

UNITED REPUBLIC OF TANZANIA



MINISTRY OF NATURAL RESOURCES AND TOURISM

NATIONAL DEFINITION OF 'FOREST' FOR REDD+ AND CDM IN TANZANIA



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ACRONYMS

CDM	Clean Development Mechanism
DFNR	Department of Forestry and Nonrenewable Natural Resources
FAO	Food and Agricultural Organisation of United Nations
FBD	Forestry and Beekeeping Division
FREL	Forest Emission Reference Level
FRL	Forest Reference Level
MANR	Ministry of Agriculture and Natural Resources (Zanzibar)
MNRT	Ministry of Natural Resources and Tourism
VPO	Vice President's Office

1.0 Introduction

1.1 Background

Since CoP-13 held in Bali (2007), the United Nations Framework Convention on Climate Change (UNFCCC) has given special recognition on the critical role of forests in tackling global climate change. Forests are important in climate change due to their role in mitigation and that they are a significant source of emissions. Reducing deforestation and forest degradation as climate mitigation strategies were not included in the Kyoto Protocol's Clean Development Mechanism (CDM). Therefore elevation of the role of forests in CoP-13 represented a major opportunity for developing countries to participate in a system that includes financial rewards for climate mitigation actions that also match their sustainable development goals.

The discussion on the role of forests in climate change has evolved over time. In 2005 at CoP-11 in Montreal, forests were included in the agenda of developing country mitigation strategy for the first time. However, the scope was initially limited to "reducing emissions from deforestation" (RED). Subsequently the concept has expanded to include not only RED, but also includes reducing emissions from forest degradation, and the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks—together known as "REDD+".

Many developing countries expect discussion under the UNFCCC to result into a mechanism that will provide payments for measured, reported, and verified forest-related emissions reductions. Such incentives would require development of a baseline which will serve as a bench mark. Such a baseline is technically known as "forest reference emission levels (FREL)/ forest reference levels (FRL)".

Beyond REDD+, FREL/FRLs can be useful to countries because it allows a country to measure its progress on goals related to forest conservation and management. In addition FREL/FRL may provide a benchmark for measuring performance on implementation of domestic policies.

1.2 Why do we need a forest definition for REDD+?

REDD+ aims to reduce emissions from deforestation and forest degradation and contribute to sustainable forest management, conservation and enhancement of carbon stocks. Among other things, REDD+ participating countries are required to set FRL/FREL which provide benchmark against which future greenhouse gas emission reductions and removals can be measured. Defining forest is an essential step when setting up FREL/FRL. A clear definition of forest is important because it affects estimates of deforestation and forest degradation areas and hence emissions. It is also important for planning and decision making processes aiming at improving forest management.

1.3 Objectives of forest definitions

International climate change agreements on REDD+ and CDM do not aim to provide funds for problems in land use and forestry, instead they aim to provide new incentives as a means of furthering sustainable development. In this context, Tanzania sees the role for the REDD+ and CDM in achieving a wide range of policy goals including sustainable development; therefore, seeks to maximize eligible area for both REDD+ and CDM investment. Specific objectives in this context include:

1. To achieving a wider range of environment and development policy goals both at national and international levels,
2. To access and benefit from international, regional and national funding,
3. To address sustainable development (i.e. poverty alleviation), without jeopardizing ecological and climatic integrity.
4. To enhance community-based forest management through REDD+ and forest smallholder participation in CDM.

2. Forest definition development process

A forest definition working group met at Kibaha Conference Centre from 21 to 23 April 2016 to discuss and propose definition of forest for REDD+ in Tanzania (including Zanzibar). The forest definition working group comprises of 6 experts and was formed during a technical meeting organized by National Carbon Monitoring Centre (NCMC). The group included the following:

1. Mr. Manyika: Vice President's Office (VPO),
2. Mr. Evarist Nashanda: Tanzania Forest Services (TFS) Agency, Ministry of Tourism and Natural Resources,
3. Dr. Marco Njana: Tanzania Forest Services (TFS) Agency, Ministry of Tourism and Natural Resources,
4. Mr. Tamrini Said: Zanzibar Department of Forestry and Nonrenewable Natural Resources (DFNR), Ministry of Agriculture, Natural Resources, Livestock and Fisheries
5. Prof. Eliakimu Zahabu: Sokoine University of Agriculture (SUA),
6. Mr. Emmanuel Msoffe: Forest and Beekeeping Division (FBD), Ministry of Tourism and Natural Resources.

The Team reviewed and considered the following:

- Vegetation types
- Existing national forest policy and act definitions
- Clean Development Mechanism (CDM) forest definition
- Other country's forest definitions
- Other relevant documents
- Consultation with various stakeholders (academicians, NGOs, practitioners)

2.1 Situation analysis on vegetation types

National forest resources monitoring and assessment (NAFORMA)/Zanzibar woody biomass survey (ZWBS) results have recently been reported (MANR, 2013; MNRT, 2015). Generally, there are two major vegetation types; forest and woodland both in Tanzania mainland and Zanzibar (Table 1 and 2). In Tanzania mainland, forest includes (1) humid montane, (2) lowland, (3) mangrove and (4) plantation forests while woodlands include (1) open and (2) closed woodlands (MNRT, 2015). On the other hand according to ZWBS, Zanzibar consisted of three main vegetation types with a number of sub-vegetation types. This included: (1) Forest: (Native Coral Rag Forest - low, intermediate, bush and tall trees within coral rag, high forest, Mangroves, Plantations - tree and rubber plantations), (2) Agroforestry systems (cloves, coconut, mixed trees and agriculture crops and other plantations) and (3) Mixed woody vegetation (in towns and villages).

Table 1: Description of vegetation types in Tanzania mainland

Vegetation category	Vegetation sub-category	Area (ha)	Description
Forest	Humid montane forest	995,300	
	Lowland forest	1,656,500	
	Mangrove forest	158,100	
	Plantation	554,500	
	Sub-total	3,364,400	
Woodland	Open woodland	35,997,300	
	Closed woodland	8,729,300	
	Sub-total	44,726,300	
	Total	48,090,700	

Table 2: Description of vegetation types in Zanzibar

Vegetation category	Vegetation sub-category	Area (ha)	Description
Forest	Native coral rag forest	86,182	Comprises of low (bush height is <2m and crown cover <50%), intermediate (bush height is 2-5 m and crown cover >50%), bush (bush height is > 5m and crown cover > 50%) and high (height > 10m and crown cover > 70%) forests.
	Mangroves	16,488	Tidal forests.
	Plantations	3,788	Forest and Rubber plantations.
	Subtotal	106,458	

Agroforestry	Cloves	15,828	Planted clove trees for production of cloves. It is a commercial tree crop.
	Coconut	16,898	It is a commercial crop consisting of planted palm trees for production of coconut.
	Mixed of trees and agriculture crop	47,983	Mixture of agricultural crops and woody vegetation (coconuts, fruit trees, cloves).
	<i>Subtotal</i>	<i>80,709</i>	
Woodland	Mixed wood vegetation	7,149	Remnant severely degraded natural forest with already existing agroforestry. Typical areas are young clove plantations with few native trees left for shade. Found only in Pemba.
	<i>Subtotal</i>	<i>7,149</i>	
	<i>Total</i>	<i>194,316</i>	

2.2 Review of various existing forest definitions

In the course of developing forest definition for REDD+ in Tanzania, the team consulted and reviewed country forest definitions available in the national legal documents (Forest Policy and Act). Forest definitions from other countries including that of UNFCCC were also reviewed. According to UNFCCC guidelines, in defining forest it is important that minimum thresholds for tree crown cover, tree height and area are specified.

2.2.1 Forest definitions in Tanzania

In Tanzania a number of forest definitions exist for various applications (Table 3).

Table 3: Forest Definitions in Tanzania

Origin	Crown cover (%)	Tree height (m)	Area (ha)
Forest Act No. 14 of 2002	10	-	-
NAFORMA (2015)	10	5	0.5
National REDD+ strategy (2010)	10	5	0.5
ZWBS (2013)	20	3	-

Note: The National Forest Policy of 1998 defines forest yet does not provide thresholds for crown cover, tree height and area.

The definition provided by the Zanzibar Wood Biomass Survey of 1997 do not conform to UNFCCC definition. In addition the Tanzania Forest Act of 2002 defines forest where it specify a minimum tree crown cover of 10% which is similar to UNFCCC specifications, however it does not specify the minimum tree height and area.

Unlike CDM, REDD+ is designed to involve the local communities. Community participation in international carbon payment systems such as REDD+ is a potential source of income to forest dependent communities hence contribute to Sustainable Development Goals (SDGs). In Tanzania, these goals are encapsulated in the National Strategy for Growth and Reduction of Poverty (NSGRP or MKUKUTA and MKUZA II for Zanzibar. Both MKUKUTA and MKUZA II aim to reduce rural poverty (< \$1 per day per head) by 50% compared to 1990 baseline. A second relevant goal belonging to the SDGs is to ensure environmental sustainability by reversing the loss of environmental resources. Therefore is important to ensure forest

as an environmental resources is managed suitably and REDD+ is an opportunity or a vehicle that may contribute to attainment of such goals.

2.2.2 UNFCCC Forest Definition

UNFCCC defined forest as follows:

"Forest: is a minimum area of land of 0.05 – 1.0 ha with tree crown cover (or equivalent stocking level) of more than 10-30% with trees with the potential to reach a minimum height 2 – 5 m at maturity in situ. A forest may consist of either closed formations where trees of various storey and undergrowth cover a high proportion of the ground or open forest. Young natural stands and all plantations which have yet to reach a crown density of 10 - 30% or tree height of 2 – 5 m are included under forest, as are areas normally forming part of the forest area which are temporarily un-stocked as a result of human intervention such as harvesting or natural causes, but which are expected to revert to forest".

This definition provides the basis for a countries including Tanzania for establishing its own definition based on country circumstances.

2.2.3 Other forest definitions

Through review of different forest definitions from other countries, a team came across other forest definitions (Table 4). While some countries used one forest definition both for CDM and REDD+, some countries established a separate definition for REDD+.

Table 4: Other countries' forest definitions

SN	Country	Forest definition	Purpose
1	Chile	Forest means a land area with at least 0.5 ha and a minimum tree cover of 10% for arid and semi-arid conditions and 25% for more favourable conditions.	Both CDM and REDD+
2	Costa Rica	Forest means a land area with at least 1 ha and a minimum tree cover of 30% and minimum tree height of 5m.	Both CDM and REDD+
3	Zambia	Forest means any land with a tree canopy cover of more than ten percent and area of more than zero point five hectares and includes young stands that have not yet reached, but are expected to reach, a crown density of ten percent and tree height of 5m that are temporarily under stocked areas.	REDD+
4	Ghana	Forest as having 15% canopy cover, trees of 5 m height, and covering a minimum area of 1 ha.	REDD+
5	Republic of Congo	Forest consists of a minimum crown cover of 30%, a minimum land area of 0.5 ha, and a minimum tree height of 3 m.	REDD+
6	Vietnam	Forests as having a crown cover > 10% and an area > 0.5 ha and the minimum tree height is 5 m for natural forests. For plantations of slow growing species the minimum height is 1.5m and 3m for plantations with fast growing species.	Both CDM and REDD+

3.0 National Forest Definition for REDD+ and CDM

3.1 Consideration in the choice of forest definition

United Republic of Tanzania is a large country with diverse forest vegetation types across regions and more specifically possess significantly different vegetation types in Tanzania Mainland compared to Zanzibar. The country has embarked in REDD+ implementation process since 2009 and seems to motivate many stakeholders including community to participate and benefit from REDD+ initiatives. Forest definition plays huge roles in REDD+ initiative as provide parameters that distinctively differentiate forest land area to non-forest land area. Forest definition is also a requirement for construction of FREL/FRL prior to submission to the UNFCCC Secretariat. A choice of a definition for development of REDD+ FREL/FRLs should include consideration of:

- A country's objectives for establishing FREL/FRLs;
- Specific ecological conditions (e.g. forest characteristics);
- Definitions used within the country for forest management and inventories;
- Consistency with definitions used for other purposes, but in particular reporting to the UNFCCC such as that used to produce the national GHG inventory;
- Availability of methods and resources to measure and monitor emissions from forest-related activities.

FREL/FRL is essential when countries party to the UNFCCC are preparing for REDD+. Forest definition form an important component in preparing FREL/FRL. Among other things the importance of FREL/FRL is as follows s:

- FREL/FRL makes a country eligible to access REDD+ or carbon finance.
- REDD+ funds contribute to poverty reduction and sustainable development.
- FREL/FRL can serve as baseline for monitoring of implementation of national policies.

In defining forest it is important to observe internationally agreed parameters (height, crown cover and area) and technological capability

of a country to monitor change in forest area/carbon stocks but also ensure social, economic and cultural aspects are adequately considered.

3.2 The national Forest definition for REDD+ and CDM

After review of existing forest definitions, consideration of a number of factors and requirements of both CDM and REDD+ initiatives, Tanzania (including Zanzibar) proposed the following definition:

'Forest' means an area of land with at least 0.5 ha, with a minimum tree crown cover of 10% or with existing tree species planted or natural having the potential of attaining more than 10% crown cover, and with trees which have the potential or have reached a minimum height of 3m at maturity in situ.

3.3 Justification for the proposed national forest definition

The following justify the proposed forest definition for Tanzania:

- The choice considered national capability of measuring and monitoring carbon stocks. Historical high resolution data is not available. The only available and affordable data is moderate (e.g. Landsat imageries with spatial resolution of 30m) to low resolution (e.g. MODIS with spatial resolution of 500m) data.
- The forest definition incentivize rehabilitation of degraded forests. Large area of reserved forests are degraded yet with potential to recover through one or more REDD+ activities.
- The forest definition ensure conservation of dry forests (including those with short trees) such as open woodlands (with tree crown cover > 10%), Ngitili and Itigi thickets (with minimum tree height of 3m) through REDD+. The definition also ensure conservation of sacred forests through REDD+. Other than storing carbon, both dry and sacred forests ensure conservation of biodiversity and soils. Moreover, sacred forests are important for social and cultural dimensions.
- The forest definition also ensure community participation in REDD+ (e.g. small scale afforestation/woodlots) and thereby benefit from carbon financing.
- The definition ensure large proportion of land is available for A/R projects under CDM.