NATIONAL CLIMATE CHANGE ACTION PLAN

REPUBLIC OF KENYA

REDD+ Concept Note: Capacity Building for Measuring, Reporting and Monitoring Forestry Emissions and Sinks

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National Climate Change Action Plan

REDD+ Concept Note:

Capacity Building for Measuring, Reporting and Monitoring Forestry Emissions and Sinks

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ASB Partnership for the Tropical Forest Margins at the World Agroforestry Centre

ASB is the only global partnership devoted entirely to research on the tropical forest margins. ASB aims to raise productivity and income of rural households in the humid tropics without increasing deforestation or undermining essential environmental services.

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The website for Kenya's Climate Change Action Plan can be accessed at: http://www.kccap.info

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Abbreviations

CGE	computable general equilibrium modelling (CGE)
CO_2e	carbon dioxide
CO_2e	carbon dioxide equivalent
GDP	gross domestic product
GHG	greenhouse gas
IPCC	Intergovernmental Panel on Climate Change
LPG	liquefied petroleum gas
MEMR	Ministry of Environment and Mineral Resources
MPND	Ministry of State for Planning, National Development and Vision 2030
Mt	million tonnes
NAMA	nationally appropriate mitigation action
NCCAP	National Climate Change Action Plan
REDD+	reducing emissions from deforestation and forest degradation plus the role of conservation, sustainable management of forests and enhancement of forest carbon stocks
UNFCCC	United Nations Framework Convention on Climate Change

1.0 Introduction

The mitigation chapter of Kenya's *National Climate Change Action Plan* (NCCAP) includes a low-carbon scenario assessment of the forestry and other land-use sector.[1] The assessment comprises a preliminary historical greenhouse gas (GHG) emissions inventory to 2010 and reference case projecting emissions to 2030, and low-carbon development options to bend down emissions from the business-as-usual path set out in the reference case. The low-carbon analysis concludes that the forestry sector has the largest potential to mitigate emissions in Kenya.

The Government of Kenya is working to address deforestation and forest degradation through REDD+ and other mechanisms. Kenya has established a REDD+ Coordination Office and National REDD+ Technical Working Group, developed a REDD readiness preparation proposal (R-PP) and is working toward a national REDD+ strategy. These preparatory activities and the low-carbon scenario assessment in the forestry sector have determined that GHG emission trends are hard to determine in the forestry sector because of the difficulty in accurately measuring biomass carbon pools for the entire country.

This brief concept paper is a first step to deliver on the recommendations of the NCCAP to develop proposals for priority REDD+ actions, and to build capacity to measure, report on and monitor forestry emissions and sinks. Specifically:

- The concept paper provides an overview of a REDD+ capacity building initiative to improve capabilities to measure, monitor and report on GHG emissions and sinks in the forestry sector.
- The Annex includes information on the preparation of the activity set out in the Nationally Appropriate Mitigation Action (NAMA) preparation template of the United Nations Framework Convention on Climate Change (UNFCCC, 2012).

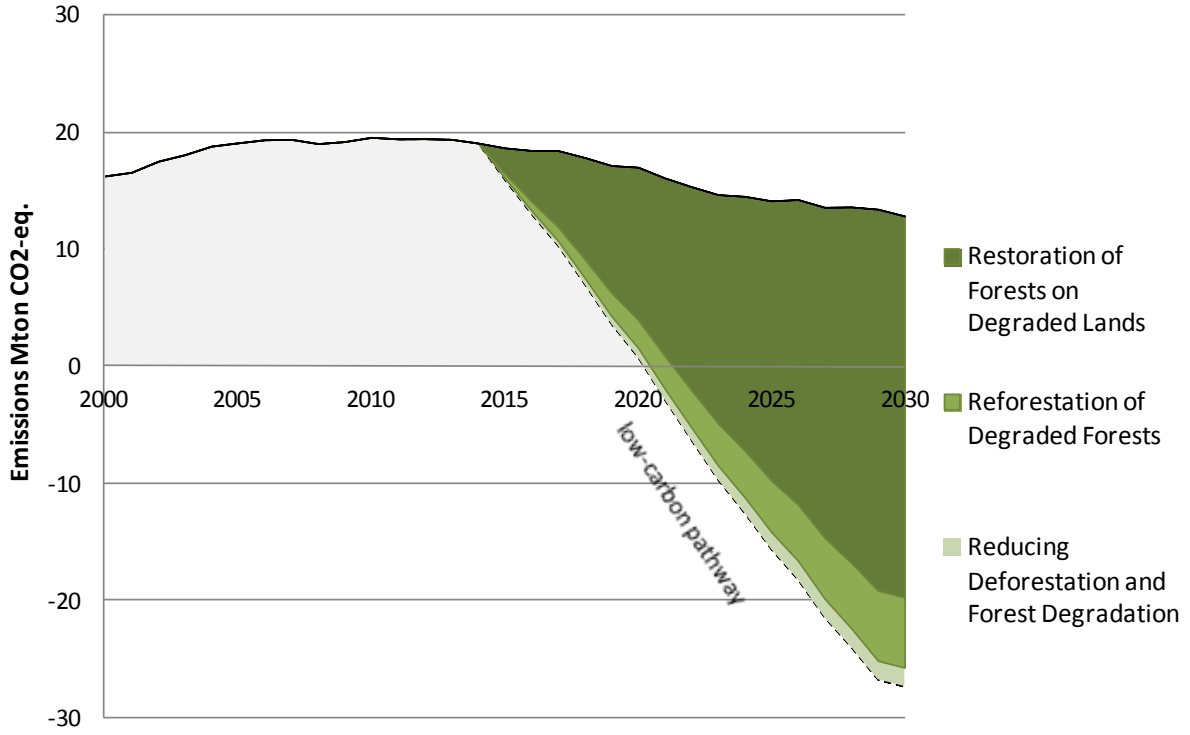
2.0 The Evidence Base

REDD+ actions are consistent with the goals of Kenya's constitution, which sets a target of 10 percent tree cover, up from the current six percent. These actions are also consistent with *Kenya Vision 2030*, the long-term development blueprint for the country. Vision 2030 notes the importance of forests for a "clean, secure and sustainable environment" and calls for the rehabilitation of degraded forest areas, sustainable management of dryland forests, and user compensation for environmental services (Government of Kenya, 2007, p. 106).

The low-carbon scenario assessment developed for the NCCAP demonstrated that the forestry sector has the greatest mitigation potential in Kenya, when compared with actions in the agriculture, energy, transport, industry and waste sectors. The low-carbon analysis demonstrated that emissions in the forestry sector rose from 16.3 million tonnes of carbon dioxide equivalent ($MtCO_2e$) in 2000 to 19.6 $MtCO_2e$ in 2010 (32 percent of total national emissions in 2010). Emissions primarily originate from deforestation, where forests are cleared for fuelwood and charcoal production or to create agricultural land. In the reference baseline, forestry emissions are expected to decline to 17.0 $MtCO_2e$ in 2020 and 12.8 $MtCO_2e$ in 2030, because of reduced clearing of forests and increases in the number and size of trees, a result of tree-planting programmes and a reduction in wood harvesting. Low-carbon development actions in the forestry sector have the potential to abate an additional 40 $MtCO_2e$ per year in 2030 compared to the baseline in the projected reference case (Figure 1).

[1] The low-carbon scenario assessment in the forestry sector is available on the Government of Kenya's Climate Change Action Plan website, accessible at: http://www.kccap.info/index.php?option=com_phocadownload&view=category&id=6&Itemid=41.

Figure 1: Low-carbon wedges in the forestry sector



Source: Chapter 4: Forestry in the Mitigation report of Kenya's Climate Change Action Plan, page 17

The National REDD+ Technical Working Group and National REDD+ Coordination Office aim to test, monitor and scale up strategies for implementing REDD+ initiatives. The Kenya Forest Service is engaged in a multi-year forest mapping project to enable more accurate carbon stock measurement in Kenya using remote sensing and ground-based inventories. The results of this exercise are expected in 2013. Another activity in 2012 was the development of a national-level forest reference level, supported by the Government of Japan.

The World Bank's Forest Carbon Partnership Facility is preparing to provide US $3.4 million to assist in implementing several key components of the REDD+ readiness plan, including consolidating the National REDD+ Office, stakeholder and participation consultation processes, as well as assessing social and environmental impacts. Terms of reference have also been prepared for the development of the reference levels (RLs) and reference emission levels (RELs), and in 2011 the Government of Kenya held a workshop where key players in the forestry sector identified data and capacity needs for establishing the RLs and RELs. The Government of Japan is financing the Japanese Forest Preservation Programme, which attempts to bolster the knowledge base for forest resource assessments and measurement, reporting and verification (MRV) for REDD+.

Despite the progress made to date, additional support is needed to fully implement the REDD+ strategy, which requires robust data, and rigorous and accurate information. The current estimates of carbon stock in the forest sector have a high degree of uncertainty. Estimates of Kenya's forest cover and associated GHG emissions from the sector are incomplete and out of date. The low-carbon analysis determined that the best available data to estimate forest carbon stocks was published in the 1994 *Kenya Forestry Master Plan* (Kenya Forest Service, 1994). Estimates of carbon trends developed for the Food and Agricultural Organization's (2010) *Global Forest Resource Assessment Country Reports:*

Kenya used and extrapolated data from the forestry master plan. Current estimates of emissions from the forestry sector are based on a simple tier estimation approach.

The Government of Kenya has recognized the need for improved information on the country's forest resources in its National Climate Change Response Strategy and Action Plan, Technology Needs Assessment, Medium Term Plan (2008-2012) and the REDD R-PP. Significant funding and capacity gaps remain; and support is needed to measure, monitor and report on changes in forest cover, including the development of a forest inventory and forest reference scenario. The low-carbon scenario assessment in the forestry sector developed for the NCCAP identified the need for: i) an updated national forest inventory: ii) the development of a reference scenario that projects emissions and removals of carbon dioxide into the future in the absence of REDD+ incentives, and iii) a monitoring and reporting system that allows for transparent accounting of emissions and removals.

3.0 Capacity Development: Measuring, Reporting and Monitoring Forestry Emissions and Sinks

This concept paper sets out the broad parameters of a capacity development project to improve measuring, reporting and monitoring forestry emissions and sinks, recognizing that a project preparation phase would be required to fully develop the REDD+ activity. Establishing a national forest inventory, a reference level and a reference emissions level is crucial for realizing the climate change abatement potential in Kenya's forestry sector. Current capacity for measuring, reporting and monitoring forestry emissions sinks is low, requiring significant scientific and technological capacity-building activities.

3.1 REDD+ Activity Concept[2]

Objective

To develop a national forest inventory, and develop and implement a plan for measuring, reporting and monitoring forestry sinks and emissions.

Brief Description

The activity will provide support for:

i) An updated national forest inventory.

ii) A monitoring and reporting system that allows for transparent accounting of emissions and removals.

iii) The development of a reference scenario that projects emissions and removals of carbon dioxide into the future in the absence of REDD+ incentives.

Developing these measurement and monitoring tools requires increased capacity for carbon stock assessment, remote imagery interpretation, community monitoring, applying methodologies of the Intergovernmental Panel on Climate Change (IPCC), economic analysis, and information management systems.

Abatement Potential

The REDD+ activity will not lead to emission reductions, but it lays the groundwork for

[2] This activity concept draws on information in Kenya's R-PP. (Government of Kenya, 2010a and 2010b).

rigorous and accurate measurement and monitoring of REDD+ actions.

3.2 Estimated Cost

Preparation Cost

An estimated cost of US$300,000 is required for project preparation.[3] The activities set out in this concept paper are indicative only and would be developed in full in a project preparation phase.

Implementation Cost

Total implementation cost is estimated to be US$6 million over three years.[4]

3.3 REDD+ Activities

The first activity will be the development of a *national forest inventory*, building on the current forest mapping exercise. The latter is a first step in collecting required data, and the national forest inventory is a necessary next step. This inventory would build on the forest mapping and greatly enhance the information base. Improving the evidence base is a critical step for enhanced policy and programme development and for implementing cost-effective mitigation measures and is also a key prerequisite for securing results-based funding for REDD+.

The development of a comprehensive forest inventory includes mapping of all forest resources including the size of the carbon stock stored within forests. Broadly, the work will include:

- Strengthening the capability of Kenya Forest Service (KFS), Community Forestry Associations and communities to collect, analyse and update the needed information on forests and trees for planning and sustainable management of the forestry resources.

- Preparing a national map based on harmonised classification of forest and land uses and related definitions – including accessing existing information, reviewing GHG reporting and REDD+ monitoring needs, classifying and defining land use and forests, integrating remote sensing needs with field data collection,

- Establishing effective stakeholder participation processes.

- Undertaking a national forestry resource assessment and develop a national database.

The second main activity is the *development of a measurement, monitoring and reporting system* that allows for transparent accounting of emissions and removals of carbon. This

[3] The cost of project preparation for an integrated system of measuring, reporting and monitoring forest emissions and sinks is estimated to be between US$ 290,000 (Ministry of Environment and Forests, Madagascar, 2012) and US$ 330, 000 (Global Environment Facility, 2012).

[4] The Government of Kenya's R-PP provides some preliminary estimates of financing requirements for developing a reference scenario and monitoring system. The estimated funding requirement is US $2.186 million (Government of Kenya, 2010). Estimates of the cost of the development of national forest inventories and systems for measuring and reporting changes in forest cover and carbon stocks in the Republic of Congo (Brazzaville) and Tanzania range from US$ 4.01 (African Development Bank, 2011) to US$6.70 million (FAO, 2009, page 4).

initiative would build on the current work to develop a RL, and a capacity building initiative could include:

- Enhancing capacity and training – including training carbon stock measurement teams in KFS and communities. Communities need training on field plot sampling, land cover data collection, and methods to sample the survival and growth rates of trees on farms and from tree planting, conservation and REDD+ initiatives. The KFS and Department of Resource Surveys and Remote Sensing require further training in geographic information systems (GIS) and spatial analysis techniques pertinent to REDD+, as well as land use models and field sampling design development for GIS.
- Designing and implementing a measurement, monitoring and reporting plan for activity data – including development of a standard for sampling design and methodology; aerial surveys and satellite imagery, as well as community mapping based on the standard; establishment of quality assurance ad quality control (QA/QC) measures and protocols to ensure data quality, testing of measurement and monitoring at pilot sites with scale-up to the national level, organization of activity data for the monitoring period, application of data specific GHG inventory and REDD+ information needs.
- Designing and implementing a measurement, monitoring and reporting plan for carbon stock data – including the development of field sampling methodologies, field measurements, development of national values for key carbon factors, compilation of a subnational database of emission and removal factors by REDD+ activity.
- Information management and reporting – including improved software and information technology infrastructure, improved knowledge management, and development of processes to report on emissions and sinks nationally and internationally.
- Measuring and reporting on safeguards and co-benefits – developing a national framework for reporting on safeguards and co-benefits for REDD+ activities.

The third activity is the development of a *reference scenario* that projects emissions and removals of carbon dioxide into the future in the absence of REDD+ incentives, building on the terms of reference have also been prepared for the development of the REL in Kenya. This work requires determining historic emissions and removals, which will build on the outcomes of the National Forest Inventory, and be informed by the standards set and information collected in capacity building action to measure and monitor emissions in the forestry sector. The REL will first be developed through a single undertaking process led by technical experts, which will be revised as improved and more accurate information comes available through the national forest inventory and the measurement and monitoring plan.

Annex 1: NAMA Preparation Template

The information provided below uses the template for submitting actions to the UNFCCC NAMAs registry; available at http://unfccc.int/cooperation_support/nama/items/6948.php. REDD+ actions can potentially be NAMAs.

NAMA Seeking Support for Preparation

A.1 Party: Kenya

A.2 Title of mitigation action: Capacity Development: Measuring, Reporting and Monitoring Forestry Emissions and Sinks

A.3 Description of mitigation action: The activity will provide support for: i) an updated national forest inventory: ii) a monitoring and reporting system that allows for transparent accounting of emissions and removals; and iii) the development of a reference scenario that projects emissions and removals of carbon dioxide into the future in the absence of REDD+ incentives. Developing these measurement and monitoring tools requires increased capacity for carbon stock assessment, remote imagery interpretation, community monitoring, applying IPCC methodologies, economic analysis, and information management systems.

A.4 Sector: Forestry

A.5 Technology: Other:

A.6 Type Of Action: National/Sectoral Policy or Program

B. National Implementing Entity

B.1 Name: National REDD Focal Point, Kenya Forest Service, Ministry of Forests and Wildlife

B.2.1 Contact Person
B.2.2 Address
B.2.3 Phone
B.2.4 Email

C. Expected timeframe for preparation of mitigation action

C1. Number of months for completion: 6

D1. Used currency: US Dollars

E Estimated full cost of preparation: $300,000

F. Support required to prepare the mitigation action

F.1 Amount of financial support: $300,000

F.2 Type of financial support: Grant

F.2.1 Comments on Financial Support: Because this activity aims to build capacity to develop the underlying data and information for REDD+ activities, the full cost of the preparation of the NAMA is sought through grant funds. The funding would used to design a work plan and detailed budget and identify partners and funders.

F.3 Amount of technical support: $200,000

F.4 Comments on technical support: REDD+ project preparation, stakeholder consultations

F.5 Amount of capacity building support: $100,000

F.6 Type of capacity building support: Institutional development, Human capital

F.7 Comments on capacity building support: Training for project proposal preparation, community awareness

G. Relevant National Policies; plans and programmes and/or other NAMAs:

- Kenya's constitution with a goal of 10 percent tree cover
- Kenya Vision 2030
- Kenya's National Climate Change Response Strategy and Action Plan
- Environmental Management and Coordination Act 1999
- draft National Forest Policy
- Forests Act 2005
- REDD+ Readiness Preparation Proposal

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