KACHUNG FOREST PROJECT
AFFORESTATION ON DEGRADED LANDS

CCBA Monitoring Plan

September 2013

Version 1

Contents

PROJECT OVERVIEW:

Kachung Forest Project: Afforestation on degraded land is an A/R CDM project implemented on land within the Kachung Central Forest Reserve in Dokolo district , Northern Uganda by Busoga Forestry Company, a subsidiary of Green Resources and the owner of the carbon credits(tCERs) generated by the project. The project activity is establishing and managing exotic and indigenous plantations on approximately 2,099 ha of degraded grass.

The overall objective of the A/R CDM activity is to contribute to mitigating climate change while meeting the growing demand for quality wood products from well managed plantation forests and contributing to sustainable environmental management, community development and poverty alleviation in Uganda.

The project met the validation requirements of CCBA in addition to the current verification and issuance of tCERs by UNFCCC coupled with Forest Stewardship Council (FSC ᵀᴹ) annual surveillance audits.

Through modern forest plantation silivicultural of the KFP: Afforestation on degraded lands, an estimation of actual net GHG removals by sinks of 548,530 tonnes ofCO2e is expected in the crediting period of the project while ensuring sustainable development both directly and indirectly.

DOCUMENT OVERVIEW:

This CCBA monitoring plan is prepared for the first verification period of the Kachung Forest Project: Afforestation on Degraded Lands. This monitoring plan is presented as part of the verification process under the Climate, Community and Biodiversity Alliance (CCBA), but also builds on current monitoring systems Green Resources has in place for other monitoring commitments, such as for the Forest Stewardship Council (FSC™).

It represents the commitment of Green Resources through its subsidiaries to consistently and accurately monitor the positive and negative impacts of the project on climate, community and biodiversity throughout the projects lifetime.

The first verification event for the project under the CCBA using this monitoring plan, version 1, is planned for 2016 and will cover the monitoring period from the 1st October 2006 until 2016. As the project develops and undergoes future verifications, the monitoring plan will be adapted to ensure that any new impacts and/ or required indicators are monitored.

The monitoring plan seeks to measure both direct and indirect impacts of the project through surveys of the local employees and the 14 villages surrounding the project area.

The variables to be monitored have been selected basing on the requirements of CCBA as well as the FSC ™ standard and the general community initiatives of Green Resources.

The following variables shall be considered in the monitoring as described below:

Theme	Description	Indicators	Period
Village Demographics	Number of people in the village and households in each village	No. of children, women and men	Based on the National Population census
Employment	The people employed by LFC and are locals of the 14 villages	- No. of people employed on permanent and contract basis - % of women employed by the project - Payment rates - Annual NSSF contributions for employed staff	Every year
Livelihoods	The changes in the earnings of people is reflected in the changes of their livelihoods and this will be done through sampling	- Village indicators such as radios, shops owned, bicycles and motorcycles, land purchased - Garden ownership	At every CCBA verification

	approach of households		
Community woodlots	Communities are encouraged and trained in tree planting to enhance their livelihoods.	- No. of people trained - No of seedlings given to communities - Area of woodlots - Income expected	Annually Annually Annually 8years
Water Quality and Infrastructure	Water source points shall be identified with their GPS Coordinates. Samples shall be analysed in the National Laboratory in reference to the water permits requirements	- Water parameters as stipulated by water permits (Laboratory results) - Money invested in water infrastructure	Every 2 years
Cultural sites and other sites of special interests	Cultural sites in project site shall be monitored through observance. A database of the cultural site will be kept.	- Coordinates of the cultural sites - Maps indicating location of such a site	At each CCBA verification Annually
Health and safety of workers and communities	The dispensaries and wards setup and facilitation improves the status of the health facilities	- No of workers trained on HIV/AIDS and safety at work per year. - Number of patients attending to the clinics	Annually
Infrastructure such as roads	The road network maintained and rehabilitated to smoothen movement of goods and services	- Km roads maintained by company	At each CCBA verification event

Under this section, the monitoring plan shall track biodiversity variables through inventories by specialists. This will in relation to the CCBA PDD. The inventories shall include flora and fauna, soils, land class assessments among others.

Monitoring snapshot:
At each verification under CCBA (at least every 5 years), the areas (in ha) of the different land classes within the project shall be measured and summarised through a combination of remote sensing and ground truthing. The following is a list of the different strata that shall be covered – this is not exhaustive and new strata may be included if found within the project:
- Area of pine forest plantation
- Area of eucalyptus forest plantation
- Area of wetland vegetation
- Area of conservation
- Area of planted indigenous species
- Area of water points and water bodies

This data shall provide information in regard to the different land classes present within the project area at the end of each monitoring period. This will then be compared with data from previous verifications to show how the dynamics of the land classes within the project area have changed.

Conditions of biodiversity in the project area
Hydrological conditions
The hydrological condition of the project area at KFP is characterised by a wetland which runs through the western block area and which also extends into the project zone by linking up with the larger, broad flood plains to the south and east of the project area. The wetlands comprise of two seasonal streams (Aminteng and Alwenyi), which will be protected according to the National Environment (Wetlands, Riverbanks and Lakeshore Management) regulations.
Vegetation conditions

A variety of grass species are present, including *Imperata cylindrical, Panicum maximum, Hyparrhenia filipendula, Setaria sphacelata, Setaria megaphylla, Pennisetum spp., Aframomum spp., Sporobolus africanus, Eragrostis exasperata, Paspalum spp, Paspalum scrobiculatum, Vigna lanceolata, Cyperus rotundus and Cyperus bulbosus*. The shrub species that characterize the bushland vegetation are *Albizia zygia, Combretum collinum, Borossus aethiopum Erythrina, abyssinica, Grewia mollis, Acacia hockii,* and *Bridelia screnura* together with other shrub and tree spp. The grass and herbeous layer consists of *Setaria megaphylla, Hyparrhenia filipendula, Panicum maximum* and *Aframomum spp.*

The vegetation species exist in the conservation areas and near wetlands.

Assessment approaches of biodiversity

The following approaches shall be used in the assessment of the vegetation, wetlands and water sources in the project area and conservation area.

Remote sensing:

The maintenance of conservation areas is monitored through the analysis of high resolution imagery (GeoEye, QuickBird or other imagery) which has a resolution of at least 1m which will be purchased by the company at least at every verification event (5 years), and in some cases shorter periods.

The water bodies and wetlands near and within the plantations will be assessed at each verification period through visual inspection of the high resolution image to confirm the area of wetland and water source. The total area of each wetland and water streams will be presented at each verification, along with a shape file and the high resolution images so that a comparison can be made.

The vegetation in the conservation area shall be assessed at each verification period through visual inspection of the high resolution image to confirm whether there have been any disturbances, such as exotic species entering the conservation area. If any disturbances are identified then ground truthing of the area of interest is carried out to confirm the situation in the field and to implement remedial measures to ensure that the conservation area remains in its natural state.

Field assessment

Field assessments are carried out in conservation area to complement the remote sensing data through monitoring key parameters which indicate the positive impacts of the habitat and key species. Different field methods are used for each conservation area depending on the indicators that have been identified to be monitored.

Invasive species, Pests and Diseases

Monitoring of invasive species highlighted in ecological surveys shall be used in the assessment for the first verification under CCBA. However, moving forward, the project will carry out monitoring of invasive species every three years.

The methodology for monitoring the invasive species is through scouting to detect presence or absence and then sample plots and line transects established to determine the intensity. If invasive species are found then the species appropriate control measure shall be adhered to and documented.

Pests and disease outbreaks in the plantation and conservation areas shall be monitored and such incidences documented and coordinates maintained for location purposes.

MONITORING IMPLEMENTATION AND DATA MANAGEMENT

The project monitoring team consists of the qualified personnel ranging from the Plantation Managers, Community and Relations specialist, Inventory and Mapping specialists, Carbon specialists, FSC specialist and Field supervisors. The personnel involved are subjected to refresher trainings before embarking on a given task. Experts are externally sought in the ecological surveys and water analysis.

Data collection and management involves following of Green Resources Standard Operation Standards (SOPs) that guide the teams. Hard copies for data collection and electronic versions are maintained and backups made. Micro forest database is used in managing the data and accessible on-line by the various departments for information retrieval.