

NATIONAL CLIMATE CHANGE ACTION PLAN



REPUBLIC OF KENYA

# REDD+ Concept Note: Dryland Forest Conservation

October 2012

**Deborah Murphy (IISD)**

**Scott McFatridge (IISD)**



Reproduction of this publication for educational or non-commercial purposes is authorized without prior written permission from the copyright holders provided the source is fully acknowledged. With the exception of the funders of this publication, reproduction of this publication for resale or other commercial purposes is strictly prohibited without prior written permission of the copyright holder.

**Disclaimer**

The views expressed in this publication are not necessarily those of the agencies cooperating in the National Climate Change Action Plan process. The designations employed and the presentations do not imply the expression of any opinion whatsoever on the part of the Government of Kenya or cooperating agencies.

Mention of a commercial company or product in this publication does not imply endorsement by the Government of Kenya. The use of information from this publication concerning proprietary products for publicity or advertising is not permitted.

---

## **National Climate Change Action Plan: Mitigation**

### **REDD+ Concept Note Dryland Forest Conservation**

---

#### **Mitigation Team:**

Deborah Murphy, Seton Stiebert,  
Dave Sawyer, Jason Dion, Scott  
McFatridge, International Institute  
for Sustainable Development

Laura Würtenberger, Lachlan  
Cameron, Raouf Saidi, Xander van  
Tilburg, Energy Research Centre of  
the Netherlands

Peter A. Minang, ASB Partnership for  
the Tropical Forest Margins at the  
World Agroforestry Centre

Tom Owino, ClimateCare  
Peterson Olum

---

#### **International Institute for Sustainable Development**

IISD is a Canadian-based, public policy  
research institute that specializes in policy  
research, analysis and information exchange.  
The institute champions sustainable  
development through innovation, research  
and relationships that span the entire world

#### **Energy research Centre of the Netherlands**

ECN develops high-quality knowledge and  
technology for the transition to sustainable  
energy management. ECN introduces this  
knowledge and technology to the market.  
ECN's focus is on energy conservation,  
sustainable energy and an efficient and clean  
use of fossil fuels.

#### **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.

For further information, please contact:

Deborah Murphy, IISD  
Tel: +1-613-238-2296  
Email: [dmurphy@iisd.ca](mailto:dmurphy@iisd.ca)

Laura Würtenberger, ECN  
Tel: +31 88 515 49 48  
Email: [wuerthenberger@ecn.nl](mailto:wuerthenberger@ecn.nl)

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



This document is an output from a project funded by the UK Department for International Development (DFID) and the Netherlands Directorate-General for International Cooperation (DGIS) for the benefit of developing countries. However, the views expressed and information contained in it are not necessarily those of or endorsed by DFID, DGIS or the entities managing the delivery of the Climate and Development Knowledge Network\*, which can accept no responsibility or liability for such views, completeness or accuracy of the information or for any reliance placed on them.

© 2012, All rights reserved

\* The Climate and Development Knowledge Network ("CDKN") is a project funded by the UK Department for International Development (DFID) and the Netherlands Directorate-General for International Cooperation (DGIS) and is led and administered by PricewaterhouseCoopers LLP. Management of the delivery of CDKN is undertaken by [PricewaterhouseCoopers LLP](#), and an alliance of organisations including [Fundación Futuro Latinoamericano](#), [INTRAC](#), [LEAD International](#), the [Overseas Development Institute](#), and [SouthSouthNorth](#).

## Table of Contents

<b>1.0</b>	<b>Introduction .....</b>	<b>1</b>
<b>2.0</b>	<b>The Evidence Base .....</b>	<b>1</b>
<b>3.0</b>	<b>Dryland Forest Conservation: A REDD+ Pilot Activity .....</b>	<b>3</b>
<b>3.1</b>	<b>REDD+ Project Concept.....</b>	<b>3</b>
<b>3.2</b>	<b>Estimated Cost .....</b>	<b>3</b>
<b>3.3</b>	<b>REDD+ Activities .....</b>	<b>4</b>
	<b>Annex 1: NAMA Preparation Template .....</b>	<b>8</b>
	<b>Bibliography .....</b>	<b>10</b>

## Abbreviations

ASAL	Arid and Semi-arid Land
CO <sub>2</sub> e	carbon dioxide equivalent
GHG	greenhouse gas
IPCC	Intergovernmental Panel on Climate Change
kt	kilotonne
MEMR	Ministry of Environment and Mineral Resources
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
R-PP	Readiness Preparation Proposal
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.<sup>1</sup> The assessment comprises a preliminary historical greenhouse gas (GHG) emissions inventory to 2010, a 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, and restoration of forests on degraded lands is a potential REDD+ activity that can help to increase carbon sinks.

The Government of 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. A Forest Carbon Partnership Facility grant of US\$3.4 million is expected to support select elements of the REDD+ readiness plan, including institutional strengthening of the REDD+ office, and stakeholder consultation and participation. Additional funds are needed for full implementation of the REDD+ plan, including early action, and pilot projects and testing, which includes restoring degraded forests.

This brief concept paper for a pilot activity to restore dryland forests on degraded lands is a first step to deliver on a recommendation of the NCCAP to develop proposals for priority REDD+ actions, building on Kenya's work to develop a national REDD+ strategy and the Action Plan's low-carbon scenario assessment in the forestry sector. This concept paper begins with the rationale for a pilot activity to restore dryland forests on degraded lands, and then provides a general overview of actions and potential cost. 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

The proposed pilot activity for Restoring Forests on Degraded Lands would contribute to the goals of the Government of Kenya, while reducing emissions and enhancing sustainable development. Specifically, REDD+ actions are consistent with the goal of Kenya's constitution that 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). Kenya's R-PP notes that dryland forest resources are extracted at an unsustainable rate, and participatory programs for managing forest resources in the Arid and Semi-arid Lands (ASALs) are required (Government of Kenya, 2010).

The low-carbon scenario assessment in the mitigation chapter of the NCCAP demonstrated that the forestry sector has the greatest mitigation potential 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<sub>2</sub>e) in 2000 to MtCO<sub>2</sub>e in 2010; and comprised 32 percent of total national emissions in 2010. Emissions primarily originate from deforestation, where forests are cleared for fuel wood and charcoal production or to create agricultural land. Forestry emissions are projected in the reference baseline to decline to 17.0 MtCO<sub>2</sub>e in 2020 and 12.8

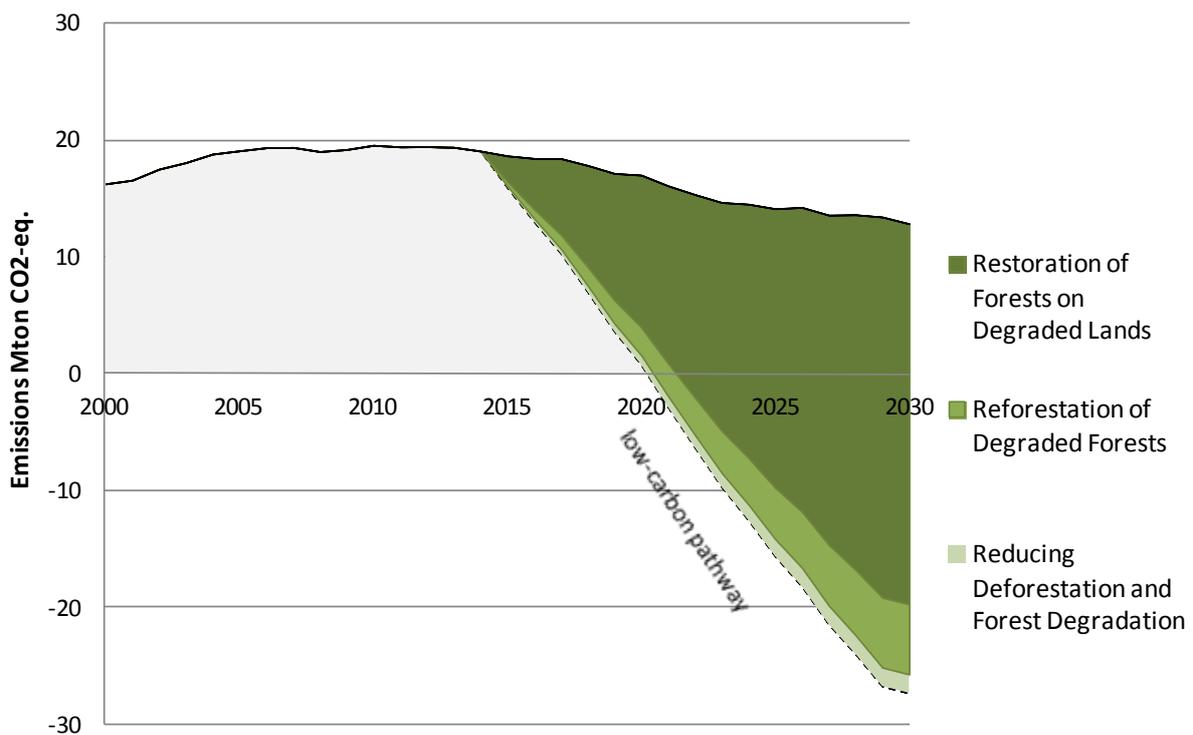
---

<sup>1</sup> 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](http://www.kccap.info/index.php?option=com_phocadownload&view=category&id=6&Itemid=41).

MtCO<sub>2</sub>e in 2030 because of reduced clearing of forests and increases in the number and size of trees, a result of tree-planting programmes and reductions in wood harvesting.

Low-carbon development actions in the forestry sector have the potential to abate an additional 40 MtCO<sub>2</sub>e per year in 2030 compared to the reference case projections (Figure 1). A priority low-carbon development option in the forestry sector is the restoration of forests on degraded lands, with an abatement potential of 32.6 MtCO<sub>2</sub>e per year by 2030. Achieving this full abatement potential would mean restoring forests on 960,000 hectares of degraded land between 2015 and 2030. Much of this abatement potential could be realized through conservation and sustainable dryland forest management interventions that encourage regeneration from ground-stored and wind-blown seeds, as well as growth of trees stunted by grazing.

**Figure 1: Low-carbon wedges in the forestry sector**



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

REDD+ activities to restore forests on degraded lands can also bring sustainable development benefits. Kenya’s forest resources provide important environmental and ecosystem services. For example, biodiversity can benefit from sustainable forest management and conservation of forests, and regeneration of natural tree species. Forests can be used in a sustainable manner for a variety of products, including fuel wood, charcoal, medicines and others; contributing to economic development. Importantly, forest resources contribute to water availability, for consumption, sanitation, agriculture and hydro electricity development. In addition, forest restoration can increase adaptive capacity in vulnerable areas like mountain slopes, ASALs, and fragile ecosystems like natural forests and wetlands. Regeneration of degraded forestlands reduces erosion and sediment discharge in rivers, and improves the health of soil. Actions to restore forests on degraded lands are consistent with the NCCAP’s vision of a low carbon climate resilient development pathway.

### **3.0 Dryland Forest Conservation: A REDD+ Pilot Activity**

Realizing the significant mitigation potential in the forestry sector needs to begin with feasible and scalable interventions that lay the groundwork, demonstrate sustainable development results and get buy-in from communities. Capacity for dryland forest restoration is quite low in Kenya, requiring front-end pilot and capacity building activities. This concept paper sets out the broad parameters of a dryland forest conservation pilot activity, recognizing that a project preparation phase would be required to fully develop the REDD+ activity.

#### **3.1 REDD+ Activity Concept<sup>2</sup>**

##### **Objective**

To restore the production and protection functions of 200,000 hectares of dryland forests, while supporting local income and employment generation.

##### **Brief Description**

Restoring woody vegetation on 200,000 hectares of degraded lands in the arid and semi-arid areas of Kenya through a combination of conservation and sustainable forest management that includes natural regeneration, assisted natural regeneration and enrichment planting, while promoting alternative livelihoods and other sustainable development benefits.

##### **Abatement Potential**

Based on the abatement potential calculated for restoration of forests on degraded lands in the forestry chapter of the NCCAP Mitigation report, restoring dryland forests on 200,000 hectares of degraded land would abate 0.46 MtCO<sub>2</sub>e in 2015, rising to 6.8 ktCO<sub>2</sub>e in 2030.<sup>3</sup>

#### **3.2 Estimated Cost**

##### **Preparation Cost**

An estimated cost of US\$250,000 is required for project preparation.<sup>4</sup> 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 a period of five years.<sup>5</sup>

---

<sup>2</sup> This concept paper was informed by Phases I and II of the Kasigau Wildlife Corridor Project, World Vision Ethiopia's Humbo Assisted Natural Regeneration Project, Vi Agroforestry's work in the West Pokot District of Kenya, and the Government of Tanzania's HASHI project in the Shinyanga region.

<sup>3</sup> Government of Kenya, "Mitigation – Forestry", *National Climate Change Action Plan*. p. 17.

<sup>4</sup> Based on the Project Development Fund and Project Preparation Grant for the UNDP project, *Reducing Land Degradation on the Highlands of Kilimanjaro*, which have a combined cost of US\$200,000.

<sup>5</sup> The Kasigau Wildlife Corridor Project determined that self-supporting REDD projects can be implemented for an initial investment of between US\$10-12 per hectare. Assuming an initial investment of US\$15 per hectare for 200,000 hectares totals US\$3 million. An additional US\$3 million is needed because this is a pilot project and includes extensive training of the Kenya Forest Service, Community Forest Associations and local communities; research to determine robust measurement and monitoring techniques; and outreach and communication to share lessons to encourage scale up.

### **3.3 REDD+ Activities**

The dryland forest conservation pilot activity could consist of a series of activities, discussed briefly below.

#### **Site Selection**

The activity will include restoring dryland forests in a select area of Kenya. The area will be determined through consultations with communities, which will likely require awareness raising and education about the initiative. Consistent with the REDD+ safeguards, the communities should be aware of and willing to undertake the required actions, giving their free, prior and informed consent (FPIC) before any activities get underway. It would be helpful to have the site close to a KFS office to facilitate the research, measurement and monitoring and capacity building aspects of the project.

#### **Awareness-Raising, Consultation and Demonstrations**

A crucial step is educating communities about the proposed REDD+ activity, including the benefits of soil and vegetation restoration in dryland areas, and possible methods for achieving that restoration. In addition, communities need education on potential negative impacts, such as lost access to lands, and the means to compensate them for this lost access. These activities can include:

- Participatory rural appraisals, in which villagers meet with project implementers to discuss problems affecting their livelihoods and local environment and attempt to reach a consensus on viable solutions. They foster buy-in and facilitate project success by identifying the most crucial drivers of forest degradation.
- Broad consultations on means of demarcating protected areas and methods for enforcing protection are needed. Conducting restoration activities in areas identified by local communities as having lower potential for supporting livelihoods is a means of demonstrating viability and garnering communities' trust prior to scaling up initiatives.
- Smaller-scale demonstration initiatives can enable communities to assess the benefits of forest conservation for themselves, and can serve as an important point of entry. For example, when the benefits of agroforestry and the enclosure system were demonstrated in select sites in West Pokot, Kenya and Shinyanga, Tanzania, farmers and pastoralists were eager to adopt the practices (Vi Agroforestry 2004; World Resources Institute 2005).
- Instruction and education offered through a range of media such as video, theatre, newsletters and workshops.

#### **Dryland forest restoration activities**

Dryland forest restoration depends on site-specific ecological variables, meaning that communities and project implementers will choose from a variety of restoration methods to meet local needs. Direct methods for restoring dryland forest areas include:

- Natural Regeneration – Identification of root stalks (from trees that were felled several decades previously and still have shoots growing out of the soil) and protecting them via enclosures. This eliminates extractive pressures, allowing the tree shoots to regenerate naturally. In certain cases, grazing activity may be resumed once the trees have reached sufficient height.
- Assisted Natural Regeneration – Similar to natural regeneration, except the regeneration process is actively managed to optimize tree growth and protect the trees from weeds and other risks. Assisted natural regeneration can include: clearly

marking seedlings for regenerating woody vegetation, liberating the woody vegetation and ring weeding, suppressing adjacent weedy vegetation, protecting seedlings from fire and wildlife disturbances, and continued ring weeding and liberation of seedlings every two to three months (Shono *et al.*, 2007).

- Enrichment Planting – Enrichment planting of trees cultivated in nurseries can be effective in cases where the landscape is denuded and vulnerable to erosion, where tree species biodiversity is threatened, or implementers wish to accelerate canopy closure.
- Provision of supplementary sources of fuel wood and fodder – Measures to relieve pressure on protected areas, including:
  - Fallow enclosures – Select areas of grazing land are set aside during the wet season to foster their regeneration. The trees and vegetation are subsequently used as sources of fodder.
  - Tree nurseries – Meets local needs for fuel wood and abate pressure on protected areas.
  - Agroforestry – Serves as a source of fuel wood, fruits, medicines and fodder.

### **Capacity Building**

Capacity building initiatives will be required, including:

- Strengthening of Community Forest Associations.
- Sustainable forest management techniques.
- Natural and assisted natural regeneration techniques, enrichment planting techniques.
- Soil and water conservation methods.
- Agroforestry principles.
- Leadership and financial management.
- Alternative energy sources.
- Forage development.
- Off-farm economic opportunities.
- Ecotourism development.
- Project management.

### **Compensation and Benefits-Sharing Mechanisms<sup>6</sup>**

An important element of the project will be the design of a benefits-sharing mechanism. The pilot project will need to demonstrate the ability of a REDD+ mechanism to compensate communities for lost access to forests, which are grazing lands and sources of fuel wood to local people. The most straightforward way to compensate local communities for foregone opportunities is to provide cash transfers to incentivize local forest conservation. The Kasigau Wildlife Corridor project demonstrates another possible model, where the project's profits from the sale of carbon credits are split evenly between the project implementer, the landholders in the project area, and local communities (who collectively determine the

---

<sup>6</sup> This section draws from Wildlife Works Carbon LLC (2008 and 2011), and Admasu and World Vision Ethiopia (2009).

community projects to be undertaken with their REDD+ revenue stream). Examples of in-kind benefits that can be financed through the sale of carbon credits include schools, rural health clinics, water and sanitation infrastructure, and training sessions on family planning, finance and accessing credit.

Compensation through REDD+ generally forms only a small portion of the needed financial flows. Training and support will be required to develop alternative livelihoods, and can include:

- Establishing factories for creating value-added products (soap, clothing) for local or international markets.
- Promoting apicultural opportunities (beekeeping).
- Supporting forage production for alternative sources of livestock fodder.
- Promoting opportunities for ecotourism.
- Sustainable harvesting of non-timber forest products (gums, resins, etc.).
- Providing improved charcoal kilns.
- Providing access to low-interest credit for alternative livelihood activities such as agroforestry, tailoring and sewing.
- Securing local employment during project implementation – such as training local guards, rangers and tree nursery staff.

### **Measuring, Monitoring and Reporting**

The REDD+ project will consist of a range of activities for restoring dryland forests, meaning that measurement, monitoring and reporting will have to be undertaken for several key variables, discussed below. The ideal techniques will be determined by expert opinion according to the ecological and geographical characteristics of the chosen project site.

#### **Forest Management**

- Verifying site preparation activities according to date, area, extracted barriers and any additional measures.
- Monitoring planting in terms of date, area, location, and species planted.
- Verifying thinning in terms of date, area, location, tree species, thinning intensity, volumes and kind of biomass harvested.
- Verifying harvesting according to date, area, location, tree species, volumes and kind of biomass harvested.
- Verifying fuel wood collection according to date, area, location, tree species thinning intensity, volumes and kind of biomass harvested.
- Verifying that proper conditions exist for natural and assisted natural regeneration.
- Monitoring any natural disturbances by noting the date, location, area, tree species, the nature of the disturbance (natural or anthropogenic), biomass lost, adaptive measures taken, and any change in the boundary of strata and stands.

#### **Enrichment Planting Areas**

- Monitoring initial survival rate of seedlings (every three months for the first year of planting).
- Checking additional survival rates (two and three years after planting).

- Replanting where survival rates are below 90 percent.
- Surveying to verify that appropriate weeding practices are in place (quarterly for year one, annually thereafter).

### **Estimating Carbon Stock Changes**

- Estimating biomass expansion factors.
- Calculating above and below ground biomass stocks.
- Estimating root-shoot ratios for tree species in project area.
- Estimating average biomass combustion efficiency (at the start of the project)
- Estimating carbon fraction of tree species.
- Random plot sampling techniques.

### **Research**

The pilot project would also include an important research component to fill data gaps and develop measurement and monitoring techniques that are specific to the Kenyan situation. Examples of research and data needs include:

- Data collection on dryland forest biomass stocks, and species and site specific allometric equations to calculate carbon stocks.
- The carbon dynamics of dryland forests also merit further research because the carbon fluxes in dry forest ecosystems are poorly understood, especially pertaining to soil carbon (Grace *et al.* 2006, in Bon *et al.* 2009).
- Dryland forest restoration and stabilization, and development of indicators of chronic disturbance in dryland forests to enable the establishment of a robust and adaptive monitoring framework.

## **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](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:** Dryland Forest Conservation and Restoration – A REDD+ Pilot Activity

**A.3 Description of mitigation action:** The aim of the activity is to restore the production and protection functions of 200,000 hectares of dryland forests, while supporting local income and employment generation. The pilot project would restore woody vegetation on 200,000 hectares of degraded lands in the arid and semi-arid areas of Kenya through a combination of conservation and sustainable forest management that includes natural regeneration, assisted natural regeneration and enrichment planting, while promoting alternative livelihoods and other sustainable development benefits.

**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:** \$250,000

### **F. Support required to prepare the mitigation action**

**F.1 Amount of financial support:** \$250,000

**F.2 Type of financial support:** Grant

**F.2.1 Comments on Financial Support:** Because this is a pilot project intended to build capacity and knowledge, as well as reduce emissions, the full cost of the preparation of the NAMA is sought through grant funds. The funding would be used to design a work plan and detailed budget, elaborate GHG estimates, 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:** \$50,000

**F.6 Type of capacity building support:** Human capital

**F.7 Comments on capacity building support:** Training for project proposal preparation, training and awareness raising of communities, calculation of estimates of GHG emissions and removals

**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
- National ASAL Vision and Strategy

## Bibliography

Admasu, Mesfine, and World Vision Ethiopia. 2009. *Humbo-Managed Natural Regeneration Project. Social aspects during pre-feasibility and social mitigation action plan*. Available from: <http://cdm.unfccc.int/filestorage/M/Z/9/MZ9Q6HSVoRAOTXUDY273JBGLI4F5NP/Annex%207%20Social%20Mitigation%20Action%20Plan.pdf?t=QVV8bWE4d2prfDDoG6qP6S4dHsTOHRdPQefF>.

Biryawaho, Byamukuma, Michael Misiko, Hailu Tefera and Assefa Tofu. 2012. *Institutional Innovations in African Smallholder Carbon Projects. Case Study: Humbo Ethiopia Assisted Natural Regeneration Project*. CGIAR Research Project on Climate Change, Agriculture and Food Security (CAAFS). Available from: <http://cgspace.cgiar.org/bitstream/handle/10568/21220/AfricanAgCarbon-CaseStudy-Humbo.pdf?sequence=6>.

Bond, Ivan, Muyeye Chambara, Brian Jones, Monica Chunduma, Isilda Nhantumbo. 2010. "REDD+ in dryland forests: Issues and prospects for pro-poor REDD in the miombo woodlands of southern Africa." *Natural Resource Issues No. 21*. London: International Institute for Environment and Development.

Diaz, David, Katherine Hamilton, and Evan Johnson. 2011. *State of the Forest Carbon Markets 2011*. Washington: Forest Trends. Available from: [http://www.forest-trends.org/documents/files/doc\\_2963.pdf](http://www.forest-trends.org/documents/files/doc_2963.pdf)

Food and Agricultural Organization of the United Nations. 2010. *Guidelines on sustainable forest management in drylands of sub-Saharan Africa*. Arid Zone Forests and Forestry Working Paper No. 1. Rome: Food and Agricultural Organization of the United Nations.

Government of Kenya. 2010. *Revised REDD Readiness Preparation Proposal*. Submitted to the Forest Carbon Partnership Facility. Nairobi: Government of Kenya.

Grace, John, José San José, Patrick Meir, Heloisa S. Miranda, and Ruben A. Montes. 2006. "Productivity and Carbon Fluxes of Tropical Savannas." *Journal of Biogeography* 33: 387-400. Available from: <http://www.geos.ed.ac.uk/miombo/Research/JG2006.pdf>.

Inter-governmental Panel on Climate Change. 2006. *2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 4 Agriculture, Forestry and Other Land Use*. Geneva: IPCC.

Ministry of Environment and Mineral Resources. 2012. *Kenya's National Climate Change Action Plan: Mitigation. Chapter 4: Forestry*. Nairobi: Government of Kenya. Available from: [http://www.kccap.info/index.php?option=com\\_phocadownload&view=category&id=6&Itemid=41](http://www.kccap.info/index.php?option=com_phocadownload&view=category&id=6&Itemid=41).

Ministry of State for Planning, National Development and Vision 2030. 2007. *Kenya Vision 2030: A Globally Competitive and Prosperous Kenya*. Nairobi: Government of Kenya.

Shono, Kenichi, Ernesto A. Cadaweng, and Patrick B. Durst. 2007. "Application of Assisted Natural Regeneration to Restore Degraded Tropical Forestlands." *Restoration Ecology* 15(4): 620-626. Available from: <http://www.fao.org/forestry/191020bf30dd3d800687636a5ddc85e409044a.pdf>.

Singh, S.P. 1998. "Chronic disturbance, a principal cause of environmental degradation in developing countries." *Environmental Conservation* 25.1: 1–2. Available from:

[http://www.globalrestorationnetwork.org/uploads/files/LiteratureAttachments/65\\_chronic-disturbance-a-principal-cause-of-environmental-degradation-in-developing-countries.pdf](http://www.globalrestorationnetwork.org/uploads/files/LiteratureAttachments/65_chronic-disturbance-a-principal-cause-of-environmental-degradation-in-developing-countries.pdf).

United Nations Development Programme. 2005. *Sustainable land management in mountain catchments of Kilimanjaro Region: Request for PDF for Block A for FSP*. The Global Environment Facility Trust Fund. Available from: [http://www.thegef.org/gef/project\\_detail?projID=3391](http://www.thegef.org/gef/project_detail?projID=3391).

United Nations Development Programme. 2008. *Sustainable land management in mountain catchments of Kilimanjaro Region: Request for Project Preparation Grant*. The Global Environment Facility Trust Fund. Available from: [http://www.thegef.org/gef/project\\_detail?projID=3391](http://www.thegef.org/gef/project_detail?projID=3391).

Vi Agroforestry Project. 2004. "Dryland Zone Case Study 5: Participatory Extension Strategies for Promoting Agroforestry in the Drylands of West Pokot District, Kenya." In Eds. Peter Wood and Atse. M. Yapi. *Rehabilitation of Degraded Lands in Sub-Saharan Africa: Lessons Learned From Selected Case Studies*. Available from: [http://www.etfrn.org/etfrn/workshop/degradedlands/documents/synthesis\\_report/dlz\\_5%20w%20pokot,%20ke%20fnl.pdf](http://www.etfrn.org/etfrn/workshop/degradedlands/documents/synthesis_report/dlz_5%20w%20pokot,%20ke%20fnl.pdf).

Wildlife Works Carbon LLC. 2008. *The Kasigau Corridor REDD Project Phase I – Rukinga Sanctuary. Project Design Document (PDD) For Validation Using the Climate, Community and Biodiversity (CCB) Project Design Standards Second Edition – December 2008*. Available from: [http://www.climate-standards.org/projects/files/taita\\_taveta\\_kenya/Rukinga\\_CCB\\_PDD\\_Ver\\_2\\_0.pdf](http://www.climate-standards.org/projects/files/taita_taveta_kenya/Rukinga_CCB_PDD_Ver_2_0.pdf).

Wildlife Works Carbon LLC. 2011. *The Kasigau Corridor REDD Project Phase II – the Community Ranches. Project Design Document (PDD) For Validation Using the Climate, Community and Biodiversity (CCB) Project Design Standards Second Edition – December 2008*. Available from: [https://s3.amazonaws.com/CCBA/Projects/The\\_Kasigau\\_Corridor\\_REDD\\_Project\\_Phase\\_II-The\\_Community\\_Ranches/Project\\_Design\\_Document](https://s3.amazonaws.com/CCBA/Projects/The_Kasigau_Corridor_REDD_Project_Phase_II-The_Community_Ranches/Project_Design_Document).

World Resources Institute, United Nations Development Programme, United Nations Environment Programme, and World Bank. 2005. *World Resources 2005: The Wealth of the Poor—Managing Ecosystems to Fight Poverty*. Washington, D.C.: World Resources Institute. Available from: [http://pdf.wri.org/wrr05\\_lores.pdf](http://pdf.wri.org/wrr05_lores.pdf).

World Vision Ethiopia. 2009a. *Humbo Ethiopia Assisted Natural Regeneration Project. Project Design Document Form for Afforestation and Reforestation Project Activities (CDM-AR-PDD) Version 04*. Available from: [http://cdm.unfccc.int/filestorage/S/W/Y/SWY9FTV7NQ53RLKoOZJ4DP18GBECHI/PDD.pdf?t=ZGt8bWE4d2owfDARH\\_43r1hHfwsIj9bOhWqh](http://cdm.unfccc.int/filestorage/S/W/Y/SWY9FTV7NQ53RLKoOZJ4DP18GBECHI/PDD.pdf?t=ZGt8bWE4d2owfDARH_43r1hHfwsIj9bOhWqh).

World Vision Ethiopia. 2009b. *Summary of trainings so far conducted under Community Managed Assisted Natural Regeneration Project*. Available from: [http://cdm.unfccc.int/filestorage/I/T/G/ITGR216483oEXMOU7YDKC9PFWALHQB/R17%20Training%20%26%20Workshops%20in%20Humbo.pdf?t=aXl8bWE4d296fDBLi11p\\_XegiWmUtdp3QRvq](http://cdm.unfccc.int/filestorage/I/T/G/ITGR216483oEXMOU7YDKC9PFWALHQB/R17%20Training%20%26%20Workshops%20in%20Humbo.pdf?t=aXl8bWE4d296fDBLi11p_XegiWmUtdp3QRvq).

UNFCCC. 2012. *UNFCCC NAMA Registry: NAMAS Seeking Support for Preparation*. Available from: [http://unfccc.int/cooperation\\_support/nama/items/6948.php](http://unfccc.int/cooperation_support/nama/items/6948.php)