Agro forestry
A forestry approach that integrates trees and shrubs with crops and/or livestock to create more diverse, productive, profitable, healthy and sustainable land-use systems.

Annex I and non-Annex I countries
Under the UN Framework Convention on Climate Change (UNFCCC), nations fall into three categories: developed countries (Annex I countries), developing countries (non-Annex I countries) and central European economies in transition (Annex B). In accordance with the principle of 'common but differentiated responsibilities', Annex I countries have greater commitments to enacting policy and reporting than non-Annex 1 countries.

Assisted natural regeneration
The technique involved in mixed planting and maintenance of indigenous tree species to promote biodiversity, particularly in degraded areas. Prior to the introduction of valuable species in forest areas, native pioneer species are used to simulate natural regeneration.

Auditor – A recognized, qualified and independent professional who evaluates which of the individual CCB Standards criteria are satisfied by the project in question. Based on this determination, the project may earn CCB Standards approval or, in exceptional cases, achieve Gold Level status. Given that investments in carbon offset projects are likely to take place before projects are initiated, it is important that *ex ante* (i.e.*' beforehand')* validation assessments are performed, such as through the use of the CCB Standards.

Biomass
The total dry mass of living organic matter.

Canopy Cover
The share of the surface of an ecosystem that is under the tree canopy. Canopy cover is also referred to as 'crown cover' or 'tree cover'.

Carbon Credit
A permit that allows the holder to emit one ton of carbon dioxide or carbon dioxide equivalent. Credits are awarded to countries or groups that have reduced their green house gases below their emission quota.

Carbon market
A market in which greenhouse gas emission reductions are traded, usually in the form of carbon credits. Carbon markets can be voluntary (where emissions reductions targets are not regulated) or compliance (where carbon credits are traded to meet regulated emissions reductions targets). The largest carbon market is currently the EU Emissions Trading System (ETS).

Carbon sequestration
The removal of carbon from the atmosphere to long-term storage in sinks through physical or biological processes, such as photosynthesis.

Carbon Dioxide Equivalent (CO2e)

Is the universal unit of measurement used to indicate the global warming potential of each of the seven greenhouse gases. It is used to evaluate the impacts of releasing (or avoiding the release of) different greenhouse gases. The Global Warming Potential (GWP) of the three GHGs associated with forestry is as follows. CO2 persists in the atmosphere for about 200-450 years and its GWP is defined as 1. Methane persists for 9-15 years and has a GWP of 22 (meaning that it has 22 times the warming ability of carbon dioxide). Nitrous oxide persists for about 120 years and has a GWP of 310.

Carbon Pools

A reservoir of carbon. A system that has the capacity to accumulate or release carbon. Carbon pools are measured in terms of mass (e.g., metric tons of carbon). The major carbon pools associated with forestry projects are: live biomass (including above and below ground components, i.e., roots), dead biomass, soil, and wood products.

Carbon sink
A pool or reservoir (e.g. a forest) that absorbs or takes up carbon released from other components of the carbon cycle, and that absorbs more than it releases.

Carbon stock
The quantity of carbon contained in one of five main carbon pools in forests: aboveground biomass, below ground biomass, dead wood, litter and soil organic matter.

Carbon stock enhancement
Refers to activities such as assisted natural regeneration, afforestation and reforestation to enhance the quantity of carbon contained in degraded forestlands or denuded area.

Clean Development Mechanism (CDM)
Is a mechanism established by Article 12 of the Kyoto Protocol for project-based emission reduction activities in developing countries. The CDM is designed to meet two main objectives: to address the sustainable development needs of the host country, and to increase the opportunities available to industrialised Treaty Parties to meet their reduction commitments. Under the CDM, Annex I (industrialized) countries can accrue 'certified emission reduction units (CERs), which are tradable carbon 'credits', in return for financing carbon reduction project activities in non-Annex I (developing countries) that help further their sustainable development. http://cdm.unfccc.int

Closed forest
Formation where trees in various storey and undergrowth cover a high proportion (>40 percent) of the ground and do not have a continuous dense grass layer. They are either managed or unmanaged forests, in advance state of succession and may have been logged over one or more times, having kept their characteristics of forest stands, possibly with modified structure and composition.

Co-benefits
Benefits arising from REDD-plus in addition to climate mitigation benefits, such as enhancing biodiversity, enhancing adaptation to climate change, alleviating poverty, improving local livelihoods, improving forest governance and protecting rights.

Conference of the Parties (CoP).
The governing body of the UN Framework Convention on Climate Change, which meets once a year.

Deforestation
The conversion of forest to another land-use, or the long-term reduction of the tree canopy cover below the minimum 10% threshold. Tanzania uses the FAO definition (FAO, 2001).

Forest Degradation
Changes within the forest, whether natural or human-induced, that negatively affect the structure or function of the stand or site, and thereby lower the capacity of the resulting degraded forest to supply products and/or services. The Intergovernmental Panel on Climate Change (IPCC) has not concluded on a specific definition, though in their working definition degradation refers to "direct, human-induced, long-term loss (persisting for X years or more) of at least Y% of forest carbon stocks [and forest values] since time T and not qualifying as deforestation".

Enrichment planting
The introduction of valuable species into forest areas, where economic species are lacking. This is usually done in combination with measures to ensure favorable conditions for natural regeneration.

Forest

Tanzania currently adopts the Food and Agriculture Organization of the United Nations definition of 'forest', which refers to land with an area of more than 0.5 hectare and tree crown cover (or equivalent stocking level) of more than 10 percent. The trees should be able to reach a minimum height of 5 metres at maturity in situ. It consists either of closed forest formations where trees of various storeys and undergrowth cover a high proportion of the ground or open forest formations with a continuous vegetation cover in which tree crown cover exceeds 10 percent. Young natural stands and all plantations established for forestry purposes, which have yet to reach a crown density of more than 10 percent or tree height of 5 meters are included under forest. These are normally forming part of the forest area, which are temporarily unstocked as a result of human intervention or natural causes but which are expected to revert to forest. It includes forest nurseries and seed orchards that constitute an integral part of the forest; forest roads, cleared tracts, fire breaks and other small open areas; forest within protected areas; windbreaks and shelter belts of trees with an area of more than 0.5 hectare and width of more than 20 meter; plantations primarily used for forestry purposes, including rubber wood plantations. It also includes bamboo, palm and fern formations (except coconut and oil palm).
The UNFCCC allows for a more flexible forest definition: minimum canopy cover 10–30%, minimum tree height 2–5 m, minimum area 0.1 ha.

Forest lands

Lands of the public domain classified as needed for forest purposes. They include all forest reserves, forest reservations and all remaining unclassified lands of the public domain,

Forest Management Unit

Local-level bodies (whether local government, communities, private land holders) legally responsible for the management of a forestland under a specific management regime.

General Land

Defined as "all public land which is not reserved land or village land" (Art. 1(2)). General Land is a residual category of land and does not include "unoccupied or unused village land." The Village Land Act also recognizes several uses of Village Land, including: 1) occupied land for individual use and settlement, such as farming and housing; 2) land for communal use, such as pasture and forests; and 3) land set aside for future use (Village Land Act, Art. 12-13). Village Land for future use includes "land which may be made available for communal or individual occupation and use through allocation by the village-council" (Village Land Act, Art. 12(1)(c)). Most forest on Village Land is likely on land for communal use or on land set aside for future use. Under the Village Land Act, land for future use may be unoccupied or unused Village Land.In this respect, villages have right of ownership to forests in their village land.

Greenhouse Gases (GHG)
Greenhouse gases are gaseous components of the atmosphere that trap infrared heat and contribute to the Earth's greenhouse effect. In addition to carbon dioxide (CO2), prominent GHGs related to forests include methane (CH4) and nitrous oxides (N2O).

High Conservation Values - There are six main High Conservation Values, based on the definition originally developed by the Forest Stewardship Council for certification of forest ecosystems, but now increasingly expanded to apply to assessments of other ecosystems http://hcvnetwork.org/.

a. Globally, regionally or nationally significant concentrations of biodiversity values; a. protected areas, b. threatened species, c. endemic species, d. areas that support significant concentrations of a species during any time in their lifecycle (e.g. migrations, feeding grounds, breeding areas)
b. Globally, regionally or nationally significant large landscape-level areas where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance;
c. Threatened or rare ecosystems;
d. Areas that provide critical ecosystem services (e.g., hydrological services, erosion control, fire control);
e. Areas that are fundamental for meeting the basic needs of local communities (e.g., for essential food, fuel, fodder, medicines or building materials without readily available alternatives); and
f. Areas that are critical for the traditional cultural identity of local communities (areas of cultural, ecological, economic or religious significance identified in collaboration with the local communities).

Indigenous peoples
The term 'Indigenous Peoples' is used in a generic sense to refer to a distinct, vulnerable social and cultural group possessing the following characteristics in varying degrees:
a. Self identification as members of a distinct indigenous cultural group and recognition of this identity by others;
b. Collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories;
c. Customary cultural, economic, social, or political institutions that are separate from those of the dominant society or culture; and
d. An indigenous language, often different from the official language of the country or the region.

Key Biodiversity Areas – sites of global significance for biodiversity conservation that satisfy criteria based on a framework of vulnerability and irreplaceability defined in terms of species and population threat levels. www.iucn.org/dbtw-wpd/edocs/PAG-015.pdf.

Vulnerability
Regular occurrence of a globally threatened species (according to the IUCN Red List) at the site: a) Critically Endangered (CR) and Endangered (EN) species – presence of at least a single individual; or b) Vulnerable species (VU) – presence of at least 30 individuals or 10 pairs.

Irreplaceability
A minimum proportion of a species' global population at any stage of the species' lifecycle at the site. These thresholds vary based on the following sub-criteria:

a. Restricted-range species - species with a global range less than 50,000 km *and* 5% of global population at the site; or
b. Species with large but clumped distributions - 5% of global population at the site; or
c. Globally significant congregations -1% of global population seasonally at the site; or
d. Globally significant source populations -1% of global population at the site; or
e. Bio-regionally restricted assemblages.

Kyoto Protocol
A 1997 agreement under the UN Framework Convention on Climate Change. Annex I countries that ratified the Protocol committed to reducing their emissions of carbon dioxide and five other greenhouse gases by an average of 5.2 % compared to their 1990 level between 2008 and 2012. The Kyoto Protocol now covers 189 countries globally, but less than 64% in terms of global greenhouse gas emissions. As of November 2009, the United States is the only signatory nation that has not ratified the Protocol. The first commitment period of the Kyoto Protocol ends in 2012.

Leakage
In the context of climate change, the carbon leakage happens when interventions to reduce emissions in one area, lead to an increase in emissions in another area. Carbon leakage is also referred to as "emissions displacement". Within the UNFCCC, leakage refers to the "increase in GHG emissions by sources which occurs outside the boundary of an afforestation/reforestation (A/R) Clean Development Mechanism (CDM) project activity which is measurable and attributable to the A/R CDM project activity".

Mangrove forest
Forested wetland growing along tidal mudflats and along shallow water coastal areas extending inland along rivers, streams and their tributaries where the water is generally brackish and composed mainly of *Rhizophora, Bruguiera, Ceriops, Avicenia, Aegicerus,* and *Nipa* species.

Mixed forest
Forest in which none of the species groups such as conifer, broad leaved bamboo and palm accounts for more than 75 percent of the tree crown cover.

Natural forest
Forest composed of indigenous trees, not planted by man.

Nested approach
Refers to a hybrid approach of structuring REDD+ that includes elements of both sub-national and national approaches. It allows for site-level project development and scaling up at national level over time, and requires consistent emission accounting between project-based, sub-national and national levels.

Open Forest
Forest formations with discontinuous tree layer with coverage of at least 10 percent and less than 40 percent. They are either managed or unmanaged forests, in initial state of succession.

Payments for Environmental Services (PES)
In a PES scheme, a buyer that values environmental services pays to the provider or the manager of the land use supplying the environmental service if and only if, the seller actually delivers the environmental service. In REDD+, PES refers to a results based system in which payments are made for emissions reductions or carbon stock enhancements relative to an agreed reference level.

Permanence
The longevity of a carbon pool and the stability of its stocks, given the management and disturbance environment in which it occurs. A feature of land-based carbon projects is the possibility of a reversal of carbon benefits from either natural disturbances (e.g., fires, disease, pests, and unusual weather events), or from the lack of reliable guarantees that the original land use activities will not return after the project concludes.

Strategies have been identified that mitigate potential reversals such as the non-permanence risk analysis and buffer approach adopted by the Voluntary Carbon Standard or the establishment of contingency carbon credits, insurance, conservation easements and mixed portfolios of projects.

Project GHG accounting period
The time period over which a project quantify net changes in GHG emissions reductions or removals.

Plantation forest
Forest stands established by planting or/and seeding in the process of afforestation or reforestation. It may be composed of broadleaved, coniferous, and/or mixed forests.

Production forest
Land that can be made available for timber and agro-forestry production, rangelands for grazing and other forest lands for special uses.

Protection forest
Area wholly or partly covered with vegetation managed primarily for its beneficial effects on water, climate, soil, aesthetic value and conservation of biodiversity.

Rainforestation
Refers to reforestation techniques that align with agroforestry to generate multiple environmental and social benefits.

Readiness
REDD+ country actions, including capacity building, policy design, consultation and consensus building, and testing and evaluation of a REDD+ national strategy, prior to a comprehensive REDD+ implementation.

Reducing emissions from deforestation and forest degradation (REDD+)
REDD+ refers to mechanisms currently being negotiated under the UN Framework Convention on Climate Change process to reduce emissions from deforestation and forest degradation, conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.

Reforestation
The direct human-induced conversion of deforested/non-forested land to forested land through planting, seeding and/or promotion of natural seed sources. It refers to land that was forested, but that has been converted to unforested land'. In the first commitment period of the Kyoto Protocol, reforestation activities were recognized on lands that were not forested on 31 December 1989, but have had forest cover at some point during the past 50 years.

Remote sensing
A scientific discipline which, in the context of REDD+, can be used to measure deforestation and/or forest degradation by a recording device that is not in physical contact with the forest, such as a satellite.

Restoration
The human-induced enhancement of degraded forestlands

Sub-national activity/development
Activities implemented at the sub-national level as part of a national REDD+ strategy. Governments, local authorities, communities, NGOs or private entities can implement sub-national activities. They may be embedded in a national or international crediting mechanism.

Sustainable Forest Management (SFM)

The term SFM has different meanings to different individuals and organizations. According to the UN General Assembly, SFM is 'a dynamic and evolving concept [that] aims to maintain and enhance the economic, social and environmental value of all types of forests, for the benefit of present and future generations'. In the REDD+ debate, some organizations make a distinction between 'sustainable forest management' (SFM) and 'sustainable management of forests' (SMF): SFM is then referring to industrial logging, while SMF is a broader term. The PNRPS refers to SFM as an umbrella term to cover activities that enhance and maintain the products and services provided by forests, including carbon storage, and seek to provide multiple social and environmental benefits.

Strict protection zones

These consist of natural areas with high biodiversity value, closed to all human activities except for scientific studies and or ceremonial or non-exclusive use by IPs. It may include habitats of threatened species or degraded areas that have been designated for restoration and subsequent protection, even if these areas are still in various stages of regeneration.

Verification

Independent third-party assessment of the expected or actual emissions reductions of a particular mitigation activity.

Voluntary carbon market

The voluntary carbon markets function alongside compliance markets. Buyers are companies, governments, NGOs and individuals who are voluntarily seeking to offset their emissions by purchasing verified emissions reductions.