

*Environmental Impact Assessment for Kasagala Central Forest Reserve**Final Report*

THE REPUBLIC OF UGANDA



THE WORLD BANK GROUP
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NATIONAL FORESTRY AUTHORITY
Kasagala Central Forest Reserve

Final Report

ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

October, 2011

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LIST OF ABBREVIATIONS/ ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
CAO	Chief Administrative Officer
CBD	Convention on Biological Diversity
CBO	Community Based Organisation
CFR	Central Forest Reserve
DEOs	District Environment Officers
DWD	Directorate of Water Development
EIA	Environmental Impact Assessment
EMMP	Environmental Management and Monitoring Plan
EMS	Environment Management System
EIA	Environment and Social Impact Assessment
HH or Hh	Household
HIV	Human Immune Virus
Km	Kilometre
LC	Local Council
NFA	National Forestry Authority
NEMA	National Environment Management Authority
NGOs	Non Government Organizations
OSH	Occupational Safety and Health
PAP	Project Affected Persons
SC	Sub County
Sq. Km	Square Kilometres
tC	Carbon per Hectare
WB	World Bank

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EXECUTIVE SUMMARY

Background

The current Forest Management Plan calls for three types of land use, namely Strict Nature Reserves (blocks 2 and 3), Carbon Sequestration Zones (Blocks 4 and 5, and part of 6); and Production in Blocks 1, 8 and 9. Blocks 6 (part) and 7 are described as Buffer Zones. 'Production' here also includes sustainable use by local communities – honey, medicinal plants, etc. Some 20% of the reserve consists of valley bottom grasslands, which will be additional Strict Nature Reserve Areas.

The Carbon Sequestration areas, amounting to some 2,000 ha, are in the process of being planted with native species of *Combretum mole*, *Terminalia spp* etc., the idea being that these will in due course be used for sustainable charcoal production, but in the meantime, they will increase in biomass, hence stocking carbon. Planting is done by contractors and employs a number of people from nearby villages. The undergrowth is first slashed, and seedlings of about 15cm are then planted in the open areas between thickets. However, part of the north-western section of Block 4 has been planted with *Eucalyptus sp*, now 30-100 cm high, said to be experimental.

Need for Environmental Impact Assessment

In line with the Environmental Impact Assessment (EIA) Guidelines (1997) and Regulations (1998) for Uganda, it is the responsibility of any developer intending to set up a project for which an EIA is required to carry out the EIA and bear all the costs associated with its conduct.

Because the proposed development falls under the category of a sensitive ecological nature which is listed under Schedule 3 of the National Environment Act, Cap. 153; under Part 1 (General) sections a, b, and c among the projects requiring mandatory Environmental Impact Assessment before implementation, an Environmental Impact Study is thus required before the proposed forest activities can be approved by NEMA for implementation. The project according to the World Bank is classified as category B which requires an EIA.

The project is being funded through IDA, World Bank and the minimum environmental and social safe guard policies; World Bank Safeguard Policies on **Forests (OP 4.36)**, Environmental Assessment Policy- (OP 4.01) Involuntary Resettlement (OP/BP) 4.12, Physical Cultural Resources (OP/BP) 4.11, Natural Habitats (OP 4.04) and Pest Management (OP 4.09) related to the project have been considered.

Methodology for Environmental Assessment

In general, the study used a combination of the following methodologies:

- Meetings and discussions with stakeholders, including members of the local community, and Lead Agencies i.e. National Forestry Authority (NFA), Districts local governments and urban centre/ trading Centres , Ministry of Water and Environment, NEMA etc with a stake in various aspects of the project,
- Field surveys of the proposed project site, including baseline inventory of environmental conditions and resources in the project area,
- Expert judgment and technical evaluation of technical issues related to the nature of the proposed activities, and
- Review and reference to literature, including existing laws, regulations, policies and plans to

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verify how the proposed project conforms to them.

Anticipated Positive Impacts

The study identified a number of anticipated positive and negative impacts during and after the Forest Management Plan is implemented. The positive impacts expected include:

- Contribution towards improvement of climatic conditions and the environment in general;
- employment opportunities to communities living around Kasagala Central Forest Reserve areas during implementation;
- increased acreage of planted trees country wide;
- reduced soil erosion and sedimentation;
- increased groundwater recharge with related increase in spring discharges and base flow, or at least more even year round flow;
- preserved varied tree species;
- improved peoples livelihoods especially for the investments in private plantations;
- The ongoing tree planting will lead to growth in the local economy and wealth creation;
- the sales of carbon emissions reductions will also lead to revenue
- increased income from the sale of good quality trees;
- may improve the appearance of the landscape;
- restoration of degraded areas; and
- will increase on supply of improved charcoal, construction materials and other forest products, even while protecting soil and water resources.

In terms of enhancing the above positive impacts, the associated services of the project should be made known to the population in order to get confidence. The majority of the residents in the project area welcomed the project as a good intervention for the entire transformation of the area. The positive impacts of the projects are very crucial to the population in order to be involved in sustainable forest management (SFM).

Anticipated Negative Impacts

The possibility for social disharmony between the local residents and immigrant project employees who may come with some new behaviours and cultures not in harmony with the norms of the local residents.

Proposed mitigation measures may include:

- The contractors and NFA should endeavour to inform and sensitize both the new employees and the residents on the importance of respecting local customs and norms.
- NFA should facilitate regular meetings with the communities to resolve any budding conflicts before they explode.

During the assessment it was found out that NFA was planting trees very close to permanent and seasonal wetlands and thereby by not complying with the wetland regulations.

The proposed mitigation measures include:

- Adhering to the legal requirement of a 30 meter buffer zone/green belt alongside the streams so as to enhance their stability. Thus, issues and threats of soil erosion, silting, water catchments degradation among others will be controlled

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Eviction of encroachers from Kasagala Central Forest Reserve is the major threat, which also acts as a source of conflict amongst stakeholders. Majority of encroachers are cattle keepers. There are also conflicts on boundaries with some local communities.

The proposed mitigation measures proposed include:

- Re-opening the external boundaries of the reserve should be done expeditiously. Where the neighbours are not satisfied, each of the parties should employ their own registered surveyors to work together in the re-surveying the boundary. Where this proves unsatisfactory, then the issue can be taken to courts of law.
- There should be continuous on-going sensitization, trainings, boundary opening and patrols by NFA and other stakeholders, to strengthen a positive attitude towards a forestation among policy makers and lower communities.
- Efforts made through the use of the Collaborative Forest Management (CFM) by NFA to empower local communities in addressing environment degradation problems of local concern and to help use natural resources in a sustainable manner should be promoted and continued.

Nursery and water supply establishment is one of the activities to be carried out by the project where seedlings are planted in nurseries until they are 15cm, when they are ready for planting. During this time, a lot of water is used for watering and therefore the project has catered for the water needs of this nursery through establishment of water tank reservoirs and taps. The project nursery is located at Katugo forest station and is being funded by the World Bank.

The proposed mitigation measures include:

The location of the tree nursery should be a distance from any open water bodies to avoid eutrophication of the water bodies

All solid wastes that are used in the tree nurseries like polythene bags should be properly collected and properly disposed in designated areas

Unauthorized grazing is causing degradation of the forests through removal of vegetation, trampling and destruction of fragile ecosystems. Some of the cattle keepers have come from outside the district and built make-shift housing structures inside the FR. Some moved even into the Strict Nature Reserve (SNR) when they were evicted from other areas of the FR.

The Proposed mitigation measures include:

NFA will work out modalities through which scarce natural resources (water) can be shared with the local population through Collaborative Forest Management

NFA through CFM groups will identify areas outside the reserve or private land so as to allow grazers access water. Alternatively, cattle corridors should be identified within the reserve for grazers to access water points since the area of Nakasongola belongs to the designated Cattle Corridors.

Strict nature reserves and other natural belts should be left intact

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Annual fires which have resulted into destruction of several planted trees and the vegetation. Fires are a major problem in forest management.

The Proposed mitigation measures include:

- Continued sensitization of the stakeholders to avoid burning of bushes;
- Prescribed burning in the management of woodland areas, and early burning to avoid extensive fire damages to the forests;
- Establishment of fire lines;
- Conducting fire campaigns before the dry season to enlist community support in fire fighting and control;
- Kasagala forest reserve has a fire danger index which is based on average weather seasons and should be encouraged and all the staff sensitised on understanding its importance;
- National Forestry Authority in collaboration with the Nakasogola District Environment Office/forest together with lower local councils should initiate a process of enacting by-laws against fire and grazing in gazetted areas.

Illegal charcoal burning is decimating the tree cover in the FR. It has even spread into the SNR. Although charcoal burning is a source of livelihoods for some homesteads, it is currently prohibited.

Proposed mitigation measures include the following:

- Encourage the local communities and other stakeholders to find alternative means of livelihoods when they stop charcoal burning. The alternative livelihood means could include support to farming in form of high yielding crops, engagement in bee keeping, improvement of livestock breeds, etc. as the communities may chose local NGOs should help the communities in this regards;
- NFA has a policy of licensing local people to grow trees on at least 10% of the plantable FR area. This policy should be operationalised to enable the communities establish charcoal woodlots;
- The forest management plan has a component of growing trees which will should be used to support local people to grow trees for charcoal burning in an out grower scheme to the NFA planting efforts

Weeds and pesticide management within the forest reserve both and after planting.

Proposed mitigation measures:

- **Selection and application:** Selection and use of appropriate pesticides should be guided by the OP 4.09 and based on the WHO classification, as indicated in the policy. Appropriate application methods based on the target pests, the environmental setting, and prospective users will be followed. The application methods that will be used are spraying with liquid formulations using spray equipment carried by hand or backpacks or mounted on a tractor. Spot applications, where pesticides are sprayed only on affected plants, are preferred over blanket applications, where the whole field is sprayed. Conduct training of all spraying gangs so that they can use the pesticides correctly.
- **Packaging requirements.** Careful selection of packaging will be done. Designs and materials of packaging that withstand anticipated levels of handling, climatic conditions and

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prolonged storage under sub-standard conditions.

- **Transportation:** Specific risks include storage and transport through densely populated or protected areas. A hazard assessment may be appropriate for transport of large volumes of pesticides that pose risks to human health or the environment.
- **Storage:** The minimum requirements for such stores will be: location at safe distance from water and human dwellings; compound fenced and access limited to authorized staff; floors of impermeable concrete; ramps to contain leaking liquids; adequate ventilation; doors under lock; store keepers trained in handling pesticides; emergency shower facilities; adequate quantities of materials and protective gear to deal with emergencies. Storage in air-tight storage containers, training, and post treatment caution will be additional safer and good environmental practice.
- **Obsolete pesticides and their disposal:** The recommended mode of disposal for obsolete pesticides is incineration at a dedicated hazardous waste incineration plant. Risks associated with the transportation and storage of pesticides should be addressed in the Pest Management Plan. Auditing of storage facilities may be necessary as part of project preparation if procurement of large volumes is envisaged.
- **Training:** NFA will advise farmers on alternative pest management approaches, cost aspects of various control options, and, where chemical control remains desirable, on the proper selection, handling and use of pesticides and their hazards.
- Training and information will also be extended farmer groups involved in the sale or distribution of pesticides within the area. Ideally, pesticide retailers should be licensed, with appropriate training as a prerequisite.
- **Protective gear:** Requirements for personal protection should be indicated on the pesticide label. Depending on the level of hazard, protective gear may range from long-sleeved shirts, long pants, and enclosed shoes, to chemical resistant gloves, footwear, headgear and apron, plus goggles and respiratory protection ranging from simple dust masks to fully enclosed gas masks.
- Protective gear also needs regular replacement. Particularly respiratory protection masks or filter cartridges need to be replaced according to recommended replacement schedules (humid and dusty environments may require daily changes).
- **Procurement:** Any procurement or distribution of pesticide equipment should therefore take into consideration the availability of local repair services and users' knowledge of equipment. A good supply of spare parts and training of retailers to provide equipment maintenance and repair services may be necessary when selecting equipment. Tenders for procurement of pesticide equipment should set very specific and high quality standards, because otherwise suppliers may be tempted to compromise on the quality in order to table lower bids.
- **Monitoring:** Monitoring of pesticide use is required to detect health and environmental impacts, and to provide advice on reducing risks. Depending on the circumstances, this may include monitoring of:
 - appropriate use of protective gear
 - incidence of poisoning
 - pesticide residues in food crops and drinking water
 - contamination of surface water and ground water
 - environmental impact (impact on non target organisms, ranging from beneficial insects to wildlife)
 - efficacy
- Post planting weed control should preferentially use mechanical methods of weed control (i.e. spot hoeing and slashing)

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Improper Species Matching

Matching species to sites that suits them and where they can express their maximum biological potential is an important consideration. It entails assessment of sites i.e. soil depth, rock outcrops current vegetation and drainage among others. Kasagala forest reserve has been given out to potential investors with little or no experience in plantation establishment. Eucalyptus plantations being established in grassland areas but with little consideration for matching the species to the micro-sites. There were pine plantations being established in grassland areas but with little consideration for matching the species to the micro-sites. This will lead to poor performance resulting in loss of economic benefits to NFA

Proposed mitigation measures include:

- National Forestry Authority will ensure that species site matching is adhered too as per the Forest Management Plan.

Recommendations

- Generally, the impact on the environment of the Kasagala central reserve forest development project implementation will be positive, and particularly in regards to the improvement of forestry resources and climate for the entire country.
- Some limited negative impacts will occur during the implementation of the FMP but will not be significant and can be easily mitigated and monitored.
- An environmental management and monitoring plan has been proposed with this aim. The project will also have positive spin-off effects on plantation farmers.
- The Kasagala forest project should be allowed to be implemented if the identified issues are addressed
- The Kasagala forest management plan design has incorporated appropriate environmental mitigation measures that are practicable and achievable.
- Regular consultative meetings of all stakeholders should be convened to review and address any concerns that may rise during the implementation of Kasagala sector forest reserve management plan period.
- In the view of the anticipated impacts to accrue to the communities around Kasagala forest reserve and the nation as a whole, if the proposed mitigation measures are implemented, the overall negative impacts of the project will be minimised.
- The importance of the Luwero savanna reserves is considerable (as described in the forest management plan). Provided that the grassland areas in the valleys are retained as they are, and the woodlands improved by the enrichment planting where feasible and protection where it will be more beneficial, the current management proposals for Kasagala FR should not be detrimental to the bird fauna of the area.
- Good relations with the neighbouring communities, supported by active patrols to contain illegal activities, are needed for this.
Carbon sequestration is valuable in its own right.
- Ensuring that the general character of these woodlands is maintained is also valuable for the biodiversity that they hold, whereas their destruction would certainly entail very substantial loss of biodiversity.

Carbon Sequestration Capacity

No attempts have been made to measure the carbon sequestration capacity and therefore the carbon sequestration value of Uganda's forests. The carbon sink capacity of the impacted forest

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area for this project is therefore, largely based on secondary information. The Centre for Social and Economic Research on the Global Environment (CSERGE, 1993) put the carbon stocking capacity of tropical evergreen forests at 144.0 tonnes of carbon per hectare (tC/ha) for total above ground biomass and 66.0 tonnes per hectare for soil and below ground or a total of 210 tonnes of carbon per hectare.

The total project cost is approximately 2,060,000 U\$ Millions

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1.0 INTRODUCTION

1.1 Background

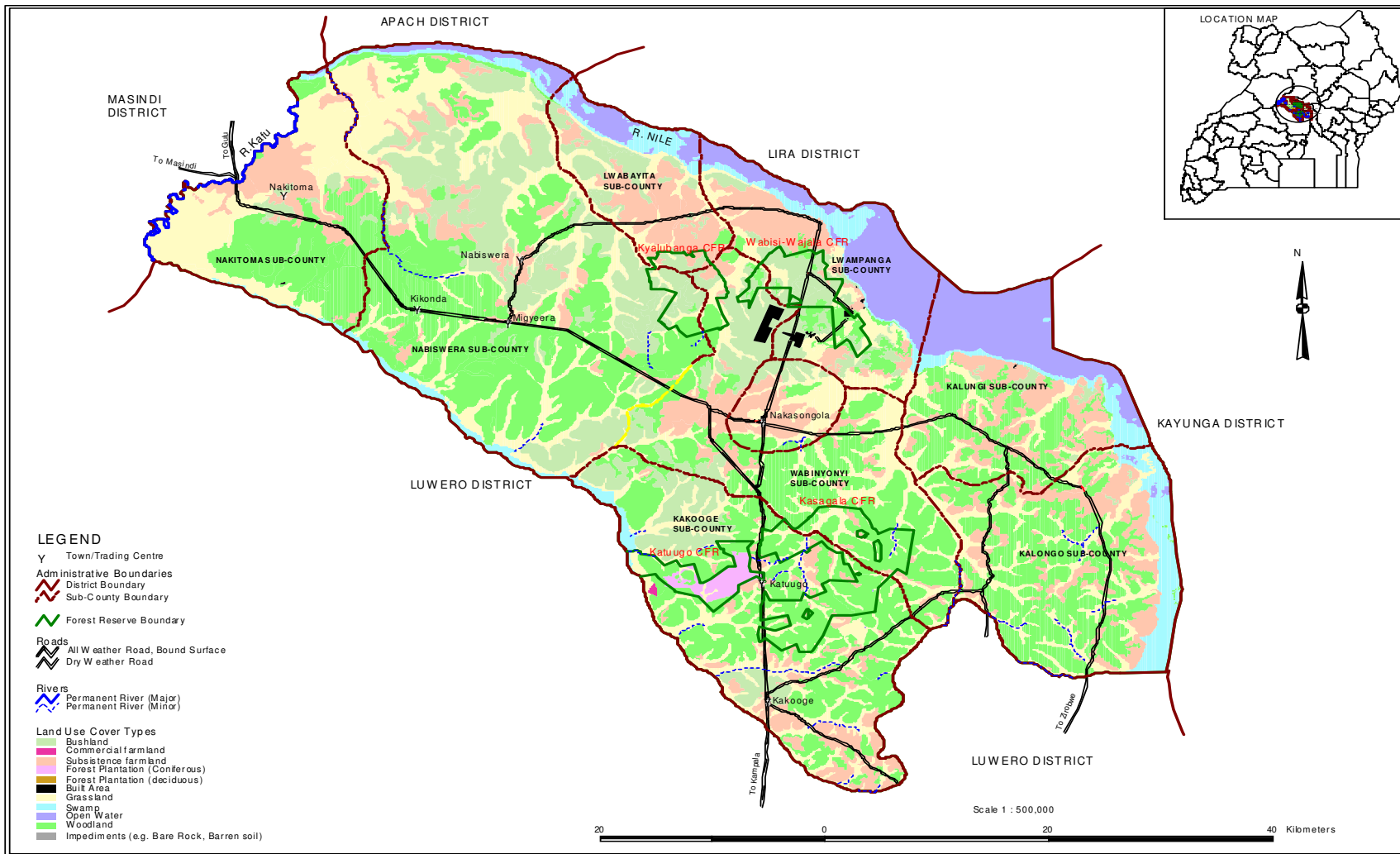
Kasagala forest reserve is found in Bululi county of Nakasongola District. It lies between 0°55' and 1°33' north, 32°00' and 32°35'E. The altitude is from 1067 to 1097m above sea level (a.s.l.) and the highest point (Kasagala hill) rises to 1159m a.s.l. The southern boundary is 94km and the northern one is 110km from Kampala respectively. The reserve lies east of Kampala – Gulu trunk Road. This reserve is one of 59 that are bigger than 50 km², and for which there is a biodiversity plan (Uganda Forestry Nature Conservation Master Plan, 2002). Kasagala Central forest reserve covers 10,298 ha.

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Map 1:

Location of Central Forest Reserves in Nakasongola District



Map 1.1 : Location of central forest reserves in Nakasongola

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1.2 Description of the Project

The Project under NFA is funded through the International Development Assistance (IDA) and aims at reforestation of 2000 ha of degraded forest and efficient charcoal processing technology to replace unsustainable biomass use with a focus on activities aimed at the sustainable planting and management of species suitable for charcoal production. The project will also support the demonstration of high efficiency kilns at about 3 locations in the CFR; these are anticipated to improve charcoal production efficiency from current levels of 10-12% (using traditional methods) to efficiencies approaching 32% using technologies proven elsewhere.

The project will be carried out through different stages involving several activities as follows:

Pre-project /Preparatory Activities

- Conduct a baseline survey on existing woody stock;
- Preparation of Project Design Documents
- Strengthen capacities of three community groups in order to participate in forest management
- Management plan for Kasagala Central Forest Reserve prepared
- Procure Seedlings to plant 2500 Ha
- Establishment of 2500 Ha
- Protection against fires and animal damage for three years
- Tractor Purchase
- Forest boundaries opened, clearly marked and maintained;
- Establishment and operation of Nursery bed and Development of water supply system;
- Site clearance and ground preparation for plantation development (2000 ha);
- Soil studies and species matching;
- Contractual issues and tender documents; and
- Purchase of tools and equipment maintenance.
- Personnel

Development Activities

- Lining, pitting and Planting of trees.
- Thinning. This will be carried out twice in order to remove poorly formed trees, so that the stands produce only large, high quality trees
- Weeding and route Pruning. Weeding will be done in the young crop to ensure that the crop is free from competition while Pruning will be carried out to facilitate easy access through the plantation and to produce knot free timber of the final crop; and
- Applying inputs such as pesticides, manure and fertilizers for the planted section.

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Operation Activities

- Regular watering if necessary;
- Enforcement;
- Logging/harvesting;
- Bush clearing;
- Fire fighting;
- Replanting after logging; and
- Information, education and communication flow with the community
- Charcoal Kiln Production
- Charcoal Kiln installation and maintenance

The project charcoal production component is intended to contribute to sound management systems that allow economic use of woody biomass species while fostering a natural regeneration and establishment of fast growing dedicated energy plantations in the formerly degraded woodlands. It provides an opportunity for land restoration, biodiversity rehabilitation and re-absorption of atmospheric carbon dioxide. This makes the whole process to be carbon sequestration in re-growing natural woody formations and fast growing plantations. Specifically the project aims to reduce carbon dioxide emissions and avoid release of methane from traditional open ended charcoal production methods by producing charcoal in new facilities equipped with recovery and flaring/combustion of methane and other volatile gases generated in the production process. This intermediate target is to provide clean charcoal for at least 10% of Uganda's charcoal needs within the first seven years of operation. (NFA Project Document Forestry Component of the supplementary Credit for Uganda Environmental Management Capacity Building Project (EMCBP 11)).

This activity is planned with the current Forest Management Plan for Kasagala CFR .The current management plan calls for three types of use, namely Strict Nature Reserves (blocks 2 and 3), Carbon Sequestration Zones (Blocks 4 and 5, and part of 6); and Production in Blocks 1, 8 and 9. Blocks 6 (part) and 7 are described as Buffer Zones. 'Production' here means sustainable use by local communities – honey, medicinal plants, etc. In addition, some 20% of the reserve consists of valley bottom grasslands, which will be additional Nature Reserve Areas.

1.2.1 Technical Description

The proposed project activity intends to supply 'clean' charcoal produced from more efficient process such as the Adam retort Kiln or any other better technology for that matter. The project activity avoids the release of methane and reduces carbon dioxide emission by shifting from traditional earth Kilns to Adam retort Kiln. In the Adam retort Kiln methane and other volatile gases are trapped (recovered) and flared/ combusted to support carbonization process. Combustion of these gases provides energy to support the endothermic reaction stages of carbonization.

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The Adam retort Kiln is constructed of bricks with good thermal insulation and air inlet control system. This Kiln has an efficiency of 32% (on average) using wood as a raw material. Replacing the traditional Kinyankole earth (with about 12% efficiency) improves efficiency by three fold. This Kiln results in avoidance of methane while at the same time reduces carbon dioxide emissions by about a third of the baseline.

After installation of Kilns, harvesting will start at a low level of about 600 ha. In the early stages, most of the harvesting will be along the areas earmarked to serve as haulage routes. As experience is gained, more Kilns will be constructed and the area harvested will increase up to a maximum of 5,000 ha. Half of the areas harvested for biomass shall be replanted with high value charcoal plantations.

The first harvest from own established plantation is expected to begin six years after project establishment at the earliest. Due to low biomass stock of woodlands (average of 30 tons per ha) substantial biomass harvest can only be realised when plantations are harvested at 6-7 years.

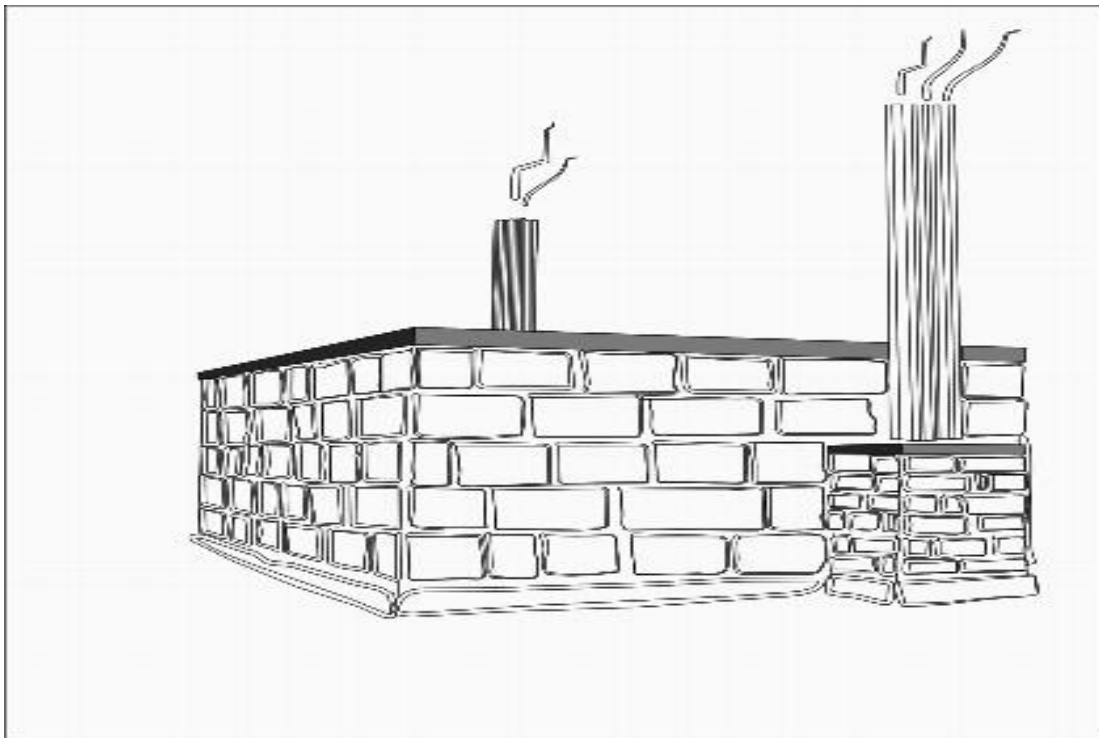


Figure 1: Perspective drawing of the "Adam-retort"

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Figure 2: Photo showing Phase-II burning of wood gases (methane) and recycling of the heat gained to push carbonization using Adam retort method

The Carbon Sequestration areas, amounting to some 2,000 ha, are in the process of being planted with native species of *Combretum mole*, the idea being that these will in due course be used for sustainable charcoal production, but in the meantime, they will increase in biomass, hence stocking carbon.

NFA will carry out an audit of the biomass production, the Charcoal Kiln efficiency, the location of these Kilns during operational stage of the project, the rotational cycle of the activities and wood production.

Nursery and water supply establishment is one of the activities to be carried out by the project where seedlings are planted in nurseries until they are 15cm, when they are ready for planting. During this time, a lot of water is used for watering and therefore the project has catered for the water needs of this nursery through establishment of water tank reservoirs and taps.

Planting is done by contractors and includes a number of people from nearby villages. The planting will be implemented through assisted re-generation of existing woody biomass mainly through liberation and tending and increased stocking of existing biomass through enrichment planting of species existing in the areas or species that have been proved suitable such areas in other regions/countries in gaps. The undergrowth is first slashed, and seedlings (none more than about 5 cm high at present) are then planted in the open areas between thickets. Part of the north-western section of Block 4 comprising of 200 hectares has been planted with *Eucalyptus sp*, now 30-100 cm high, said to be experimental, however it's being replaced with indigenous species since the *Eucalyptus sp* in most areas has dried up

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1.3 Need for Environmental Impact Assessment

The National Environment Act, Cap 153, 2004 requires that an Environmental Impact Assessment (EIA) is done for forestry-related activities. According to Schedule 111 Subsection (7) of the Act, Forestry-related activities, including timber harvesting; clearance of forest areas; and reforestation and a forestation are projects to be considered for EIA.

Also Section 38 of the National Forestry and Tree Planting Act, 2003 require a person intending to undertake a project or activity which may, or is likely to have a significant impact on a forest to undertake an EIA.

Furthermore, section 54 (g) of the same act provides for NFA to liaise with the National Environment Management Authority (NEMA) while addressing forestry and more so environment related issues. In respect of this, some NFA officers outside the sector already serve as environment inspectors. In ensuring that policy implementation is done effectively, security agents are frequently involved as active partners.

- The proposed project activities fall under those that require an EIA before implementation as stipulated in section 2.3.1 of EIA Regulations.

The EIA on this project is therefore based on developments that are likely to or will have significant negative impacts on the environment so that they can be eliminated or mitigated during and after implementation. Furthermore, it is the government policy that EIA process should serve to provide a balance between environmental, social, economic and cultural values for the sustainable development. That is, environmental and social concerns are integrated into all development policies, projects, activities and plans at national, district and local levels at early stages to avoid possible delays in the project implementation.

1.4 Objectives of the Assessment

The assessment was to ensure that the proposed activities in Kasagala Central Forest Reserve incorporate environmental issues in the planning and design stages of the Forest Management Plan in an environmentally sound and sustainable manner.

The purpose of the environmental assessment was to:

- Explain the need for the EIA and describe the physical characteristics, scale and design of the proposed activities which includes: clearing, planting, weeding, pruning, charcoal Kiln production, opening of the forestry boundaries and access/internal road;
- Examine the existing environmental character of proposed activities and specific sites and the area likely to be affected by the proposed developments;
- Predict the possible environmental impacts of the proposed developments;
- Describe measures that will be taken to avoid, offset or reduce adverse environmental impacts;
- Provide the public, Lead Agency and other stakeholders with information on the proposals that will assist NFA in making a decision on the Objectives of the EIA

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1.5 Methodologies Used During the EIA

The scoping exercise was carried out using a number of different approaches and methodologies as was dictated by the different aspects and dimensions of the project. The methodologies employed included the following:

- Meetings and discussions with National Forestry Authority(NFA) both at headquarters and in the field
- Secondary data review on Kasagala forest management plan
- Expert judgement and technical evaluation of technical issues related to the nature of the proposed development,
- Review and reference to literature, including existing laws, regulations, policies and plans to verify how the proposed development conforms to them.
- Public consultations with both central and local government officials
- Public meetings with local community within and around Kasagala central forest reserve
- Biodiversity inventory in the Reserve (2-5 July 2011), surveying mammals, birds and butterflies. As a background to our survey, we have compared our results with those of the Forest Department surveys made in 1993-5 (Biodiversity Report 27, Luwero Forest Reserves), except in the case of large mammals, which were not recorded in that study. We were shown the various uses being made of the reserve by Superintendent Forester Michael Hyuha, to whom we are most grateful (and to the NFA for permission to spend time in the reserve).
- Three other areas provided comparisons, mainly for birds, and the structure of the vegetation for all of these, in terms of per cent cover at various levels. For Kasagala, the vegetation cover was estimated for ten random points in each area, and the data from these was then averaged. A similar procedure was used in Katugo and Nakitoma. The existence of large trees in nearby Katugo, with a 16% canopy cover above 8m, compared to none in Kasagala, probably indicates the degree to which the latter has been degraded, mainly for charcoal production in the case of the trees. Four Survey sites were sampled in Kasagala Forest reserve:
 - Two sample points were placed in areas within the strict nature reserve (Plates 3 & 4).
 - One was in an area of relatively dense vegetation mainly dominated by *Senna spectabilis*, *Combretum* spp. and *Terminalia* woodland
 - The other was placed in an area of grassland with evidence of seasonal inundation
 - The other two sampled areas were located in the plantation area (Plates 5 & 6):-
 - one in an open site completely cleared and planted with Eucalyptus and the other
 - with natural vegetation maintained and enriched with indigenous species in the gaps
 - The surveys of mammals for this report involved a general walk over through the reserve observing for mammal presence, mammal signs, tracks and faecal material and wallow areas. Major sample points were placed 1 km apart along the area to be traversed by the access road at which observations were made to record mammal data

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(presence/absence or signs), habitat characteristics (such as nature of vegetation, presence of wallow or water).



Figure 3: Photo in Strict Nature Reserve with Fairly Dense Vegetation



Figure 4: Photo Showing Grassland within the Strict Nature Reserve



Figure 5: Photo of Eucalyptus Plantation Area with Natural Vegetation Cleared

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Figure 6: Photo of Natural Vegetation with Gap Enrichment

The coordinates of the central locations of these sampling areas are in Table 1.

Table 1: Geo-reference data for the visited for sampling the mammals

Sampling areas	Latitudes	Longitudes	Altitude
Plantation (No clearing)	36N 0449299	0133730	1082
Plantation (Clearing)	36N 0449294	0133743	1079
Strict Nature reserve (Woodland)	36N 0448186	0131926	1081
Strict Nature reserve (Seasonally flooded grassland)	36N 0449973	0131712	1066

1.5.1 Project Alternatives

The Scope of alternatives which have been examined during this EIS, include:

- Preferred Alternative,
- Technology alternatives
- The "No Action" alternative

1.5.2 Preferred Alternative

The carbon sequestration and Charcoal Kiln project involves planting of trees on large scale. This project area is large enough for this kind of establishment and since the area is a well established Central forest reserve. Hence, there was no other alternative place that was considered for the project.

The land is owned by NFA hence no wrangles trying to acquire land for the purpose of the project.

1.5.3 Technology Alternative

It is envisaged the project will basically be labour based and we don't anticipate the use of heavy machinery during planting, weeding and opening of access roads. The purpose is to ensure that many locals in the area are employed in planting, nursery bed and weeding. Heavy machinery is often associated with noise, accidents, vices which the project wants

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to control such as carbon emission.

The use of Adam Retort type of Charcoal Kiln has been proven to have high efficiency levels of 32% in average, however further investigation on the best Kilns to be used is still under way and there likely impacts will be assessed.

1.5.4 No- Action” Scenario

The “no-action” option would eliminate the opportunity of the project in Kasagala with its associated benefits which include: job creation for many youths, Climate stabilization, carbon trapping and other secondary socio-economic benefits that are to be associated with the project.

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2.0 POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

2.1 Policy and Forest Management System Framework

Relevant national regulations and international agreements and conventions to which Uganda is a party are presented below. The multilateral environmental agreements and ILO Conventions which are relevant for SFM include:

- (i) Convention on Biological Diversity
- (ii) Convention on International Trade in Endangered Species (CITES)

- (iii) International Labour Organisation Conventions and Instruments:
 - (a) Forced Labour Convention, 1930.
 - (b) Freedom of Association and Protection of the Right to Organise Conventions, 1948.
 - (c) Migration for Employment (Revised) Convention, 1949.
 - (d) Right to Organise and Collective Bargaining Convention, 1949.
 - (e) Equal Remuneration Convention, 1951.
 - (f) Abolition of Forced Labour Convention, 1957.
 - (g) Discrimination (Occupation and Employment) Convention, 1958.
 - (h) Minimum Wage Fixing Convention, 1970.
 - (i) Minimum Age Convention, 1973.
 - (j) Rural Workers' Organizations Convention, 1975.
 - (k) Human Resources Development Convention, 1975.
 - (l) Migrant Workers (Supplementary Provisions) Convention, 1975
 - (m) Occupational Safety and Health Convention, 1981.
 - (n) Indigenous and Tribal Peoples Convention, 1989.
 - (o) Worst Forms of Child Labour Convention, 1999.
 - (p) ILO Code of Practice on Safety and Health in Forestry Work (ILO 1998)
 - (q) Recommendation 135 Minimum Wage Fixing Recommendation, 1970.

An overview of the relevant World Bank Safeguard Policies, potentially including Environmental Assessment (OP 4.01), Natural Habitats (OP 4.04), Forests (OP 4.36), Involuntary Resettlement (OP 4.12), Pest Management (OP 4.09) and Physical Cultural Resources (OP 4.11) has been carried out. Other reviews of international protocols and instruments regarding carbon emissions reductions, rights of local communities, human rights, etc. that impinge on the carbon component of the management plan have also been done.

There is a number of legislation that deals with environmental management in Uganda both in general and specific terms, the most important of which is the Constitution of the Republic of Uganda (1995). The specific legislations that deal with environmental assessments are the National Environmental Act, Cap 153 and its subsidiary, the Environmental Impact Assessment Regulations (1998).

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2.1.1 The National Environment Management Policy, 1994

The overall policy goal of the National Environmental Policy is sustainable development which conserves environment to meet the needs of the present and future generations. The policy specifically seeks among others to:

- Provide a broad policy framework for harmonization of sectoral and cross-sectoral policy objectives, principles and strategies.
- Transform existing environmental management systems to an integrated and multi-sectoral approach to resource planning and management.
- Provide the basis for the formulation of a comprehensive environmental management framework
- Establish an effective monitoring and evaluation system

2.1.2 Uganda Forestry Policy, 2001

The guiding principles in the Forestry Policy, 2001 that are directly applicable to this SEIA include:

- **CONSERVATION AND SUSTAINABLE DEVELOPMENT:** Uganda's forests should be managed to meet the needs of this generation without compromising the rights of future generations.
- **LIVELIHOODS AND POVERTY:** the improvement of livelihoods should be a major goal in all the strategies and actions for the development of the forest sector so as to contribute to poverty eradication.
- **BIODIVERSITY AND ENVIRONMENTAL SERVICES:** forest sector development should safeguard the nation's forest biodiversity and environmental services through effective conservation strategies.
- **INTERNATIONAL OBLIGATIONS:** legislation should be developed to support the implementation of current and future international commitments that affect the forest sector

Accordingly, policy statement No. 1 on forestry on government land provides for government to:

“... actively protect, maintain and sustainably manage the current Permanent Forest Estate. This estate will be set aside permanently for the conservation of biodiversity, the protection of environmental services, and the sustainable production of domestic and commercial forest produce”

To achieve the policy commitments of government, the policy lists the following implementation strategies:

- (i) Strengthen the legal basis of the Permanent Forest Estate.
- (ii) Re-survey all government reserves with a view to demarcating and rationalising boundaries, and resolving encroachment problems.
- (iii) Encourage and develop partnerships between the government and civil society....
- (iv) Develop management plans for all reserved forests. These will promote expansion of forest cover and best practice in the sustainable management of forest resources.
- (v) Develop codes of conduct and standards, and the development of criteria and indicators that can be applied to forest certification.
- (vi) Support the development of responsible private sector enterprises that can harvest

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timber and non-timber forest products from natural forests.

- (vii) Regulate the use and trade of all products from the permanent forest estate, and promote the use of lesser-known species.
- (viii) Review the Reserved Species regulations.
- (ix) Ensure protection of the PFE from alien species, pests and diseases.

In addition, Policy Statement No. 3 on commercial plantations provides for ensuring that social and environmental impact assessments are observed when developing management plans and legal agreements.

2.1.3 The National Water Policy 1999

The water policy main objective is to provide guidance on development and management of the water resources of Uganda in an integrated and sustainable manner, so as to secure and provide water of adequate quantity and quality for all social and economic needs, with full participation of all stakeholders.

2.1.4 The Wetlands Policy (1995)

The policy on conservation and management of wetland resources aims at curtailing loss of wetland resources and ensuring that benefits from wetlands are equitably distributed to all people of Uganda. The policy specifically calls application of environmental impact assessment procedures on all activities to be carried out in a wetland to ensure that wetland development is well planned and managed.

2.1.5 National Gender Policy

In the context of the road sector, it aims to redress the imbalances which arise from the existing gender inequalities and promotes the participation of both women and men in all stages of the project cycle, equal access to and control over economically significant resources and benefits.

2.1.6 National AIDS Policy, 1997

Main streaming HIV/AIDS in all programmes including forest projects is an important aspect of a national overarching policy. There is however need for government to continuous review of the policy and design appropriate interventions to fulfil the objectives.

2.2 Legal and Regulatory Framework

2.2.1 Constitution of the Republic of Uganda 1995

Section 237 (2) (b) of the Constitution of the republic of Uganda of 1995 vested the management of all forest reserves for the benefit of all into central and local governments. The central forest reserves (CFRs) were then entrusted by an Act of Parliament to the National Forestry Authority (NFA) while the local forest reserves and forests on private & communal lands were placed under the local governments, with the District Forestry Office (DFO) as the managing arm.

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2.2.2 Uganda Environmental Policies and Procedures

The National Environment Act Cap 153 spells out principles of environmental management and the rights to a decent environment; institutional arrangements; environmental planning, environmental regulations, environmental standard; and environmental easements; records, inspection and analysis; financial provisions; offences; judicial proceedings and international obligations.

The National Environment Management Authority (NEMA) published EIA guidelines in 1997 where the EIA process and procedures are predominately outlined. It is the general policy of the government of Uganda that EIA be conducted for planned projects that are likely to or will have significant impact on the environment, so that adverse impacts can be foreseen, eliminated or mitigated. The guidelines also spell out guidelines for use by developers, EIA practitioners; procedures for public participation; guidelines for use by lead agencies and NEMA and guidelines for monitoring.

Environmental Impact Assessment Regulations, 1998 provide for implementation of the Act. Sections 5 of the EIA regulations include guidance on the content of a project brief that include stating:

- a) The nature of the project in accordance with the categories identified in the Third schedule of Act.
- b) The projected area of land, air and water that may be affected;
- c) The activities that shall be undertaken during and after the development of the project;
- d) The design of the project;
- e) The materials that the project shall use, including both construction materials and inputs;
- f) The possible products and by-products, including waste generation of the project;
- g) The number of people that the project will employ and the economic and social benefits to the local community and the nation in general;
- h) The environmental impacts of the materials, methods and by-products of the project, and how they will be eliminated or mitigated;
- i) Any other matter that may be required by the Authority.

Part II section (6) of the regulations point out that ‘the developer shall submit five copies of the project brief to the Executive Director (*of NEMA*).

2.2.3 National Forest and Tree Planting Act (2003)

The National Forestry and Tree Planting (NFTP) Act of 2003, section 14 and 32 requires everybody/organization to go through the legally established procedures if is to operate in or extract products from the forest reserves. The only privilege that exist as established by section 33 of the NFTP Act of 2003 is extraction of forest produce such as wood fuel for domestic use.

Section 38 of the Act echoes the National Environment Act by requiring that:

“A person intending to undertake a project or activity, which may, or is likely to have a significant impact on a forest, shall undertake an environmental impact assessment”

Section 28 of the Act makes preparation of a FMP mandatory, and gives the minimum

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content of the FMP as listed under:

- A description of all matters relating to the forest, the forest produce and the use currently being made of the forest produce;
- type of activities to be carried out in the forest;
- management objectives of the forest;
- measures to be taken for the sustainable management of the forest, and, except in the case of a private forest, the involvement of local communities in the management of the resources;
- resources likely to be available to enable the management plan to be executed; and
- any other information as the Minister may prescribe.

2.2.4 Agricultural Chemicals (Registration and Control) Regulation (1999)

Regulation 4-1 No agricultural chemical whether imported or manufactured in Uganda shall be stored, distributed or dealt in Uganda, unless it is duly registered in the register or agricultural chemicals and a certificate is issued.

Regulation 34 stipulates that agricultural chemicals shall be disposed of according to stipulated procedures and shall not be disposed into open or any waterway.

2.2.5 The Public Health Act (1964)

Section 7 of the Act provides local authorities with administrative powers to take all lawful, necessary and reasonable practicable measures for preventing the occurrence of, or for dealing with any outbreak or prevalence of, any infectious communicable or preventable disease to safeguard and promote the public health and to exercise the powers and perform the duties in respect of public health conferred or imposed by this act or any other law.

Section 105 of the Public Health Act (1964) imposes a duty on the local authority to take measures to prevent any pollution dangerous to the health that the public has a right to.

2.2.6 The Water Act (152)

The salient objective of this Act is to promote rational management and use of all water bodies in Uganda. This objective can only be achieved if water users can adequately tell the likely project impacts on water resources. This, therefore, requires that all developers, whose activities shall have significant impacts on water and water resources, carry out EIA in that regard.

2.2.7 The Local Governments Act (1997)

The Act establishes a form of government based on the district as the main unit of administration. Districts are given legislative and planning powers under this Act. [Sections 36-45] They are also enjoined to plan for the conservation of the environment within their local areas. District Environmental Committees established under section 15 of the National Environment Act Cap 153 are supposed to guide the district authorities in that regard.

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2.2.8 The Occupational Safety and Health Act, (2006)

The Occupational Safety and Health (OSH) Act replaces the Factories Act (1964). It departs from the original listing of 'don'ts' and now has a new scientific approach in which the technical measures required in the protection of workers are spelled out to be put in place. In so doing it is preventive in approach. The Occupational Safety and Health Act, 2006 provides for the health, workplace safety and welfare of employees.

2.2.9 Workers' Compensation Act (2000)

Section 28 of The Workers' Compensation Act (2000) states that:

Where a medical practitioner grants a certificate that a worker is suffering from a scheduled disease causing disablement or that the death of a workman was caused by any scheduled disease; and

The disease was due to the nature of the worker's employment and was contracted within the twenty-four months immediately previous to the date of such disablement or death, the worker or, if he or she is deceased, his or her dependants shall be entitled to claim and to receive compensation under this Act as if such disablement or death had been caused by an accident arising out of and in the course of his or her employment.

If on the hearing of an application for compensation in terms of subsection (I) of this Section the court is satisfied on the evidence that the allegations in the certificate are correct, the workman or his dependants, as the case may be, shall be entitled to compensation under this Act as if the contracting of disease were an injury by accident arising out of and in the course of the workman's employment.

NFA will comply with the various laws and regulations that control their operations in Uganda.

2.2.10 Other laws that have been reviewed during the study include:

a) The National Environment (Waste Management) Regulations (1999)

The forest authority management and contractors working engaged in a forest activities are required by Section 77 of the National Environment Act, Cap 153 to keep a record of the amount of waste generated by their project activities and of the parameters of the discharge.

b) The National Environment (Wetlands, River Banks and Lakeshores Management) Regulations, (2000)

The regulations provide principles for sustainable use and conservation of wetlands, riverbanks and lakeshores. They require that ESIS is mandatory for all major activities on riverbanks and lakeshore mitigation measures are in place to prevent soil erosion, siltation and water pollution.

c) The National Environment (Control of Smoking in Public Places), Regulations 2004

Prohibits smoking in public places including offices and therefore at the Contractors premises should be clearly marked with signage.

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2.3 Administrative Framework

2.3.1 National Environmental Management Authority (NEMA)

The National Environment Management Authority is mandated to be the “principal agency in Uganda for the management of the environment” (National Environment Act Cap 153). At district level, the responsibility of the management of environmental issues lies with the District Environment Committees.

While NEMA is responsible overall for the coordination of sectoral environmental issues NFA will ensure that environmental and social impact assessments for the forest projects are adequately carried out, that mitigation is incorporated as appropriate, and that the project is environmentally and legally compliant. Furthermore NFA will be responsible for monitoring the environmental and social repercussions of the project.

2.3.2 NFA and District Forest Services

Two institutions have been created with a motive of ensuring proper management of forests in Uganda and these include National Forestry Authority (for CFR's) and DFO (for LFR's and forests on private lands).. Section 48 (3) of the Act defines the roles of the two bodies. The Act is explicitly clear on the expected linkage / consultation or relationship between NFA and the DFO's.

Furthermore, section 54 (g) of the same act provides for NFA to liaise with the National Environment Management Authority (NEMA) while addressing forestry and more so environment related issues. In respect of this, some NFA officers outside the sector already serve as environment inspectors. In ensuring that policy implementation is done effectively, security agents are frequently involved as active partners.

2.3.3 Wetlands Management Department

The Wetlands Management Department (WMD) under the Ministry of Water and Environment (MW&E) takes the lead in all the day-to-day management issues of wetland resources in Uganda. It implements the Wetlands Policy in collaboration with other lead agencies, notably NEMA.

At the District level, a Department of Environment (headed by the District Environmental Officer) coordinates wetland work and an attempt has been made in various districts to have a Wetland Officer appointed. Even at the village level, one of the members of the Village Council takes care of the environment and wetland related issues.

2.4 International Policy and Environmental Social Safeguard Framework

The funding agencies have policies, procedures and guidelines that detail the way in which environmental assessment is to be carried out if any of the triggers below are invoked. The key environmental triggers are:

- Land acquisition that requires the involuntary resettlement of people;
- Projects in protected areas;
- Projects with impacts on the habitats of protected and threatened species;

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- Projects where there are indigenous people. The key issue here is that no minority people are to be unfairly discriminated against, either due to loss of access to existing resources or to be unfairly excluded from project benefits;
- Projects that impact cultural heritage

The environmental classification of proposed programmes and projects takes into consideration their nature, size and location. There are key environmental triggers that automatically put projects into the top class of environmental and social assessment, and require a much more stringent (and time consuming) assessment approach to be followed.

Below are some of the International Agreements or Conventions of potential relevance to the proposed project, which Uganda signed and/or ratified

- a) Convention on Biological Diversity (CBD) to ensure the conservation of biological diversity and sustainable use of its components.
- b) Protocol Agreement on the Conservation of Common Natural Resources (1982)
- c) The World Bank Group safeguards policies for environmental and social issues. These operational guidelines and procedures offer elements of policy, procedure, good practices and guidance.
- d) The Stockholm Convention on Persistent Organic Pollutants was ratified by the Government of Uganda. It's a convention that gives information on chemicals that are known to be persistent in the environment and how they should be managed.

2.4.1 World Bank Safeguard Policy on Involuntary Resettlement (OP/BP) 4.12

The resettlement action plan aims at involving public in consultations and creating awareness so as to reduce the costs of RAP implementation for the sponsor. It also requires that land acquisition, payment of compensation on affected assets, and resettlements to take place before the onset of the project.

The World Bank involuntary Resettlement Operation Policy Framework 4.12 has been taken into account as they are financiers of the Kasagala central forest reserve for carbon and charcoal production. . The World Bank's requirements regarding involuntary resettlement are detailed in Operation Policy Framework 4.12. The Directive outlines the following principles:

- Acquisition of land and other assets, and resettlement of people should be minimized as much as possible by identifying possible alternative project designs, and appropriate economic, operational and engineering solutions that have the least impact on people in the project area.
- The populations affected by the project are defined as those who may stand to the consequences of the project, all or part of their physical and non-physical assets, homes, homesteads, productive lands, commercial properties, tenancy, income opportunities, social and cultural activities and relationships, and other losses that are identified during the process of resettlement planning.

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2.4.2 World Bank Safeguard Policy on Physical Cultural Resources (OP/BP) 4.11

The World Bank safeguard policy OP/BP 4.11 on physical cultural resources recognize that cultural resources are important as source of valuable historical and scientific information, as assets for economic and social development and as ancestral parts of people's authentic identity and practices. The policy aims at involves or mitigating adverse impacts on cultural resources for development projects that the World Bank finances. In this regard, the policy compliance will be ensured through implementation of the chance finds procedures per below.

Surveys and consultations with the public did not reveal any physical cultural resources to be impacted upon by the project activities. However, if the chance finds occur, they will be handled according to the existing cultural and national requirements (Historical Monuments Act, Cap 46).

Under the Uganda law, any chance finds should be reported to the Department of Museums and Monuments of the Ministry of Trade, Wildlife and Heritage and the Chief Administrative officer (CAO). If the finds are not of interest to the Department of Museums and Monuments, they should be reburied on a site set aside for such purpose. If they are unknown human remains, such should be handled in line with the cultural norms with the involvement of local leaders and religious leaders.

The Implementing Agency (NFA) staff will ensure that the Contractor is adequately briefed about the chance finds procedures before commencing works. Procedure on how to handle chance finds of physical cultural resources should be included in all civil works contracts.

If the Contractor discovers any physical cultural resources, such as archeological sites, historical sites, remains and objects, including graveyards and/or individual graves during excavation or construction, the Contractor shall:

- Stop the construction activities in the area of the chance find;
- Delineate the discovered site or area;
- Secure the site to prevent any damage or loss of removable objects until the responsible local authorities or the Department of Museums and Monuments of the Ministry of Trade, Wildlife and Heritage take over;
- Notify the supervisory Project Engineer who in turn will notify the responsible local authorities and the Department of Museums and Monuments of the Ministry of Trade, Wildlife and Heritage immediately (within 24 hours or less).

Responsible local authorities and the Department of Museums and Monuments of the Ministry of Trade, Wildlife and Heritage would then be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed by the staff of the Department of Museums and Monuments of the Ministry of Trade, Wildlife and Heritage.

Decisions on how to handle the finding shall be taken by the responsible authorities and the Department of Museums and Monuments of the Ministry of Trade, Wildlife and Heritage. Such a decision will be documented in writing. This could include changes in

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the layout (such as when finding irremovable remains of cultural or archeological importance) conservation, preservation, restoration, and salvage.

Works may resume only a written decision is received by the Contractor and the Implementing Agency (NFA).

2.4.3 World Bank Safeguard Policy on Natural Habitats (OP 4.04)

The conservation of natural habitats, like other measures that protect and enhance the environment, is essential for long term sustainable development. The Bank therefore supports the protection, maintenance, and rehabilitation of natural habitats. Natural Habitats are land and water areas where (i) the ecosystems biological communities are formed largely by native plant and animal species, and (ii) human activity has not essentially modified the areas primary ecological functions. All natural habitats have important biological, social, economic and existence value. Important habitats may occur in tropical humid, dry and cloud forest; temperate and boreal forest;

Therefore the Natural Habitats policy may be triggered in certain cases because the investments proposed under this project (component 1.4.2) may have largely through ancillary activities potential adverse impacts on Wetland, rivers and forest which contribute to the sustainability of critical ecosystems. Therefore, this OP requires that any activities funded under the World Bank that adversely impacts these ecosystems are successfully mitigated so that the balance of the ecosystems are enhanced or maintained. This would require that the implementing agencies and their partners design appropriate conservation and mitigation measures to remove or reduce adverse impacts on these ecosystems or their functions, keeping such impacts within socially defined limits of acceptable change. Specific measures may depend on the ecological characteristics of the affected ecosystem.

2.4.4 World Bank Safeguard Policy on Forests (OP 4.36)

This policy applies to the following types of Bank-financed investment projects; (a) projects that have or may have impacts on the health and quality of forests; (b) projects that affect the rights and welfare of people and their level of dependence upon or interaction with forest; and (c) projects that aim to bring about changes in the management protection or utilization of natural forest or plantations, whether they are publicly, privately or communally owned.

The Kasagala central forest plantation will have beneficial effects on the health of forests as investments under the project prohibits non-conforming activities such as logging, mining and hunting in the Forest Reserves. The environmental and social impacts of the Kasagala central forest reserve will come from activities and investments to be made.

The EIA incorporates appropriate mitigation measures from activities that are likely to have negative impacts on the forest.

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2.4.5 World Bank Safeguard Policy on Pest Management (OP 4.09)

In assisting borrowers to manage pests that affect either agriculture or public health, the Bank supports a strategy that promotes the use of biological or environmental control methods and reduces reliance on synthetic chemical pesticides. In Bank-financed projects, the borrower addresses pest management issues in the context of the project's environmental assessment.

Criteria for Pesticide Selection and Use

The procurement of any pesticide in a Bank-financed project is contingent on an assessment of the nature and degree of associated risks, taking into account the proposed use and the intended users. With respect to the classification of pesticides and their specific formulations, the Bank refers to the World Health Organization's *Recommended Classification of Pesticides by Hazard and Guidelines to Classification* (Geneva: WHO 1994-95). The following criteria apply to the selection and use of pesticides in Bank-financed projects:

- (a) They must have negligible adverse human health effects.
- (b) They must be shown to be effective against the target species.
- (c) They must have minimal effect on non target species and the natural environment. The methods, timing, and frequency of pesticide application are aimed to minimize damage to natural enemies. Pesticides used in public health programs must be demonstrated to be safe for inhabitants and domestic animals in the treated areas, as well as for personnel applying them.
- (d) Their use must take into account the need to prevent the development of resistance in pests.

The Bank requires that any pesticides it finances be manufactured, packaged, labelled, handled, stored, disposed of, and applied according to standards acceptable to the Bank. The Bank does not finance formulated products that fall in WHO classes IA and IB, or formulations of products in Class II, if (a) the country lacks restrictions on their distribution and use; or (b) they are likely to be used by, or be accessible to, lay personnel, farmers, or others without training, equipment, and facilities to handle, store, and apply these products properly.

2.4.6 World Bank Safeguard Policy on Environmental Assessment Policy (OP 4.01)

The Bank policy requires environmental assessment (EA) of projects proposed for Bank financing to help ensure that they are environmentally sound and sustainable, and thus to improve decision making. This policy examines the potential environmental risks and benefits associated with Bank financed investments, supports integration of environmental and social aspects of investments into the decision making process, specifies consultation of the affected people, involve NGOs, and provide opportunities for their participation in the environmental assessment aspects.

The principles of this policy are;

- Environmental Assessment (EA) is required by Bank-financed investments;
- The Borrower is responsible for carrying out the EA;

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- The Bank advises the Borrower on Bank's EA requirements; and
- The Bank does not finance activities that will contravene national legislation or relevant international environmental agreements identified during EA.

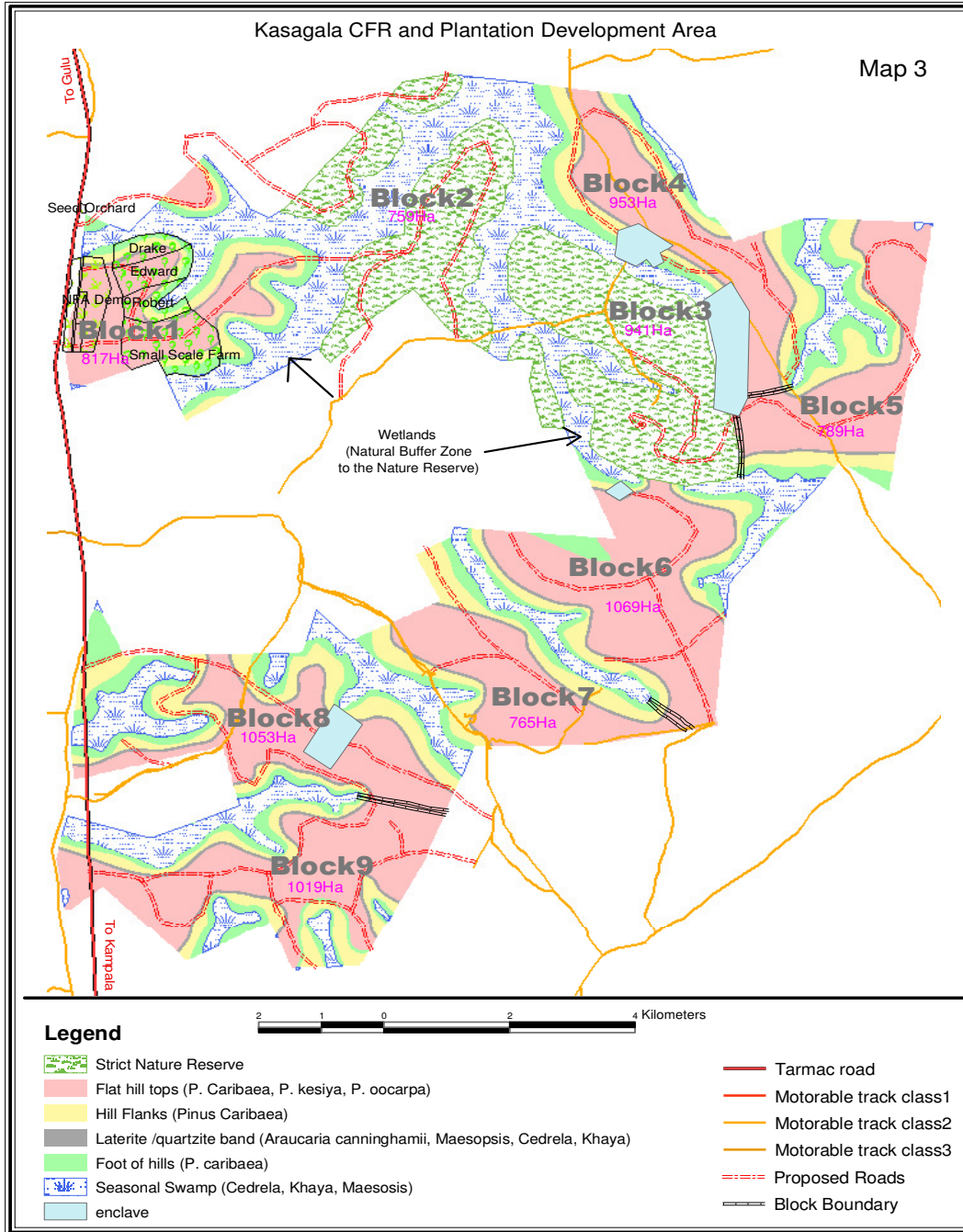
The World Bank favors preventive measures over mitigation or compensatory measures, whenever feasible. This policy aims at identifying ways of improving project selection, siting, planning, design, and implementation by preventing, minimizing, mitigating, or compensating for adverse environmental impacts and enhancing positive impacts; and includes the process of mitigating and managing adverse environmental impacts throughout project implementation.

3.0 ENVIRONMENTAL SETTING OF PROJECT AREA

3.1 Location of the project

Kasagala Forest Reserve lies in Buruli County in the administrative district of Nakasongola. It covers an area of 103 km², with an altitudinal range of 1,057 - 1,160 m. 99% of the FR has slopes of less than 5⁰, making it generally flat, with incisions by shallow inundations which flood in the wet season. Kasagala hills (1,160 m) are an isolated outcrop and form the only elevated part of the forest. The reserve is bordered on its western side by the main road north from Kampala and is interrupted there by the NFA Katugo plantation forest. Several enclaves are situated within the boundaries of the reserve.

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Map 3.1: Kasagala CFR and Plantation Development Area

3.2 Biophysical Environment

The reserve is predominantly dry *Combretum* savanna. The majority of the area (95 km², 92%) is occupied by woodland savannah, classified as type N1 (*Combretum - Terminalia - Loudetia* savannah), and 8 km² (8%) is covered by W2 (*Sorghastrum* Grassland; (Langdale - Brown *et al.*, 1964).

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3.2.1 The State of the Forest

The forest is seriously degraded with widespread grazing, settlement and cultivation. . Settlement around Namwanga, Mitanzi, Kalungu and Kitaleba villages has greatly contributed to the heavy degradation of the forest. Cattle keeping villages have been identified mainly close to swamps in Kigogwe, Kalungu, Katugo, Kasaigala, Mayirye, Kyaluweza, Kiraka, Mitanzi, Kyabasonga. Messing up of the forest boundary from Kyaluweza up to Kabira village (on the Northern side of the forest) needs to be checked.

Table 2: Historical Timeline of the Key events in Kasagala CFR

TIME	EVENT(S)
1966	No charcoal burning, forest was intact with big trees, streams flowing through the CFR
1970 on wards	Grazing was common
1970 on wards	Settlement in the CFR
1980s	Charcoal burning for Kampala market, *Most of the activities became uncontrolled.
1992-1993	Boundary opening and Biodiversity survey
1995-1998	Pine planting started near the road side towards Luwero
2000	Illegal settlement reduced
2002	Pine demonstration planting started
2004	Private tree planting started
2004	Charcoal burning, grazing, timber cutting were the major events
2005	Charcoal burning reduced with few settlements, most people left the forest.
2006	Grazing and charcoal burning resumed
2007	Increased grazing, charcoal burning, settlement
2008	Increased settlement and cultivation
2009	Slight decrease in settlement and cultivation
2010	Increased settlement and cattle grazing
2011	Increased settlement and cultivation/cattle grazing

3.2.2 Strict Nature Reserve

The Nature Reserve (approximately 21 km²), occupies the northern section of the forest reserve. It supports a vegetation type (W2) poorly represented in the protected area system of Uganda. However, at the time of this assessment, it has been observed that the forest boundary is not clear and one farmer has fenced part of the reserve up to the site where a dam is located within the proposed Nature Reserve. There is a need to sort out the boundary issue and relocate the families to the outside the proposed Nature Reserve.

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Figure 7: Strict Nature Reserve with Fairly Dense Vegetation



Figure 8: Grassland within the Strict Nature Reserve

3.2.3 Production Zone

The production zone (72 km²) is located on the southern and western portion of the Forest Reserve. The area has great potential for softwood plantation, bee-keeping and controlled grazing. Currently no revenue is being collected but the potential is there. Licensed charcoal burning and cattle grazing would yield millions of shillings.

3.2.4 Protection Zone

There is timber production (10 km²) by private tree planters in Kyankonwa area, an area designated as a protection zone.

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Figure 9: Eucalyptus Plantation Areas with Natural Vegetation Cleared



Figure 10: Natural Vegetation with Gap Enrichment Planting

3.2.5 Site Class Zones

Five site zones based on soil characteristics and topographical features within the Kasagala forest reserve and are classified as follows:

a) Zone 1

This zone (499ha) occurs on seasonally water logged swamps that occupy a large area of land in the reserve. The zone experiences water logging every rainy season i.e. twice a year. The level of water depends on the amount of rain got, its frequency and durability during the rainy seasons. Flatness of the valleys and luxuriant growth of *Loadetiaphragmitoides* grass discourages fast flow of rain water, which stays longer after it has stopped raining.

b) Zone 11

This is the zone found on either side of the swamps. It is 808ha and most of the trees have been removed and replaced by a lot of grass that supports cattle during dry seasons.

c) Zone 111

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Zone 111 (1682ha) occurs on flanks of hills where land rises gently and with a slope of about 5%. On some hills, especially in the east and far from the main road, natural forest woodland can still be found. The zone is about 400-500m wide round the hills.

d) Zone 1V

This zone (92ha) is similar to zone V above and zone III below, it has been separated from the other two because it is characterized by occurrence of solid laterite rock outcrops and shallow stony soils that have a high proportion of laterite and quartzite pebbles in them. It is a narrow band of about 20m round hills.

e) Zone V

The hill top sites (3659ha) which gradually merge with forest and woodland sites on the flanks of the hills form a distinct and separate sites type. Most of the woodland which covered the zone has been removed, grazing has also removed the grasses leaving the soil bare and exposed to the ravages of erosion. It covers the largest area of the forest reserve.

3.2.6 Topography

The landscape consists of relatively flat hill tops and flat broad valleys which are seasonal swamps that become inundated twice a year during the two rainy seasons.

3.2.7 Geology

The parent rock consists of well weathered Gneisses and granites; the later are still prominent north of the forest reserve and form Nakasongola hill. Quartzite and laterite rocks are quite common, the former occur as boulders on or below the surface and may cover up to half a hectare. At the shoulders of the hills, about 150 to 300m from the swamp, sheet laterite rock is to be found on all hills visited. Some of such rock was exposed by road construction. On weathering laterite rock forms ferruginized iron concretions, found round all hills at about the same distance from the swamps.

3.2.8 Soils

Soils belong to Bululi catena on hills and Lwampanga catena in valleys. The former cover all hills and the upper parts of the broad valleys, while the latter occur on and close to the seasonal swamps. Drainage is generally free on hills, but becomes progressively impeded on flat plains and swamps. Soils are strongly acidic with abundant gravel mixed with quartzite pebble where ironstone occurs. They (soils) are fairly deep (1.2-1.8m) reddish-brown to red on hills and grey brown on plains becoming black on seasonally water logged swamps (Radwanski. S.A, 1959). Aside from Kakira and Kakomo swamps which drain westwards into Lugogoriver all other swamps and streams drain to the north into Lake Kyoga drainage system. NB:Detailed soil analysis is under Annex 2

3.2.9 Vegetation

According to Langdale-Brown, the vegetation of Kasagala forest reserve is classified as *Combretum-molle – Hyparrheniafilipendula* association (Langdale-Brown, 1959). However, it has also been described as a combretaceous wooded grassland and Woodland

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(Lindi and Morrison, 1974) which was dominated by *Combretum*spp and *Terminalia glaucescens*. Most of the large trees of *Combretum molle*, *C. collinum*, *Albizia coriaria*, *Azizia*, *Annona senegalensis*, *Acacia hockii*, *A. sieberiana* and *Vitax doniana* have been felled for charcoal production, but are still common as coppice or seedlings and saplings. For a long time this forest reserve has been a source of charcoal for Kampala and other towns. The woodland has been removed and has been replaced by grass species that are overgrazed by thousands of cattle which stay and graze in the forest reserve. In valleys and along stream courses, the former dry forest and woodland, which were dominated by tree species such as *Albizia*spp, *Annona*, *Lannea* and *Teclea*, are currently being removed to make charcoal and sown timber. These processes continuously remove trees and promote grass growth which in turn encourages cattle grazing with its deleterious effects such as soil erosion.

3.2.10 Rainfall

The whole reserve lies between 1000 to 1125mm isohyets and rainfall tends to be erratic. Rainfall comes twice yearly with early rains falling during April-May and late ones during September-November.

3.3 Social Environment

3.3.1 Administrative Boundaries

The district comprises three counties, namely:

- Kyabujingo County - Kakooge, Kalongo and Kalungi sub-counties
- Buluuli County - Lwampanga, Wabinyonyi sub-counties and Nakasongola Town Council
- Budyebo County - Nakitoma, Nabiswera and Lwabiyata sub-counties. Kasagala CFR is bordered by Kakooge and Wabinyonyi sub counties

3.3.2 Population

The 2002 national census estimated the population of the district at 127,100 people, of whom 62,312 (49.7%) were females and 62,985 (50.3%) were males. The growth rate of the population in Uganda has averaged 3.2% during the first decade of the 2000s. Given those statistics, it is estimated that the population of Nakasongola District in 2010, was approximately 163,600.

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Table 3: Nakasongola District Population Trend

Year	Estimated Population
2002	127,100
2003	131,200
2004	135,400
2005	139,700
2006	144,200
2007	148,800
2008	153,600
2009	158,500
2010	163,600

3.3.3 Culture

The main languages spoken in the district are Luganda and Luluuri. English is spoken in the major urban centres.

3.3.4 Economic Activities

In the past charcoal production was a major commercial enterprise in the district, it has reduced considerably as the number of trees declined but is still ongoing at un sustainable rates still. In spite of the heavy destruction of the forests for the charcoal sold to urban areas, there was little to show for it in terms of development or improvement in people's livelihoods.

As a cattle corridor district with a considerable population of people who also rely on crop production, Nakasongola district has suffered considerably from the soil degradation in the district. The deterioration and degradation of the soil has been brought upon by the high stocking rates of livestock eating up pasture, grasslands and other vegetation at a higher rate than it can regenerate. In addition, the severe temperature s cause drying up of vegetations and crops.

Fisheries especially those from Lake Kyoga provide an economy yet a lot of the revenue is taken by boat owners and traders who come from outside the district. The fishing communities have remained largely poor.

Agriculture is one of the major activities with emphasis on food crops, including: Cassava, Maize, Sweet potatoes, Sorghum, Bananas and Millet while Cash crops include: Coffee and Cotton

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3.3.5 Road Network

The road network is still poor, with most of the areas being served by marram roads where transport may be very difficult during rainy days. However, the marrum roads are graded and Passable in dry seasons.

3.4 Bio-diversity

In 1996 the then Uganda Forest department completed a series of biodiversity serves in a number of their forest estates that met certain criteria. Kasagala Fr was one of such forests and is included in the “Luwero District Forest Reserves Biodiversity Report”. Kasagala is the largest of the forests included in the said Biodiversity report

Table 4. Summarizes the level of biodiversity and conservation importance for Kasagala forest reserve as was interpreted by Davenport *et al* (1996). The same authors noted that the Luwero forests were dry *Combretum* savanna systems and that their flora and fauna was not especially diverse and with has relatively few rare and/or restricted-range species. At the time, they noted that the Luwero Forest reserves were of little immediate conservation concern.

With increased rate of deforestation and conversion of many of these savanna estates into plantation forests, the value of reserves like Kasagala cannot be over emphasized. The need to preserve some natural woodland and other savanna types is increasingly becoming very apparent for more reasons than just biodiversity value, but also for their other ecosystem services.

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Table 4: Summary of Biodiversity and Conservation Importance of the Five Indicator Taxa Surveyed in Kasagala (source Davenport *et al.* 1996)

Trees and Shrubs		Birds	Small Mammals	Butterflies	Large Moths
No. of species now known from forest	164	119	21	76	39
No. of restricted-range species (known from 5 forests)	9	4	0	2	0
No. of regional endemics	0	0	0	0	0
No. of species recorded by current inventory	164	119	21	76	39
Species diversity	**	**	**	**	**
Species conservation value	**	**	**	*	*

Star ratings indicate values relative to the other 64 Ugandan forests investigated under this programme: ***** top 10% of sites; *** top 11-25% of sites; ** mid-ranking 26-74% of sites; * bottom 25% of sites. Regional endemics refer to species restricted to Uganda, the Albertine Rift and/or the Somali-Masaai region.

Table 5: Presents a combine picture of biodiversity and conservation importance for the Luwero districts together.

Table 5: Summary of Biodiversity and Conservation Importance of the five Indicator Taxa Surveyed in all five Forests Combined (source Davenport *et al.* 1996)

Trees and Shrubs		Birds	Small Mammals	Butterflies	Large Moths
No. of species now known from forest	195	155	24	121	42
No. of restricted-range species (known from 5 forests)	13	7	0	13	0
No. of regional endemics	0	0	1	1	0
No. of species recorded by current inventory	195	155	24	121	42

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Regional endemics refer to species restricted to Uganda, the Albertine Rift and/or the Somali-Masaai region.

Together the Luwero forests become more significant for biodiversity than for the different reserves considered independently.

For the present task we conducted surveys for three animal taxa, birds and butterflies (which were also done by Davenport *et al.* 1996) and larger mammals instead of the small mammals that were done by Davenport *et al.* (1996).

3.4.1 Butterflies

Butterflies serve an extremely important role in the community and have a large influence on plant diversity and particular species of insect serve keystone functions in the community. Butterflies satisfy most selection criteria for use as bio indicators (Larsen, 1991). Butterflies respond quickly to environmental changes and there is now considerable data on how particular species contend with alterations in land-use, and thus may play a valuable role in ecological monitoring. The influence of seasonality on the presence or absence of adults of certain species, and on their morphology, as well as knowledge of species ecology must always be considered. However, the compilation of species lists may be used both qualitatively and quantitatively, to comment on a habitat (its condition and vegetation) and to identify conservation and monitoring needs.

A total of 56 butterfly species (Appendix 1) were recorded in the different sites sampled. The strict nature reserve and plantation area with no clearing registered the highest number of species of total butterfly fauna with 12 and 7 forest species respectively.

The previous surveys by Forest Department which lasted 17 days, recorded 76 butterfly species. Our one day surveys have recorded more than 73% of that absolute total, suggesting that longer surveys could show that Kasagala is even much richer for butterflies than 76 species. On the other hand our higher record success could be a reflection of a temporal event that is a well-known phenomenon driving species assemblages in areas.

No species of conservation concern (IUCN Red Listed species) was recorded in the study sites. A number of habitat specific species were present for example 12 forest species (specialists and generalists) were recorded in the reserve. Most of the species we recorded are the same as were reported in Davenport *et al.* (1996), we however have recorded an additional 2 species (*Acraea acerata* and *Ypthima asterope*) not recorded previously on the other hand 22 species reported in 1996 have not been encountered on this occasion.

These observations suggest that more effort and skill of the observer could greatly improve the biodiversity rating of a place.

- From this study, there are no species of conservation concern recorded by this study; most of the species are common open country or widespread species.
- Because of the mixed nature of the habitats in the reserve, variable effects may be experienced in the different parts. Vegetation cutting /trampling especially through the

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thicketed areas that are preferred feeding and breeding areas for the butterflies; and

- The thicketed areas are some of the preferred foraging areas for adult nectar feeders and food sources for larval stages therefore the strict nature reserve and the plantation area with natural vegetation support a large number of butterflies.

3.4.2 Mammals

The mammals are broadly divided into two categories:-

The large mammals - these are defined as large and conspicuous and mainly have a diurnal habit. A number however are strictly/mainly nocturnal meaning that although conspicuous it may not be possible to record them by observation. In this category are such groups of mammals such as the primates, ungulates and carnivores.

Small mammals- these typically have been taken to include the rodents and insectivores but can be conveniently stretched to include small carnivores and bats. Small mammals are a very significant component of any terrestrial ecosystem. Impacts on the dynamics of their populations, species composition and preferred habitats may have gross and irreversible impacts on the ecosystem for the larger species of mammals.

Table 6: Small Mammal's Species Recorded in the Luwero Forest (source Davenport *et al.* 1996)

Species	Ecol. Type	Kasagal a	Wab-Waj	Kab-Muj	Kapimpini	Kamusene
<i>Aethomys hindei</i>	O	p				
<i>Aethomys kaiseri</i>	O	p	P			
<i>Cricetomys gambianus</i>	W	p				
<i>Grammomys dolichurus</i>	F	p			P	
<i>Graphiurus murinus</i>	W				P	
<i>Lemniscomys macculus</i>	O	p				p
<i>Lemniscomys striatus</i>	W	p		p		
<i>Lophuromys flavopunctatus</i>	W	p				
<i>Mastomys hildebrandtii</i>	W	p	p			
<i>Mus minutoides</i>	W	p		p		p
<i>Mylomys dybowskyii</i>	O	p				
<i>Myomys fumatus</i>	W	p				
<i>Praomys jacksoni</i>	F	p				
<i>Tatera leucogaster</i>	O	p				
<i>Tatera valida</i>	O	p				
Insectivores						
<i>Crocidura fuscomurina</i>	O				P	
<i>Crocidura hildegardeae</i>	W	p				
<i>Crocidura jacksoni</i>	U	p				

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Species	Ecol. Type	Kasagala	Wab-Waj	Kab-Muj	Kapimpini	Kamusene
<i>Crocidura ludia</i>	F	p				
<i>Crocidura luna</i>	W	p		p		p
<i>Crocidura olivieri</i>	W	p			P	
<i>Crocidura parvipes</i>	U	p				
<i>Crocidura selina</i>	F			p		p
<i>Crocidura turba</i>	F	p			P	

Wab-Waj – Wabisi-Wajala Forest Reserve, Kab-Muj – Kabuika-Mujwalanganda Forest Reserve

For contextual purposes, Table 6. Shows the small mammals recorded for all the Luwero forest reserves. These results come from several hundreds of trapping nights (the measure of effort for trapping small mammals). Such effort of trapping could not be managed in one day of sampling and therefore small mammals were not assessed at for the present assignment.

A total of 14 species were recorded for the ecosystem. These represent a rich diversity of species and there may well be several more species including species of Genets and Mongooses which will survive even in habitats that are heavily modified by humans.

Species of mammals recorded for Kasagala Forest Reserve

Primates

Vervet Monkey *Cercopithecus aethiops*

Artiodactyla

Bush pigs *Potamochoerus porcus*

Bushbuck *Tragelaphus scriptus*

Bush Duiker *SyJvicapra grimmia*

Oribi *Ourebia ourebi*

Carnivora

Banded mongoose *Mungos mungo*

Leopard *Panthera pardus*

Spotted Hyaena *Crocuta crocuta*

Serval cat *Profelis serval*

African civet *Civettictis civeta*

Rodentia

Crested Porcupine *Hystrix cristata*

Geoffrey's Ground Squirrel *Xerus erythropus*

Cane rat *Thryonomys gregorianus*

Lagomorpha

Bunyoro rabbit *Poelagus marjorita*

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All species except the Vervet Monkeys, Oribi, Banded Mongoose and Bush Duiker were recorded from interviews with people from the local community. The exceptions listed here were recorded either from direct observation of their presence from faecal material, their trails and their foot prints.

3.4.3 Birds

The bird fauna in the 1990s is well described by Baltzer (1996) and our interest was to see whether there have been dramatic changes since then (our visit was too short to be able to detect more subtle changes). At 103 km², Kasagala is relatively small, and we sampled only 4 km² of that, albeit our samples were considered representative of the reserve as a whole (M Hyuha, pers comm). For birds, we have therefore included data from a wider scene, namely the other Luwero FRs sampled by the FD in the 1990s, and two areas with comparable vegetation types where bird monitoring has been carried out from the 1990s to the present. Since birds are mobile, the whole of this part of central Uganda will have supported a broadly similar bird community, but many species are uncommon and it is only by lengthy studies that the complete fauna can be established. A good example of this is birds of prey. The overall list (see Annex 3) has 21 species, but the FD reported only three of these (and we added three more). However, it is likely that almost all of the 21 could be recorded at Kasagala, given enough time.

Table 7: Estimates of Percent Cover of Woody Vegetation for four Land-Use types in Kasagala CFR and for two other areas with Substantial data on Birds

	Block	Langdale-Brown vegetation category	Non-wood y	Woody vegetation: height bands (m)				Number of bird spp per TSC count
				0 - 1	1 - 3	3 - 8	>8 ^a	
Kasagala - SNR woodland	-							
	3	N1	58	33	41	25	0	17
- grassland								
	3	W2	94	9	8	4	0	24
- CS cleared								
	4	N1	74	17	11	3	0	21
- slashed savanna/cultivation								
	5	N1	60	45	55	40	0	17
Katugo -								
	-	NI	75	19	27	17	16	26.8 ^b
Nakiatoma - woodland								
	-	N2	67	25	30	17	0.3	26.9 ^b

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Notes:

- a) The lack of trees >8 m tall in Kasagala is partly a result of charcoal-burning. The Katugo site is about 10 km to the west, and Nakitoma is about 50 km WNW
- b) Averages of 25 and 33 counts for Katugo and Nakitoma, respectively
- c) Some 10 - 20% of the vegetation is non-native (exotic at both sites, some crops at Katugo)

For the July 2011 surveys, birds were studied by using Timed Species Counts (TSCs), in which a list of species recorded in a particular habitat is made in a 1-hour period (Bibby *et al* 2000). Those species recorded, whether by sight or sound, in the first ten minutes, are scored 6, for the next ten minutes, 5, and so on to 1 for the last 10 minutes. Only one count was made in each of the four Kasagala habitats in July 2011, and the corresponding scores are given in the Appendix; for the two comparative sites, the scores are averages from 25 counts in Katugo and 33 in Nakitoma, respectively

The Annex 3 summarises these data and allows comparisons to be made. Assuming the correctness of the assumption that all sites support a broadly similar bird community, and that no major changes have happened in Kasagala since the mid-1990s, then the July 2011 counts can be considered a sub-set of the overall list. The fact that, of the 54 species recorded in July 2011, all but six had previously been recorded in the wider area supports this view. Of these six, several have in fact been recorded at other sites nearby. The earlier list for Kasagala (Baltzer 1996) included seven forest interior ('FF') species, all but two being recorded by mist-netting, so their absence from the recent record may be due entirely to having less time, and not netting any birds.

Half of the 1990s field days were during January 1993, and it is therefore remarkable that only a single Palearctic species – Garden Warbler – was recorded then; whereas in the two compared sites, Katugo and Nakitoma, 9 and 7 respectively were found. However, it seems unlikely that these areas are of much importance for this group of birds, which, as a group, are of conservation concern.

No Globally-threatened species are recorded from this area, but several regionally-listed Red Data species occur (two being regionally Vulnerable), as shown in the Appendix 2. Under the current management proposals, they are likely to continue to be present, particularly if species such as *Melicia* are allowed to grow to full size – they provide the kind of nest sites needed by large birds of prey.

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4.0 PUBLIC CONSULTATIONS

4.1 The Process

According to the Guidelines for Environmental Impact Assessment in Uganda public involvement in the EIA is an on-going process and shall be facilitated prior, during and after the EIA exercise. Methods of public participation mentioned are:

- Informing the public about the proposed project;
- Participation in the scoping exercise;
- Public meeting or hearings about the project;
- Written comments;
- Use of community representatives and
- Making relevant documents and EIA report available and invitation to comment

Community participation and consultation has been done and views and opinions analyzed. A synopsis of the views of the forest beneficiaries, project affected people, as well as national and local districts representatives, who have been interviewed, are presented. Sector specific information solicited during these discussions has been included in the identification of impacts and mitigation measures (see Chapter 5). There will be continuous community awareness throughout the project cycle.

4.1.1 National Consultation were Carried out with the Following Institutions

Public consultation were undertaken also at national levels in order to ensure that issues of concern were addressed in the ESIS and for purposes of institutional collaboration with NFA during implementation. The consultations revealed that although the respective national institutions are mandated to carry out certain functional services there is no budget allocation and therefore find it difficult to be able to carry out their responsibilities. There are willing to closely work with NFA.

- Nakasongola local government;
- Ministry of Agriculture, Animal Industry and Fisheries;
- National Environment Management Authority (NEMA);and
- Private tree farmers

4.1.2 District Consultations

The project team composed of land use expert, biodiversity specialist, forests specialist, sociologist, environmentalists, who first introduced themselves to the district officials that included among others the Chief Administrative Officer (CAO), Resident District Commissioner (RDC), LC111Chairperson, and some technical staff of Nakasogola. The purpose of the courtesy calls was to ensure that both the technical and political leaders were aware of the forest activities of Kasagala central forest reserve in the district. The meetings were also to inform the district officials about the environmental assessment study and solicit their views and concerns. After formal introduction in the district it was easier for the project team to move to the sub- counties and to lower local council within the project area of influence.

The feeling at the local government level is that long-term and immediate benefits of the forest activities will outweigh the problems provided that proper mitigation measures are

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planned and implemented on time.

4.1.3 Local Community Meetings

The local communities through the local council chairmen were tasked to mobilize the people who own and have livelihoods around Kasagala forest reserve for a public meeting. A number of community meetings were held within the project area. The local council chairpersons advised the team members on the convenient times of the meetings and venue.

There was a good turn up at community meetings and both men and women were well represented. While there was high expectation among the people about the forest activities, in some cases there was doubt as to whether the local were benefiting directly from the activities as many private tree growers were not indigenous. It not was surprising therefore to note that the mobilization team was always confronted with a question of how the forest revenue would be shared with the district and the local villages.

The team members used Luganda as a local language with a mix of stories and proverbs and analogies to illustrate points. Providing accurate information was important to allay people's fears about the impacts of the forest.

The local community meetings were useful in that local views on the project were raised and addressed subsequently in the assessment. These meetings also were important in that they were used for raising awareness and community future involvement in the on-going forest activities. This project was based on an understanding that locally-based sensitization, mobilisation, and empowerment efforts can be effective tools in ensuring that peoples' concerns, fears and expectation are brought to the forefront as part of the process of the forest management plan activities.

Informal discussions were held with people who were currently encroaching in the forest reserve. This was to get their view on the current status of the forest activities, problems associated with the forest management and whether tree planting (charcoal and carbon sequencing) would be beneficial to them.

The forest activities within Kasagala central forest were seen as positive. There were no real objections to the proposed tree planting. People's major concern was that food security would be a problem as most of the land would grow with trees. Stakeholders generally hold the view that with appropriate mitigation measures these impacts can be minimized.

The local leaders also urged NFA to ensure that the local people were employed during the planting, weeding and pruning of the trees. In addition they asked to be given the trees that were cut during forest clearing to them for free so that they could burn charcoal and sell.

Grazing of cattle within the forest reserve was also of concern as they claim that in the dry season there is no grass for their cattle. In some cases there are watering points within the forest and felt that the forest officials would deny them access to source of water for their cattle. They also acknowledge that there are conflicts with NFA on land holdings.

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The local people sentiments are that they are not fully involved in the project. They complained that majority of people who are planting are from other parts of the country with very few of the local people being allocated some land to plant trees.

The presence of some crops/settlement and cultivated pieces of land within the proposed project site will inevitably require that the concerned cultivators be displaced from the proposed development on such terms applicable to their legal rights, if any, against the rights of the intending developer. It was, however, established at the time of scoping that the current cultivators on the land are fully aware that NFA is taking over the land. There are encroachers mainly cattle keepers (about (70-80 households) who were found residing and cultivating inside the forest reserve who had been evicted and moved out, however they have since come back to the plots where they used to stay.

Major issues of general concern are summarised in Table 8.

Table 8: Summary Issues Identified during Consultations

Stakeholders met	Summary of issues raised/identified
Chairman LC111-Wabiyonyi	Watering points within the central reserve are critical for the cattle especially during the dry season Loss of land use as land for other activities is becoming less and also forest products i.e. firewood for the community becoming more expensive, Employment of members of local community, Involvement of local communities in land allocation for tree plating Compensation issues Resource conflict between competing land uses Termites being a major problem in the area and therefore will affect the project
RDC-Mr. MaserekaNakasogola	Cattle grazing within the reserve source of conflicts with NFA and the local communities Charcoal burning Pine as the major/dominate species what is the long term impact to the environment Carbon emission revenue The project should be redesigned to involve the local people in the planting of trees As leaders they will support any project aimed at afforestation The stakeholders should stick to principles when implementing the project but not politicking Communities need to be involved in NFA activities because the local community perceive that its only NFA workers benefiting The value for money/unit cost of the proposed activities should be

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Stakeholders met	Summary of issues raised/identified
<p>Mr. Andama Charles – Nakasogola District Forest Officer</p> <p>Collaboration Forest Management (CFM) WECODA and KECOIDA</p>	<p>ascertained Local leaders are positive about the forest and don't encourage encroachment Districts stakeholders meetings should be arranged and sensitization done and clear cut dates and all stakeholders should ascend to it</p> <p>The arising issues are majorly concentrated around conflicts between tree farmers and cattle keepers Conflict on the use of water resources Long periods of drought which normally affect the trees</p> <p>Increased employment for the local communities. Increased opportunities for business development by local people. Increased economic productivity of the land. Improved social services infrastructure – roads etc Increased levels of skill in plantation and business. Increased circulation of money within the local economy leading to multiplier effects in other sectors. The development will result in changes in the perception of the local community of their surroundings. The impact of poor management of the natural areas could lead to a decrease in biodiversity, loss of corridors for the movement/migration of birds and animals and even loss of habitat for fauna and flora. The occurrence and significance of any cultural or heritage sites/objects need to be determined and an Environmental Management Plan (EMP) prepared to address these. Skills in forest plantation and business. Changes to sense of place. Visual impact – especially residents bordering the proposed development</p>
<p>Mr. Byarugaba Narice-Sector Manager</p>	<p>Kasagala is a big potential forest reserve however termites are a big challenge therefore they use chemicals There exists a problem of enclaves within the forest reserve which at times prove a challenge in the case of animals, however boundary opening and the use of marker posts is in plan</p>
<p>Mrs. Nambozo Loyce-Chief Finance Officer</p>	<p>There is a plan to open the local roads around the boundary</p> <p>Should maintain indigenous trees not planting only pine trees Activities are encouraging</p>
<p>Obedmouth Aldous-Kasagala Plantation Manager</p>	<p>The major issue facing the forest managers are the Balalo who are always grazing in the forest reserve Temporal houses have also been erected by the encroachers hence causing</p>

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Stakeholders met	Summary of issues raised/identified
Local residents	<p>an eviction problem</p> <p>The locals are engaged in charcoal burning and sometimes cut trees from the forest reserve</p> <p>There exists a problem of conflict in resource use because the grazers water there animals within the forest reserves</p> <p>There are planned roads for the purpose of management but most are not functional</p> <p>The local community is given priority in awarding contracts for any works within the forest reserve and workers provided and encouraged to use personal protective equipment when working</p> <p>Accidents that include cuts are common during working</p> <p>Temporal housing units using tarpaulins are normally erected for the contractors workers and hygiene is properly managed using a dug pit latrine</p> <p>Whether private tree farmers growing trees outside the forest reserve can benefit from this project</p> <p>The issue of termites which have affected the trees</p> <p>Forcefully evictions without compensation</p> <p>Low payment by NFA in-case local labour force is hired</p> <p>Others complained of management contracts being awarded selectively to outsiders while the locals are left out</p> <p>The heavy fines levied on them when their animals stray into the forest reserve</p> <p>Lack of proper community involvement and sensitization</p> <p>Diseases which are causing the trees to dry/rotting which needs a solution.</p>

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5.0 POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

5.1 Environmental Significance and Evaluation

Environmental impact can be defined as; any alteration in the physical, chemical and biological properties of the environment caused by any type of matter or energy resulting from human activities that directly or indirectly affect the health, safety, and wellbeing of the population, social and economic activities, the biota, the aesthetic and sanitary conditions of the environment and the quality of the environmental resources.

Both positive and adverse environmental impacts could arise during, implementation of Kasagala forest management plan. This chapter by use of NEMA Environmental Impact Assessment Guidelines identifies sources of impacts, analyses them and recommends appropriate mitigation measures while opportunities of enhancing positive impacts are also suggested.

General significance criteria identified in the environmental social assessment and of particular relevance to the Kasagala central forest management are:

- The degree to which the proposed action affects the biophysical and social environmental including public health, occupation and safety;
- The degree to which the effects on the quality of the human and land use on the environment are likely to be highly controversial. Under the National Environmental Act Cap 153.

The proposed project would be considered to have significant environmental impacts if it would:

- a) Induce substantial population growth in the area, either directly (e.g., attracting more people) or indirectly (e.g., through extension of plantation);
- b) Result in substantial adverse physical impact associated with the provision of new or physically altered public service facilities in order to maintain acceptable levels of service, response times, or other performance objectives of such public services; or
- c) Displacement of communities on land and;
- d) Displace significant numbers of existing homesteads, necessitating the construction of replacement of housing elsewhere; the impacts have been identified based on two phases (construction and operational phases).

5.2 Environmental Impact Matrix

An environmental matrix has been developed to assist in assessment of the potential environmental impacts that are likely to accrue from the project in Kasagala CFR.

Analysis of the potential impacts was assessed according to the various stages; pre-project /preparatory, development and operation by use of a matrix in the table below;

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Table 9: Matrix of Likely Environmental Impacts

Environmental Impact	Impact type						Mitigation	
	Significant	Not significant	Short-term	Long-term	Irreversible	Reversible	No mitigation required	Mitigation required
Negative impacts								
1	Solid Wastes and Timber Wastes							
	Domestic wastes e.g foodstuffs, paper, polythene etc	X			x		x	x
	Charcoal Wastes		X	x			x	x
	Timber wastes	X		x			x	x
	Oils and pesticides	X		x			x	x
2	Permanent and Seasonal Wetlands	X			x		x	x
3	Social Disharmony	X			x		x	x
4	Regeneration and Weed Control 5.2.1	X		x			x	x
5	Camp Sites		X	x			x	x
6	Water and Nursery establishment	X			x		x	x

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7	Improper Species Matching								
8	Termitaries/Termitends								
9	Storage/Housekeeping of Herbicides	X			x		x		x
10	Access Roads								
	Run-off from opened access roads	X			x		x		x
	Vegetation clearance		X	x			x	x	
11	Occupational Health and Safety (OHS)								
	Injury during construction work	X		x			X		x
	Uncontrolled Fires	X					X		x
	HIV/AIDS	X			x		X		x
12	Encroachment and Potential Conflict over Opening of Forestry Boundaries	X		x			x		x
13	Charcoal Burning as a Livelihood	X			x		x		x
Positive impacts									
1	Climate								
	Climate Stabilization	X			x	x		x	
	Carbon Sequestration	X			x	x		x	

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	Rainfall production	X			x	x		X	
2	Water benefits								
	Safe water provision by NFA	X			x	x		x	
3	Collaborative forest Management								
	Provision of seeds	X		x		x		x	
4	Socio-Economic Impacts								
	Employment	X			x	x		x	
	Income generation for workers	X			x	x		x	
	Aesthetics	X			x	x		x	
5	Increased acreage of forest cover country wide;	X			x	x		x	
6	Reduced soil erosion and sedimentation	X			x	x		x	
7	Restoration of degraded areas.	X			x	x		x	
8	Improved and clean charcoal production using Kilns.	X			x	x		x	

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5.3 Issues that were considered for Determining the Extent of the Impacts

- Planting of trees in sensitive ecological systems such as wetlands, (seasonal/permanent), type of vegetation, flood characteristics if any.
- soil structures, stability, susceptibility to erosion; community use of valuable resources i.e. wood collection, grazing, sand/brick mining, within the forests;
- opening of access roads within the project area
- matching of species to sites
- social/cultural acceptance;
- water sources i.e. catchment areas, streams ;
- cattle route/ access to water;
- Occupation, safety and health of workers
- likely general and specific impacts (positive and negative); and
- Tree plantation may eliminate food and shelter of some species of animals
- Charcoal Kiln production
- Climate change, vulnerability and adaptability

Generally the activities present minimal impacts once the forest management plan is implemented. The recommended forestry development activities have been subjected to an assessment and mitigation measures have been incorporated in the Kasagala Sector Forest Management Plan.

5.4 Anticipated Positive Impacts

The study identified a number of anticipated positive and negative impacts during and after the forest management plan is implemented. Among the positive impacts expected, the communities in project areas are expected to benefit in a number of ways; namely:-

- Improvement of climatic conditions and the environment in general.
- Increased employment opportunities to communities living around Kasagala CFR areas during implementation.
- increased acreage of forest cover country wide;
- reduced soil erosion and sedimentation;
- increased groundwater recharge with related increase in spring discharges and base flow, or at least more even year round flow;
- preserved varied tree species;
- improved peoples livelihoods, especially for those who have established private plantations and the local people who work in them;
- Growth in the local economy and wealth creation.
- The sales of carbon emissions reductions will also lead to revenue for NFA and reduced carbon emissions.
- increased income from the sale of good quality trees;
- may improve the appearance of the landscape;
- restoration of degraded areas;

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- Increase on supply of improved charcoal, construction materials and other forest products, even while protecting soil and water resources.

Enhancement Measures

The above positive impacts the benefits associated with them are not well understood, or appreciated by the local people and their leaders. Therefore, it is important that they are explained regularly so that the level of awareness is raised. In this way the people and their leaders will come to appreciate what they stand to gain, and thus they will support the programmes in the FMP.

It is also important that the people begin to see some of these benefits in concrete terms as early as possible during implementation of the FMP. For example concrete arrangements for sharing carbon revenues, access to firewood and charcoal burning possibilities during ground clearance should be negotiated through collaborative forest management (CFM) arrangements.

As a way of implementing corporate social responsibility activities in the area, NFA should hasten the negotiation and signing of CFM agreements with the local people. Through these agreements, NFA will then help to build the capacity of local community institutions, support income generating activities outside the FRs and support social infrastructure where possible. This will go a long way in enhancing the goodwill among the people.

Gender equality should be taken care of while allocating jobs for the local people. Specifically 20 % of the workers should be women for the start and this should progressively achieve a greater number. Priority should be given to the local residents when allocating contracts and jobs as a way of encouraging project ownership while boosting income.

Skills are limited in the project area and the tree planting project will offer free learning skills on job. Considerable effort will be put on skills development to enable the locals of the area start income generating activities.

5.5 Anticipated Negative Impacts

5.5.1 Social Disharmony

- There is a possibility that social disharmony will arise between the local residents and immigrant project employees who may come with some new behaviours and cultures not in harmony with the norms of the local residents.
- There is also likely to arise some disquiet regarding employment of imported skilled workers even though these may not be readily found among the local communities.

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- Another cause of disharmony is likely to emanate from imported labour eventually settling among the local communities and thus claiming a share on various services like grazing space, political positions, etc.

Mitigation Measures

- The contractors and NFA should endeavour to inform and sensitize both the new employees and the residents on the importance of respecting local customs and norms.
- Conflict management arrangements should be embedded into the CFM arrangements so that any emerging conflicts can be dealt with
- NFA should hold regular meetings with the local leaders (up to district level) to maintain a dialogue and nip any emerging issues in the bud.

5.5.2 Permanent and Seasonal Wetlands

During the assessment it was found out that NFA was planting trees very close to permanent and seasonal wetlands and thereby not complying with the wetland regulations

Proposed Mitigation Measures

- This forest reserve is traversed by permanent and seasonal streams and swamps. Therefore, the mandatory legal requirement of a 30 meter buffer zone/green belt alongside the streams should be diligently followed, and not trees should be planted there.
- Where the belt is degraded, trees of local species should be planted to assist regeneration. The aim should be to eventually leave the belt to regenerate naturally while all the natural belts should be left intact

As a result, threats of soil erosion, silting, and water catchment degradation, among others will be controlled.

5.5.3 Uncontrolled Fires

Seasonal fires which have resulted into destruction of planted trees and the vegetation are a major problem in forest management. Some of the fires are accidental (set by farmers near the planted areas in the process of clearing their land for growing crops) while others are malicious (set by individuals with some kind of grudge with the tree growers (NFA inclusive).

Proposed Mitigation Measures

- Establishment of fire lines of not less than 5 metres (best forest management practice to be applied depending on terrain and location) should be established between tree blocks and spacing between lines to ensure that in case of fire, it does not affect all the block
- Conducting fire campaigns shall be conducted before the dry season to enlist community support in fire fighting and control.
- Sensitization of the stakeholders to avoid burning of bushes within the FR will continue. Prescribed controlled burning shall be encouraged as a practice of woodland improvement in

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areas where planting of trees is not desirable.

- Early burning in addition to constant slashing of the vegetation will be carried out to avoid extensive fire damage to the regenerating forests National Forest Authority in collaboration with the Nakasogola District Environment Office/forest together with lower local councils should initiate a process of enacting by-laws to control fires, preclude grazing and cultivation in gazetted areas.
- Kasagala forest reserve has a fire danger index (Plate 6) which is based on average weather seasons and should be encouraged and all the staff sensitised on understanding its importance.



Figure 11: Photo showing Fire Danger Index sign post at NFA office-Katugo

5.5.4 Encroachment and potential conflict of Opening of Forestry Boundaries

Encroachers constitute mainly those engaged in unauthorized grazing and crop cultivation. Their illegal activities are causing degradation of the forests through clearing of vegetation, and destruction of the fragile ecosystems. Some of the cattle keepers have come from outside the district and built make-shift housing structures inside the FR. Some even moved into the Strict Nature Reserve (SNR) when they were evicted from other areas of the FR. Some cultivators are from the communities neighbouring the FR.

It is also conceivable that, with deforestation and/or penetration of agriculture into forested areas, domestic animals become the hosts of parasite cycles previously hosted by forest animals.

Eviction of encroachers from the FR is a major threat to the people evicted because they will lose

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the make-shift houses, crops and grazing lands (which they are using illegally). However, leaving the encroachers in the FRs will instigate the others to invade the FR, especially since most of the encroachers have come from outside the district. Majority of encroachers are cattle keepers who have migrated from elsewhere.

Closely connected with encroachment is the issue of FR boundaries that are contested by some land owners near one part of the FR.

Proposed Mitigation Measures

Encroachment is a breach of law and should not be encouraged. Therefore, NFA should follow the procedures it developed in 2005 to progressively empty the FR of encroachers. The procedure is described in its paper: **ENCROACHMENT IN CENTRAL FOREST RESERVES – Tough Challenges and Hard Choices, which NFA submitted to the President in 2005**. In this paper, the NFA describes a strategy that exhibited "...a human face, de-emphasised rigidities of the law, and as much as possible avoided forceful evictions. This was in order to minimise the social cost of eviction on the part of the encroachers. The strategy is carried out through the following steps:

- a) Sensitising the encroachers (together with their respective local leaders);
- b) Encouraging voluntary evacuation;
- c) Forest boundary re-opening;
- d) Registration of encroachers within the boundary and their activities;
- e) Issuing of eviction notices to the stubborn ones, followed by legal proceedings;
- f) Rehabilitation, restoration and afforestation/reforestation of vacated areas; and
- g) Eliciting natural regeneration in vacated areas.

Since the NFA, and the Forest Department before, has issued the encroachers a series of eviction notices in accordance with the law, the issue of compensation should not arise. Rather the two parties should mutually agree on time to enable the encroachers move out voluntarily with minimal loss to their investments (make-shift houses, agricultural crops, livestock, etc)

NFA has a competent unit which can be used to open the external boundaries of the FR where the operation is meant to simply clarify the position of the obscure boundary. However, should the local people contesting boundary reject the NFA work, then each of the parties (NFA & the local land owner) should employ the services of registered surveyors to work together. Should this approach also fail, then conflict can be referred to a court of law.

In addition to the above, there should be continuous sensitization, training, boundary opening and patrols by NFA and other stakeholders, in order to re-enforce the positive attitudes towards forestry development among policy makers and local communities.

There is a need to acknowledge the efforts made through the use of the Collaborative Forest Management (CFM) by NFA to empower local communities in addressing environment degradation problems of local concern and to help use natural resources in a sustainable manner. This management system should be promoted and continued. Furthermore, the CFM should be strengthened by undertaking the following actions:

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- a. *NFA undertakes a socio-economic and gender profile* of the CFM groups; many community members expect jobs from charcoal burning, contracts in tree planting and related management practices; it would be good to monitor the impact of such benefits to communities;
- b. *NFA strengthens the capacity of facilitators/plantation supervisors in preparing CFM groups* to build coalitions and alliances with stakeholders of same interests as they negotiate for better deals in the collaborative forest management; it is also important that they ensure that agreements made are fair to all parties; and develop a participatory framework that builds social capital and trust amongst stakeholders while promoting public disclosure; monitoring and evaluation framework should capture these processes as well;
- c. *Plantation Supervisor should support communities in developing a grievance mechanism* that could be used to resolve conflicts between communities and other stakeholders while implementing the CFM process especially regarding contract management and land wrangles.

5.5.5 Charcoal Burning as a Livelihood

Charcoal burning is a source of livelihood for some homesteads. Currently, it is prohibited and yet it has been a major source of income especially for the youth who burn the charcoal, those who transport it, and those who sell it on the road side. Illegal charcoal burning has spread even into the SNR.

Proposed Mitigation Measures

Recognizing that some youth in the forest adjacent communities depend partially or entirely on charcoal burning, arrangements through CFM should be put in place to enable them access logs and branches, tops and slabs resulting from initial clearing for plantation establishment, which they will be allowed to burn into charcoal. This will be possible only in the areas where NFA is establishing its own plantations.

This will complement NFA's planned charcoal burning activities and enhance the goodwill of the local people. In the process, the amount of inflammable materials in the forest will be reduced and the fire hazard reduced.

In order reinforce the livelihoods of the local communities NFA and other stakeholders should be encouraged to find alternative means of livelihood to mitigate the loss of charcoal burning and crop cultivation. Income generating activities like high yielding field crops, bee keeping, and sustainable land management, among others, should be encouraged in partnership with local NGOs.

The forest management plan has a component of growing trees which should be used to support growing of trees for charcoal production by local people on their own lands. NFA has a policy of putting aside at least 5-10% of the plantable area of each FR for tree growing by local people. This policy should be activated so that local people can grow trees for income generation (e.g. in

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partnership with NFA for production of emissions reductions.



Figure 12: Photo of Eucalyptus planted for Charcoal Production

5.5.6 Opening and Widening of Road Access

Clearing of land for construction of management roads and tracks within the forest could aggravate erosion by water or wind by sloping terrain when soil is left bare after the site is cleared, levelled or filled. In general, the consequences of these impacts persist after construction is complete. Eroded land does not regain its fertility.

Proposed Mitigation Measures

To address the anticipated negative impacts of construction of management roads and tracks, the mitigation measures proposed include, but are not limited to:-

- Planting fast growing vegetation species outside the constructed areas
- Construction of the infrastructure should be limited to the natural slope to avoid any cutting and where it cannot be avoided the cut slopes should be benched and planted with fast growing grass.
- Drainage channels should be ridged at different intervals to reduce the speed of runoff to protect the soil from being washed away by storm water.

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5.5.7 Regeneration and Weed Control

Tall grasses such as *Loudetia arundenacea*, *Panicum maximum* and *Hyparrhenia filipendula* form the natural vegetation of the area. At present they are being kept low by cattle grazing, when cattle are removed after tree planting, grass that can attain a height of 2m of growth in 2-3 months during rainy seasons is a threat to tree seedlings. As it grows it falls on planted seedlings thus cutting them off from light.

Weeding is a major problem within the plantation and can destroy saplings if not done carefully thus affecting growth of tree species. Pre-planting clearing and post-planting weeding are oftentimes done by herbicides but spot hoeing and slashing are also planned. The negative impact of herbicide use will arise if management goes away from glyphosate which is recommended not only by NEMA, but also by the Forest Stewardship Council in its international principles and criteria for SFM. Spot hoeing and slashing should not lead to any serious environmental or social impacts.

Proposed Mitigation/Enhancement Measures

- Use of environmentally-sound herbicides, as approved by NEMA. Glyphosate herbicide (320 ml mixed with 16 litres of water) will be applied at 4-5 litres/ha as pre-planting spray along pitted lines immediately before planting within 24 to 48 hrs
- Increased use of manual weed control practices;
- Steep slopes shall be planted with strips of vegetation across contours for soil conservation purposes in cases of clean weeding.

5.5.8 Loss of Vegetation

There is likely to be loss of natural vegetation, which will take place on previously vegetated land. It was noted that some clearing of vegetation for planting of new trees is being done. There is possibility of habitat fragmentation, interruption of ecological corridors and migration paths, erosion and stream sedimentation. This could lead to potential for spread of alien plants in the wider area of the project influence.

Proposed Mitigation Measures

- It is proposed that unnecessary clearing of vegetation is discouraged.
- Where assisted regeneration is desirable in the wooded parts of the FR, adopt the practice documents in the Guidelines for Management of Private Natural Forests (Ministry of Water & Environment, 2007), Section 5.3, Step 11. The Guidelines provide for a combination of sustainable charcoal production and improvement of wooded lands through gap planting and strip planting where advance natural regeneration is inadequate.

5.5.9 Improper Species Matching

Matching species to sites that suits them and where they can express their maximum biological

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potential is an important consideration. It entails assessment of sites i.e. soil depth, rock outcrops current vegetation and drainage among others. Kasagala forest reserve has been given out to potential investors with little or no experience in plantation establishment. In some cases, Eucalyptus plantations are being established in grassland areas but with little consideration for matching the species to the micro-sites. There were pine plantations being established in grassland areas but with little consideration for matching the species to the micro-sites.

Proposed Mitigation Measures

National Forestry Authority should ensure that species site matching is adhered too as per the forest management plan.

5.5.10 Pesticide Management

Herbicides such as *Glyphosate* (round up) were found being used to carry out initial clearing. The storage and housekeeping facilities figure 13 were found not to be of acceptable standards as per (O.P 4.09)

Unnecessarily high use of pesticides; easy access to products unsuitable for use by farmers and lay personnel; general ignorance of farmers regarding pesticides and hazards associated with their use; lack of adequate and/or affordable protective gear; poor spraying equipment; missing or inappropriate labels can lead to acute pesticide poisoning which varies from death to temporary symptoms, such as: headache, nausea, vertigo, skin problems, etc. Pesticide poisoning generally leads to loss of labour time and productivity, both on the part of the poisoned worker and on the part of family members.

The main routes of poisoning are likely to occur due to dermal absorption, ingestion or inhalation of vapors. Common causes of dermal absorption include: not using adequate protective gear when handling or using pesticides; leaking back-pack sprayers; inappropriate application of pesticides; entering fields too soon after application; exposure of bystanders through drift; poor handling of spills and leaks. Common causes of ingestion are accidental poisoning of food; use of pesticide containers for food or water storage. Common causes of inhalation of vapor are inappropriate respiratory protection when handling or using pesticides, inappropriate use of fumigants, poor storage, and inability to handle spills.

Some products have long-term effects on wildlife and aquatic organisms because of their persistence, mobility, solubility in lipids, or concentration in food chains.

Through erosion and runoff from soil applications, drift from spray and dust formulations, and volatilization, such products find their way into rivers, lakes, marshes, and other habitats for wildlife and aquatic organisms. Therefore, NFA will ensure that the following mitigation measures are adhered to.



Figure 13: Photo showing Temporary Store at Katungo forest Station

Proposed Mitigation Measures

NFA should build a proper store for keeping herbicides and also follow the guidelines for proper storage handling and housekeeping.

Selection and application: appropriate application methods based on the target pests, the environmental setting, and prospective users will be followed. The application methods that will be used are spraying with liquid formulations using spray equipment carried by hand or backpacks or mounted on a tractor. Spot applications, where pesticides are sprayed only on affected plants, are preferred over blanket applications, where the whole field is sprayed.

Packaging requirements. Careful selection of packaging will be done. Designs and materials of packaging that withstand anticipated levels of handling, climatic conditions and prolonged storage under sub-standard conditions.

Transportation: Specific risks include storage and transport through densely populated or protected areas. A hazard assessment may be appropriate for transport of large volumes of pesticides that pose risks to human health or the environment.

Storage: The minimum requirements for such stores will be: location at safe distance from water and human dwellings; compound fenced and access limited to authorized staff; floors of impermeable concrete; ramps to contain leaking liquids; adequate ventilation; doors under lock; store keepers trained in handling pesticides; emergency shower facilities; adequate quantities of materials and protective gear to deal with emergencies. Storage in air-tight storage containers,

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training, and post treatment caution will be additional safer and good environmental practice.

Obsolete pesticides and their disposal: The recommended mode of disposal for obsolete pesticides is incineration at a dedicated hazardous waste incineration plant. Risks associated with the transportation and storage of pesticides should be addressed in the Pest Management Plan. Auditing of storage facilities may be necessary as part of project preparation if procurement of large volumes is envisaged.

Training: NFA will ensure that the workers involved in the use of pesticides are adequately trained on the safe and efficient methods of spraying. Farmers will be provide with knowledge on alternative pest management approaches, cost aspects of various control options, and, where chemical control remains desirable, on the proper selection, handling and use of pesticides and their hazards.

Training and information will also be extended farmer groups involved in the sale or distribution of pesticides within the area. Ideally, pesticide retailers should be licensed, with appropriate training as a prerequisite.

Protective gear: Requirements for personal protection should be indicated on the pesticide label. Depending on the level of hazard, protective gear may range from long-sleeved shirts, long pants, and enclosed shoes, to chemical resistant gloves, footwear, headgear and apron, plus goggles and respiratory protection ranging from simple dust masks to fully enclosed gas masks.

Protective gear also needs regular replacement. Particularly respiratory protection masks or filter cartridges need to be replaced according to recommended replacement schedules (humid and dusty environments may require daily changes).

Procurement: Any procurement or distribution of pesticide equipment should therefore take into consideration the availability of local repair services and users' knowledge of equipment. A good supply of spare parts and training of retailers to provide equipment maintenance and repair services may be necessary when selecting equipment. Tenders for procurement of pesticide equipment should set very specific and high quality standards, because otherwise suppliers may be tempted to compromise on the quality in order to table lower bids.

Monitoring: Monitoring of pesticide use is required to detect health and environmental impacts, and to provide advice on reducing risks. Depending on the circumstances, this may include monitoring of:

- appropriate use of protective gear
- incidence of poisoning
- pesticide residues in food crops and drinking water
- contamination of surface water and ground water
- environmental impact (impact on non target organisms, ranging from beneficial insects to wildlife)
- efficacy

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5.5.11 Termitaries/Termitends

All the swamps are dotted with a large number of termite mounds (termitaries) that rise up to 2m above water level. They contain a large area of well drained and fertile soil on which there are tree species such as *Albizia*, *Vitex*, *Lannea* and *Annona*. To reduce the threats posed by termite infestation, the FMP proposes to use the strategies of planting termite resistant tree species and using chemicals.

Proposed Mitigation Measures

- A specific study to address this problem should be undertaken by NFA in order to have a scientific basis for eliminating the termites which are a general problem within the project area of influence.

Where chemicals are used, the chemicals should be with respect to the classification of pesticides and their specific formulations; the Bank refers to the World Health Organization's *Recommended Classification of Pesticides by Hazard and Guidelines to Classification* (Geneva: WHO 1994-95) as referred to in the (O.P 4.09).

5.5.12 Occupational Health and Safety (OHS)

During the different project activities, issues related to public safety, dangers from wild life animals and hazards associated with pesticide use; lack of adequate and/or affordable protective gear; poor spraying equipment; missing or inappropriate labels can lead to acute pesticide poisoning leading to illness and loss of life to both the community and workers.

During the Charcoal Kiln Production, there are likely impacts ranging from fire outbursts, human body injuries and accidents among others.

Proposed Mitigation measures

The issue of Personal Protective equipment for workers should be addressed both during bush clearing, planting, weeding, spraying, harvesting and Charcoal Kiln Production. Requirements for personal protection should be indicated on the pesticide label. Depending on the level of hazard, protective gear may range from long-sleeved shirts, long pants, and enclosed shoes, to chemical resistant gloves, footwear, headgear and apron, plus goggles and respiratory protection ranging from simple dust masks to fully enclosed gas masks.

Protective gear also needs regular replacement. Particularly respiratory protection masks or filter cartridges need to be replaced according to recommended replacement schedules (humid and dusty environments may require daily changes).

First aid kits should be available at the site during working hours and workers taught how to use them.

Fire extinguishers should also be available during Charcoal Kiln Production

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The workers should be sensitised on the application of pesticides, Charcoal Kiln Production and other activities which will be carried out during the project.



Figure 14: Photo of Workers at Work

5.5.13 Water for Tree Nurseries

Nursery tree growing needs a lot of water and in the case of Kasagala water is scarce in many parts and this could have future implications on location of nurseries within the central reserve.

Proposed Mitigation Measures

NFA should locate nurseries where there is enough water and should not be in areas where they could compete with local communities for drinking and domestic use.



Figure 15: Photo showing Nursery bed activities which Require alot of Water

5.5.14 Camp Sites

The environmental assessment did ascertain that most of the camp sites are temporary/make shift in nature and accommodate average of 30-40 people at any given time. There were about 20 camps spread throughout the central reserve.

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Figure 16: Photo showing Workers Camp

Proposed Mitigation Measures

Contractors should provide decent temporary housing with provision of sanitation, water and Proper hygiene.

5.5.15 Charcoal Wastes

Charcoal Kiln production is likely to lead to accumulation of charcoal wastes if not properly stored, Carbon remains after charcoal production may affect the soil of the area and its aesthetic value.

Proposed Mitigation Measures

It is the responsibility of NFA and the contractor to ensure that the remaining charcoal debris from the kiln is disposed off in an environmentally gazetted area. The kiln areas should be properly and periodically cleaned to ensure that those adopting this technology do the same which will enhance the aesthetic value of the areas where charcoal production is done.

5.5.16 Solid Wastes and Timber Wastes

Solid waste generated during preparation, planting and harvesting will include: food wastes, human wastes, paper, oils, cans, polythene bags, timber pieces etc. This waste will negatively impact on the site (soils, water and air) and the surrounding environment if not properly managed

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and disposed off. Wastes burned onsite would generate smoke, negatively impacting ambient air quality.

Proposed Mitigation Measures

A site waste management plan should be prepared by the contractor/NFA prior to commencement of the forest planting exercise. This should include the designation of appropriate waste storage areas, collection and removal schedule, identification of approved disposal site, and a system for supervision and monitoring;

Special attention should be given to minimizing and reducing quantities of solid waste produced;

Combustible waste must not be burned on the site but in gazetted areas by National Environmental Management Authority;

Proper solid waste collection and storage containers should be provided in sufficient numbers, to prevent littering on the site;

All organic and inorganic materials should be placed and/or disposed off so as not to directly or indirectly impact any watercourse or groundwater. The placement and disposal of all such products and materials should be done in an environmentally acceptable manner;

Organic wastes should be separated and used as manure compost in the forest reserve while the non – bio degradable wastes should be taken to the incinerate and incarnated;

All temporary toilets should be equipped with approved septic tanks having safe drainage or with closed holding tanks that are emptied only into approved treatment plants or sewage tanker truck. All temporary toilets used on site will be placed in environmentally acceptable areas, and should be secured to avoid or minimize damage from animals or vandalism;

Waste oils, special wastes, and refuse generated during the servicing of equipment (e.g. saws for cutting trees) should be stored, transported and disposed of in accordance with regulations and Standard and Special Specifications, and should not be disposed of by dilution, burial or incineration; and

Where possible, waste oil, lubricants and other waste materials generated during the servicing of equipment and machinery should be recycled. The dumping of oil or other deleterious materials on the ground or in a watercourse is strictly prohibited.

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6.0 ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN (EMMP)

The Environmental Management and Monitoring Plan (EMMP) has been developed to meet the environmental standards of the NFA (Kasagala Management Plan) and Uganda in general.

All works will be performed in accordance with current environmental practices and guidelines. The EMMP has been developed with project knowledge and information available to-date. Concerns of the plan are disturbances to the biophysical and socioeconomic aspects. The basic concepts of EMMP for smooth implementation of the project include:

- Environmental management and monitoring to assess and monitor conditions at or in the vicinity of the project to ensure acceptable levels of disturbances are not exceeded and to ensure compliance by the NFA and project beneficiaries. Furthermore, environmental protection advice will be provided to the beneficiaries/stakeholders personnel as and when required.
- A monitoring mechanism ensures that the proposed mitigation measures are successful. The monitoring of environmental and social indicators has been developed and is compatible with existing or proposed systems
- Environmental management and monitoring will be done by NFA EIA Specialist and designated Officer in Kasagala to ensure acceptable levels of disturbances are not exceeded and to ensure compliance by NFA, CFMS, contractor and his personnel. Furthermore, environmental protection advice will be provided to the Kasagala Central forest reserve by NEMA as and when required.
- The NFA EIA Specialist and designated officer should be on site during the planting especially when working close to environmentally sensitive areas to adhere to the strict nature preservation and wetland regulations.
- Monitoring process is introduced to check progress and the resultant effects on the environment as the implementation of the project proceeds although the negative impacts identified can be mitigated.
- Much of the work during the forest activities should form part of NFA inspection that will be included in monitoring.
- The planned measures indicated below will therefore be included on the list of contractual items. These should be planned and checked against their effectiveness in reducing the negative impacts/ or enhancing the benefits identified in this ESIS. The process shall also include regular reviews of the impacts that cannot be contemplated at the time of doing this ESIS.
- Appropriate new actions shall be undertaken to mitigate any upcoming negative effects that have not been anticipated during this EIA study.
- All mitigation measures and cost of USD 57,000 per annual will be implemented as described in this Environmental monitoring plan table 9.

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Table 10: Environmental Management and Monitoring Plan for Kasagala Central Reserve

Environmental Concerns	Parameters	Project Stage	Indicators	Frequency of Monitoring	Cost of Monitoring and mitigation (USD)	Responsible Party for Monitoring
Ground clearing for new plantations	Implementation of erosion control	Site Preparation	Measures to reduce erosion e.g. vegetation strips, trash lines, etc. along contours,	Monthly	\$5,000	Contractor and NFA
Protection of natural forests	Physical and ecological integrity of the forest	Pre-project, development and Operation	Number of patrol persons and amount of resources allocated to natural forest protection Extent of participation of local people in the forest protection activities	Monthly	\$6,000	Contractor, NFA and NEMA
Forest ecosystem structures conserved and processes maintained	Natural habitats by habitant type Number and area of sites identified requiring afforestation /rehabilitation Number and conditions of individuals in size, class etc	Pre-project, development and Operation	Conditions of forest margins Population structure of target species Extent and connectivity of natural ecosystems Level of rehabilitation of degraded natural forests	Monthly	\$6,000	NFA Forest supervisors Sector manager Plantation manager NFA Monitoring Team, Contractor and NEMA
Biodiversity of natural forests is conserved	Area (ha) of natural forest by forest type Number of forest dependent species (of target group) Change in status of species within Kasagala forest reserve inventory Number of afforestation plans being implemented	Pre-project, development and Operation	The extent of natural forests by forest type The extent of forest type occurring in protected areas Status of forest dwelling species at risk of not maintaining viable breeding populations	Seasonally	\$5,000	NFA Forest supervisors, Sector manager, Plantation manager NFA Monitoring Team, Contractor and NEMA

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Environmental Concerns	Parameters	Project Stage	Indicators	Frequency of Monitoring	Cost of Monitoring and mitigation (USD)	Responsible Party for Monitoring
Forest are protected from fire, pests and diseases and alien invasive plants	<p>Area of plantation and natural forest negatively affected by insects pests and diseases</p> <p>Infestation area of alien invader species</p> <p>Number and area of sites negatively affected by fire</p> <p>Change in fire protection expenditure</p> <p>Use of pesticides as per O.P 4.09</p> <p>Classification, any pesticides it finances be manufactured, packaged, labelled, handled, stored, disposed of, and applied according to standards acceptable to the Bank.</p>	Development and Operation	<p>Impacts of pests and diseases</p> <p>Negative impacts of fire</p> <p>Infestation by alien invasive plants</p>	Quarterly	\$8,000	NFA and Ministry Agriculture, husbandry and Animal industry
Production potential is maintained or improved	<p>Inventory of available resources and area planted</p> <p>Rate of annual removal and increment</p> <p>Range of direct benefits to stakeholders</p> <p>Number of initiatives to develop new alternatives and ratio of waste to volume harvested</p>	Operation	<p>Identification and development of new alternative forest resources</p> <p>Benefits accruing to local people</p>	Annually	\$4 ,000	Forest supervisors Sector manager Plantation manager NFA Monitoring Team

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Environmental Concerns	Parameters	Project Stage	Indicators	Frequency of Monitoring	Cost of Monitoring and mitigation (USD)	Responsible Party for Monitoring
Soil and water resources are conserved	Stream flow water volume and variation in forested catchments Diversity of aquatic organism measured annually Turbidity level area affected by erosion and percentage of incidence of erosion Rehabilitation of riparian zones identified as being degraded Number and type of pollution and volume (type) of chemicals that have been applied in forest management	Pre-project and Operation	Water quantity Soil conservation measures In situ water conservation measures Riparian zone and wetland management activities Pollution levels	Quarterly	\$4,000	NFA , DWD,NEMA and Nakasongola districts
Positive contribution of forests	Values of timber recorded annually Number of forests owned by local people Number and type of new infrastructure developments funded by forestry operation	Pre-project, Development and Operation	Value of forest goods and services Value addition to forest products Forestry's contribution to the local economy Forestry's contribution to local development	Annually	\$3,000	District Environmental officer, NEMA and NFA
Peoples rights to access and use of forests	Types of activities taking place around the related forest Number of CFM groups with signed agreements Area accessible to user groups Number of incidence of conflict between forest managers and owners and people practicing their rights	Development and Operation	Opportunities for forest based activities Rights are understood and respected Conflict management mechanisms in operation	Quarterly	\$2,500	District Environmental officer, NEMA and NFA

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Environmental Concerns	Parameters	Project Stage	Indicators	Frequency of Monitoring	Cost of Monitoring and mitigation (USD)	Responsible Party for Monitoring
Land tenure of forests clearly defined, recognized and secure	Number of disputes over land or resources Number of land restitution incidences claims on forested land resolved	Pre-project	Security of tenure	Annually	\$3,000	NEMA, NFA And Nakasongola District
Forest services offered by NFA	Percentage of people dissatisfied with services supplied by forests Inventory of significant sites Satisfaction of relevant stakeholders	Pre-project, Development and Operation	Level of satisfaction among users Identification and registration of significant sites Condition of relevant stakeholders	Annually	\$2,000	NFA and Nakasongola
There is effective stakeholders participation in forestry management and training	Existence of participation Frequency of participatory interactions Evidence of active participation Number of resolved conflicts	Pre-project, Development and Operation	Effectiveness of participation Implementation of outcomes of participation Conflict management in formal collaboration arrangements with NFA	Annually	\$2,000	NFA, NEMA and Nakasongola District
Laws and regulations promote sustainable forest management and enforcement	List of promulgated laws and regulations affecting forest management Extent to which the laws and regulations comply with the NFA principles Regular meetings with different agencies(national and local governments) and departments	Pre-project, Development and Operation	The existence of forest management laws and regulations Local government byelaws enacted Supportiveness of forest management laws and regulations Interdepartmental cooperation in implementation of forest management laws and	Seasonally	\$5,000	NFA, NEMA and Nakasongola District

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Environmental Concerns	Parameters	Project Stage	Indicators	Frequency of Monitoring	Cost of Monitoring and mitigation (USD)	Responsible Party for Monitoring
			regulations			
NFA compliance with all relevant legislation and customary law.	Number of Public awareness campaigns Compliance with the laws and regulations	Pre-project, Development and Operation	Awareness and understanding of forest management legislation and customary law NFA Kasagala to regulate and to comply with forest management legislation and customary law Compliance with forest management legislation and customary law	Monthly	\$2,000	
Physical Cultural Resources	Chance find of archeological sites, historical sites, remains and objects, including graveyards and/or individual graves during excavation or construction,	Development and Operation	Valuable historical and scientific information Ancestral parts of people's authentic identity and practices Cultural resources for development projects human remains	Seasonally		Department of Museums and Monuments of the Ministry of Trade, Wildlife and Heritage and the Local authorities
					USD 57,000	

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6.1 Environmental Awareness Training Plan

For the EMMP to be implemented, it is imperative that environmental awareness training be extended to all stakeholders/beneficiaries during the implementation of the FMP. The training will be as and when required in the field and may consist of formal and informal training techniques by an environmental officer/monitor or his/her designate on behalf of the NFA. This will help in ensuring that environmental issues associated with the FMP are made known to the stakeholders/beneficiaries and NFA staff that would be in charge and responsible to implementing them. The content of the training will include the following:

- a) Awareness of the environmental issues associated with forestry management and development in the area and understand their responsibilities with respect to these issues;
- b) Understand requirements for protection of the environment, best management practices and avoidance measures;
- c) Aware of the relevant Acts, Regulations and Guidelines; and
- d) Application of the relevant technical guidelines and operational procedures.

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7.0 RECOMMENDATIONS AND CONCLUSION

7.1 Recommendations

- Generally, the impact on the environment of the Kasagala CFR development project implementation will be positive, and particularly in regards to the improvement of forestry resources and climate for the entire country.
- Some limited negative impacts will occur during the implementation of the FMP but will not be significant and can be easily mitigated and monitored.
- An environmental management and monitoring plans have been proposed with this aim. The project will also have positive spin-off effects on plantation farmers.
- The Kasagala forest management plan design has incorporated appropriate environmental mitigation measures that are practicable and achievable.
- In view of the anticipated impacts on the communities around Kasagala CFR and the nation as a whole, if the proposed mitigation measures are implemented, the overall negative impacts of the project will be minimised.
- The importance of the Luwero savannah reserves is considerable (as described in the forest management plan). Provided that the grassland areas in the valleys are retained as they are, and the woodlands improved by the assisted regeneration, which has already begun, the current management proposals for Kasagala FR should not be detrimental to the bird fauna of the area.
- Nevertheless, increasingly common changes in land use in the surrounding private lands, partly through unsustainable charcoal burning, and clearance for crops or grazing, will mean that these FR will become increasingly important as a refuge for biodiversity, where those species that do not survive such changes can continue to exist. It is probable that at least a half of the bird species, together with all of the larger mammals, fall into this category.
- Ensuring that the general character of these woodlands is maintained is also valuable for the biodiversity that they hold, whereas their destruction would certainly entail very substantial loss of biodiversity.
- In case of pesticide management NFA will apply World Bank Policy Pest Management (OP 4.09)

7.2 Conclusions

- a) The Kasagala CFR project should be allowed to be implemented if the identified issues are addressed;
- b) Regular consultative meetings of all stakeholders should be convened to review and address any concerns that may rise during the implementation of Kasagala sector forest reserve management plan period;
- c) Good relations with the neighbouring communities, supported by active patrols to contain illegal activities, are needed to keep the FR as a refuge for species given the increasingly degrading nature of forests on private land in the vicinity.
- d) This study concludes that the NEMA approves the ESIS

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ANNEX 1: TERMS OF REFERENCE FOR THE ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED KASAGALA CENTRAL FOREST RESERVE ACTIVITIES

1.0 INTRODUCTION

1.1 Background

Kasagala forest reserve is found in Bululi county of Nakasongola District. It lies between 0°55' and 1°33' north, 32°00' and 32°35'E. The altitude is from 1067 to 1097m above sea level (a.s.l.) and the highest point (Kasagala hill) rises to 1159m a.s.l. The southern boundary is 94km and the northern one is 110km from Kampala respectively. The reserve lies east of Kampala – Gulu trunk Road. This reserve is one of 59 that are bigger than 50 km², and for which there is a biodiversity plan (Uganda Forestry Nature Conservation Master Plan, 2002). This foresaw a Nature Reserve of 21 km², and a Protection Zone of 10 km², out of a total area of 103 km². The current plan is based upon this, with a Strict Nature Reserve now covering 17 km² and a Buffer Zone of 18 km².

1.2 Project description

The current management plan calls for three types of use, namely Strict Nature Reserves (blocks 2 and 3), Carbon Sequestration Zones (Blocks 4 and 5, and part of 6); and Production in Blocks 1, 8 and 9. Blocks 6 (part) and 7 are described as Buffer Zones. 'Production' here means sustainable use by local communities – honey, medicinal plants, etc. In addition, some 20% of the reserve consists of valley bottom grasslands, which will be additional Nature Reserve Areas. The project aims at establishing 2,000 hectares of plantation of exotic (Eucalyptus) and indigenous tree species including nursery establishment and associated water supply infrastructure on the grassland and degraded areas within the CFR using a community co-management model and with a purpose to promote efficient charcoaling and sale carbon credits from the project in future. NFA is now in the process of implementing Afforestation/Re-forestation activities in Kasagala CFR.

The idea being that these will in due course be used for sustainable charcoal production, but in the meantime, they will increase in biomass, hence stocking carbon. Planting is done by contractors and includes a number of people from nearby villages. The undergrowth is first slashed, and seedlings (none more than about 5 cm high at present) are then planted in the open areas between thickets. However, part of the north-western section of Block 4 has been planted with *Eucalyptus sp*, now 30-100 cm high, said to be experimental.

Some parts of the FR have been licensed to private tree growers, and most of them are growing pine but some are also growing eucalyptus.

1.3 Purpose and objective of the TOR

These TOR have been prepared after undertaking a scoping exercise which constitute a part of this report. The EIA report shall be prepared in accordance with these Terms of Reference and the requirements prescribed under the NEMA Guidelines, 1997 and NEMA Regulations, 1998. As a result, Urban Research and Training Consultancy Ltd (URTC) has been contracted to carry out an Environmental Impact Assessment (EIA) for the proposed Kasagala Central Forest Reserve management plan on behalf of the NFA.

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The overall objective of the EIA is to ensure that implementation of the proposed Kasagala Central Forest Reserve management plan is done in such a way that it does not impact negatively to the host environment. The specific objectives of the EIA are:

- a) To identify would-be environmental and socio-economic impacts of the proposed forest management plan and recommend appropriate mitigation measures;
- b) Predict and evaluate the likely beneficial and adverse environmental impacts of the Kasagala CFR planned activities, with a view of eliminating, where possible or minimizing the negative impacts while optimizing the positive impacts.
- c) To carry out consultations with identified relevant stakeholders, local authorities and the community around the proposed project area with a view to getting their thoughts on the likely impacts of the management plan implementation;
- d) To carry out a detailed study on the activities to be conducted during pre- plantation, plantation and post plantation phases of the projects with a view to establishing their likely impacts; and
- e) To propose practical mitigation and an environmental management and monitoring plan.

1.4 Scope of the Environmental Impact Assessment (EIA) Report

NFA will prepare and submit an EIA report that examines the environmental and socio-economic effects of the planting, weeding and maintenance of the Kasagala Central Forest Reserve located in Nakasogola District. The study area for the EIA report will include the Project Area and associated infrastructure, as well as the spatial and temporal limits of individual environmental components outside the Project Area boundaries where an effect can be reasonably expected.

1.4 Tasks and Methodology

The Environmental Assessment proposes several methods to identify key significant environmental issues and assess the potential impacts of the proposed project on the environment

- Description of the projects and their environmental baseline settings. This will include;, location, physical characteristics, ecological, religious and socio-cultural settings;
- Review of Ugandan policy, legal and institutional framework and requirements as regards to forestry facilities. These will be reviewed in order to ensure compliancy and that necessary measures are included in the forest management plan.
- Liaise, consult and hold meetings with relevant Lead agencies, stakeholders, including, potentially affected persons, to obtain their views and suggestions regarding the environmental and social impacts of the proposed project
- Provide a brief overview of the relevant World Bank Safeguard Policies, potentially including Environmental Assessment (OP 4.01), Natural Habitats (OP 4.04), Forests (OP

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4.36), Involuntary Resettlement (OP 4.12), Pest Management (OP 4.09) and Physical Cultural Resources (OP 4.11).

- Review international protocols and instruments regarding carbon emissions reductions, rights of local communities, human rights, etc. that impinge on the carbon component of the management plan.
- Explore possibilities for carbon leakage by displacement of activities
- Discussion of the site selection process for various project components including: the factors that were considered in evaluating and delineating the various zones of production to determine the preferred locations for the each zone;
- Citing factors versus existing activities or other resources and the need to either modify /adjust the forest management plan /development or relocate the existing activity; and
- Establish how stakeholder consultation input, and technical, geotechnical and environmental criteria were considered during decision-making for the Kasagala forest management plan.
- Identification of forest activity impacts direct that are anticipated, including cumulative consideration;
- Undertake soil testing for species matching;
- Suitable maps, charts and other illustrations will be included to identify the components of the Project, the existing conditions, and the environmental and the socio-economic implications of the development.
- The EIA report will include issues raised during the public consultation process. It will also identify the environmental and other specific regulatory approvals, policy directives and legislation that are applicable to the Project at the Local government and Central government levels.
- Discuss the need for the Project and the potential alternative of not proceeding with it. Include the following: an analysis of the alternative means of carrying out the project, including need for the project, alternate projects and scope of the project (major components included and excluded). For the project components, include a comparison of their environmental and technical performance potential and other relevant variables;
- Evaluate alternatives technologies for the planned activities and provide information on the consideration of alternatives to avoid and/or minimize the potential adverse environmental impacts on the environment;
- Assess the applicability (triggering) of World Bank Safeguards to the proposed activities. For policies that are “triggered”, explain how they are triggered and identify necessary mitigation measures/responses
- Rationale for the decisions made by the NFA about project component alternatives including how environmental, socioeconomic, community information and elements of the forest management influenced project design. Discuss the status of any ongoing analyses, including a discussion of the options not chosen and the rationale for their exclusion;

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- contingency plans if major project components or methods prove infeasible or do not perform as expected;
- The implications of a delay in proceeding with the project, or any phase of the project.
- Proposed management plan(s), mitigation measures and monitoring and residual effects.
- Prepare and environmental management and monitoring plan

The proposed study will be done in an estimated 1.5 man-months comprising of different specialists as indicated below.

2.0 PROPOSED EIA TEAM

In order to successfully address the issues identified above, the proposed team includes two certified EIA specialists one of whom will be the team Leader of the EIA team/practitioners.

1. Dr. Charles Koojo Amooti (CEP)-Team Leader/EIA Specialist
2. Mr. Steve Amooti Nsita-Forest Specialist
3. Mr. Charles Kiiza – Soil Specialist
4. Mr. Moses Oluka (CEP)-Socio-Economist
5. Dr. Robert Kityo Robert-Biodiversity Expert
6. Prof. Derek Pomeroy-Ecologist

Associate professionals

- 1 Ms. Jalia Kiyemba–Terrestrial Ecologist
- 2 Mr. Wafula Samuel David Land use Specialist

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ANNEX 2: KASAGALA FOREST RESERVE SOIL PROFILES OF DIFFERENT SITE ZONE

Name of the Hill	Top layer Depth (cm)	Colour of A&B horizon	Comments on site zone
Kyangoire (1) (Kyankonwa)	about 4	Top layer black	Top layer shallow subsoil grey clayey for water logged below 29cm plant pines.
	*50	Grey-black subsoil brown	Good site soil deep and good for <i>Araucaria</i> , <i>Cedrela</i> , <i>Maesopsis</i> and <i>Khaya</i> .
(3)	*50	Brown	Soil deep, laterite boulders present in several places, site overgrazed good for pines.
Kasagala south (1)		Top layer grey-black subsoil grey-brown.	Sandy free draining overgrazed for pines Lantana camara present.
	(2)	Grey-brown loam	Stony, mixed pebbles of laterite and quartzite plant pines.
	(3)	*50	Grey sandy loam
Kiranga (1) (Kakomo)	*50	Top layer grey-iron oxide at 20cm.	Topsoil well-drained subsoil has sign of water logging and sandy clay subsoil clay plant pine.
	(2)	*50	Brown to red shallow

*50 augering done to 50cm and differences between A & B horizons were nomeasured. Depth considered more important than colour differences between top and subsoil.

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Kakira	(3)	*50	Brown to red deep	Deep soil no stone or rock laterite, overgrazed. Plant pines, as soil is not fertile.
Kanyogoga	(1)	*50	A & B horizon grey well drained.	Site overgrazed, trees found on anthills plant pines.
	(2)	*50	Grey-brown shallow on top	Top soil contains iron concretions, but pine roots can go through soil friable.
	(3)	*50	Redish-brown to red sub-soil.	Soil deep well drained and fertile no grazing.
Kiranga	(1)	*50	Both top layer and subsoil grey sandy.	Sandy freely drained plant pines.
	(2)	*50	Grey to brown	Soil deep, but laterite boulders found near. Soil well drained plant pines.
	(3)	*50	Redish-brown	Soil well drained, but has laterite concretions, close to main road plant pines.
Kyangoneki	(2)	10	Red-brown	Soil deep no stones or rock down to 52cm. Site is middle of hill near boundary.
	(3)	13	Brown to red	No stones or parent rock with 52cm of boring. Soil deep, erosion present cattle track present. Laterite outcrop on top area 315m ² , more on slope.
Kyangonoki northern side	(2)	14	Brown subsoil red.	Pebble consisting of laterite and quartzite rocks abundant. Soil friable well drained good for pines. Woodland still present.
		14	Grey-sandy	Angering to 52cm reveal sandy-clay to clay well drained. Site overgrazed and eroded, plant pine.
Kasagala hill south	(1)	19	Grey, sandy subsoil light grey.	Site has sandy soil free draining the type of sand used in building.
	(2)	7	Brown grading into red down to 54cm.	One of the best sites with little grazing and soil erosion.
	(3)	8	Top layer brown, sub-soil red.	Soil erosion rampant, some trees can still be seen.

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Kasagala south-east	(1)	12	Top layer grey, subsoil	Sandy top and subsoil excessively free draining. Plant pine.
	(2)	11	Top layer grey-brown subsoil brown	This has a lot of trees of original woodland site fertile good for high value spp.
Kyabwera hill south of hill	(1)	29	Top layer grey, subsoil light brown.	Soil sandy freely drained deep, 72cm no stone or parent rock reached.
	(2)	16	Grey top layer and brown subsoil	Woodland sparse but regenerating soils deep as 50cm reveal no parent rock.
	(3)	14	Reddish-brown sandy loam	Soil deep, but eroded freely drained. Suited to pine spp.
Kyabwera north of hill	(2)	18	Top layer brown, sub-soil red.	Site sandy loam, deep, with some trees still present.
	(1)	18	Top layer grey-sub soil waterlogged.	Water table was at 33cm below surface. It rained previous night terrain flat.

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ANNEX 3: BIRDS SPECIES RECORDED FOR KASAGALA FR WITH COMPARISONS WITH OTHER NEARBY SITES FOR WHICH DATA PREVIOUS DATA IS AVAILABLE

ATL ASN O	SPENAME	Status ^a	KASAGALA FR						FD Luwe ro ^d	NBDB ^e	
				FD ^b	Strict NR ^c		Sequestration ^c			Kat ugo	Nakito ma
					Gras s	Woodl and	Cleare d	Slash ed			
6	LONG-TAILED CORMORANT Phalacrocorax africanus 17	RB	W	P					P		
17	CATTLE EGRET Bubulcus ibis 32	RB	G	P					P	0.1	
26	BLACK- HEADED HERON Ardea melanocephala 27	RB	w						P	0.2	
28	HAMERKOP Scopus umbretta 42	RB	w	P	P				P	0.4	0.1
32	ABDIM'S STORK Ciconia abdimii 44	FB, AfM/ NB?	A,G						P		
35	SADDLE- BILLED STORK Ephippiorhynchus senegalensis 48	RB	R- VU,W						P		
36	MARABOU STORK Leptoptilos crueneriferus 49	RB, AfM/ B	w						P	0.1	
39	HADADA IBIS Bostrychia hagedash 51	RB	w	P	6				P		0.1
73	BLACK- SHOULDERED KITE Elanus caeruleus 142	RB	G						P		
75	BLACK KITE Milvus migrans 138	RB, PM	pA							0.7	0.4
76	AFRICAN FISH EAGLE	RB							P		

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ATL ASN O	SPENAME	Status ^a	KASAGALA FR						FD Luwe ro ^d	NBDB ^e	
				FD ^b	Strict NR ^c		Sequestration ^c			Kat ugo	Nakito ma
					Gras s	Woodl and	Cleare d	Slash ed			
	Haliaeetus vocifer 137										
77	PALM-NUT VULTURE Gypohierax angolensis 84	RB								0.2	
81	WHITE-BACKED VULTURE Gyps africanus 85	RB	R- NT,G							0.1	
85	SHORT-TOED SNAKE EAGLE Circaetus gallicus 100	PM, AfM/ B? OB?								0.1	
86	BROWN SNAKE EAGLE Circaetus cinereus 98	R(B)	R-NT			5				0.2	
87	BANDED SNAKE EAGLE Circaetus cinerascens 97	R(B), AfM/ NB?	R-VU, F							0.1 0.1	
88	BATELEUR Terathopius eaudatus 101	RB	G	P				P		0.7	
90	HARRIER HAWK Polyboroides typus 96	RB	f							0.3	
93	AFRICAN MARSH HARRIER Circus ranivorus 95	R(B)	R- NT,W		1						
95	GABAR GOSHAWK Micronisus gabar 131	RB								0.2	
96	DARK CHANTING GOSHAWK Melierax metabates 132	RB		P				P			
100	SHIKRA	RB	f							0.2 0.2	

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				FD ^b	Strict NR ^c		Sequestration ^c			Kat ugo	Nakito ma
					Gras s	Woodl and	Cleare d	Slash ed			
	Accipiter badius 102										
109	LIZARD BUZZARD Kaupifalco monogrammicus 129	RB	f					4		1.2	0.2
110	COMMON BUZZARD Buteo buteo 122	WV, PM	P								0.1
116	TAWNY EAGLE (including STEPPE EAGLE) <i>Aquila rapax</i> 116, 114	RB, PM	P,G							0.2	0.4
117	WAHLBERG'S EAGLE <i>Aquila wahlbergi</i> 118	AfM/ NB, RB	Af							0.3	0.1
119	AFRICAN HAWK EAGLE <i>Hieraaetus spilogaster</i> 128	RB								1.0	1.6
122	LONG-CRESTED EAGLE <i>Lophaetus occipitalis</i> 130	RB	f	P					P		
132	GREY KESTREL <i>Falco ardosiaceus</i> 147	RB								0.2	
142	HELMETED GUINEAFOWL <i>Numida meleagris</i> 190	RB	G	P					P	0.8	0.2
145	HARLEQUIN QUAIL <i>Coturnix delegorguei</i> 166	AfM/ B	G		4						
154	CRESTED FRANCOLIN <i>Francolinus sephaena</i> 182	RB		P	4				P	0.5	3.0

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				FD ^b	Strict NR ^c		Sequestration ^c			Kat ugo	Nakito ma
					Gras s	Woodl and	Cleare d	Slash ed			
155	SCALY FRANCOLIN <i>Francolinus squamatus</i> 184	RB	F	P		5	3	4	P	0.1	
157	HEUGLIN'S FRANCOLIN <i>Francolinus icterorhynchus</i> 172	RB	G							0.6	0.2
161	RED-NECKED SPURFOWL <i>Francolinus afer</i> 167	RB									0.3
221	AFRICAN WATTLED LAPWING <i>Vanellus senegallus</i> 248	RB	W						P		
225	SENEGAL LAPWING <i>Vanellus lugubris</i> 246	AfM/ B	A,G						P		
268	GREEN PIGEON <i>Treron calva</i> 358	RB	F	P					P	1.3	1.3
269	BRUCE'S GREEN PIGEON <i>Treron waalia</i> 359	RB							P		
270	TAMBOURINE DOVE <i>Turtur tympanistria</i> 357	RB	F	P					P		
271	BLUE-SPOTTED WOOD DOVE <i>Turtur afer</i> 355	RB	f	P		1	5	6	P	4.4	2.0
283	RED-EYED DOVE <i>Streptopelia semitorquata</i> 350	RB	f	P					P	2.2	1.5
285	VINACEOUS DOVE	RB									0.5

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				FD ^b	Strict NR ^c		Sequestration ^c			Kat ugo	Nakito ma
					Gras s	Woodl and	Cleare d	Slash ed			
	<i>Streptopelia vinacea</i> 353										
286	RING-NECKED DOVE <i>Streptopelia capicola</i> 346	RB	f	P	5		3	5	P	0.9	3.5
289	LAUGHING DOVE <i>Streptopelia senegalensis</i> 351	RB		P					P		0.1
292	BROWN PARROT <i>Poicephalus meyeri</i> 367	RB	p	P					P	0.9	1.0
298	WHITE- CRESTED TURACO <i>Tauraco leucolophus</i> 381	RB	f	P	4				P	1.0	2.7
302	ROSS'S TURACO <i>Musophaga rossae</i> 377	RB	F	P					P	0.6	
303	BARE-FACED GO-AWAY BIRD <i>Corythaixoides personata</i> 375	RB	R-RR						P	0.1	
305	EASTERN GREY PLANTAIN EATER <i>Crinifer zonurus</i> 376	RB		P					P	4.4	2.3
307	LEVAILLANT'S CUCKOO <i>Oxylophus levaillantii</i> 394	AfM/ B	A,f		3						0.1
309	RED-CHESTED CUCKOO <i>Cuculus solitarius</i> 399	RB, AfM/ NB?	A,F	P			6		P	0.8	0.2
310	BLACK CUCKOO	RB? AfM/	A,f,FF	P					P		0.1

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				FD ^b	Strict NR ^c		Sequestration ^c			Kat ugo	Nakito ma
					Gras s	Woodl and	Cleare d	Slash ed			
	<i>Cuculus clamosus</i> 396	B?									
317	EMERALD CUCKOO <i>Chrysococcyx cupreus</i> 389	RB?	F							0.3 0.2	
319	KLAAS' CUCKOO <i>Chrysococcyx klaas</i> 391	RB	f	P				P	0.3		
320	DIDRIC CUCKOO <i>Chrysococcyx caprius</i> 388							P		0.2	
321	YELLOWBILL <i>Ceuthmochares aereus</i> 401	RB	F	P				P	0.1		
323	WHITE- BROWED COUCAL <i>Centropus superciliosus</i> 406	RB		P			4	P	1.3	1.6	
325	SENEGAL COUCAL <i>Centropus senegalensis</i> 405	RB	f					P			
329	SCOPS-OWL <i>Otus scops</i> 424	RB, OW	p	P				P			
345	BLACK- SHOULDERED NIGHTJAR <i>Caprimulgus nigriscapularis</i> 436	RB	F	P				P			
352	STANDARD- WINGED NIGHTJAR <i>Macrodipteryx longipennis</i> 440	AfM/ B? FB	A	P				P			
353	PENNANT-	AfM/	A					P			

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				FD ^b	Strict NR ^c		Sequestration ^c			Kat ugo	Nakito ma
					Gras s	Woodl and	Cleare d	Slash ed			
	WINGED NIGHTJAR <i>Macrodipteryx vexillaria</i> 441	B? FB									
358	PALM SWIFT <i>Cypsiurus parvus</i> 452	RB	Ae	P				P	3.4	3.4	
362	EURASIAN SWIFT <i>Apus apus</i> 444	WV, PM	P,Ae						0.1	0.2	
363	WHITE-RUMPED SWIFT <i>Apus caffer</i> 447	RB	Ae						0.2		
365	LITTLE SWIFT <i>Apus affinis</i> 443	RB	Ae							0.1	
367	ALPINE SWIFT <i>Tachymarptis melba</i> 449	RB	p,Ae							0.1	
368	BLUE-NAPED MOUSEBIRD <i>Urocolius macrourus</i> 461	RB			3					0.2	
369	SPECKLED MOUSEBIRD <i>Colius striatus</i> 459	RB		P	1			5	P	4.2 1.4	
373	GREY-HEADED KINGFISHER <i>Halcyon leucocephala</i> 473	RB, AfM/ NB	A,f,w	P					P	1.3	
375	WOODLAND KINGFISHER <i>Halcyon senegalensis</i> 475	PM, RB	A	P			3		P	0.7	
376	STRIPED KINGFISHER <i>Halcyon chelicuti</i> 472	RB		P	2		4		P	0.2 1.5	
378	AFRICAN PYGMY KINGFISHER	RB, AfM/ NB	f,w	P		2			P	0.2	

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				FD ^b	Strict NR ^c		Sequestration ^c			Kat ugo	Nakito ma
					Gras s	Woodl and	Cleare d	Slash ed			
	<i>Ceyx picta</i> 478										
385	LITTLE BEE-EATER <i>Merops pusillus</i> 491	RB	G					P			
386	BLUE-BREASTED BEE-EATER <i>Merops variegatus</i> 494	RB	w	P			3	P			
388	SWALLOW-TAILED BEE-EATER <i>Merops hirundineus</i> 485	RB? AfM/ NB?	R- NT,A							0.1	
390	WHITE-THROATED BEE-EATER <i>Merops albicollis</i> 479	AfM/ NB, FB, PM	A,f,Ae					P	0.1	0.1	
392	BLUE-CHEEKED BEE-EATER <i>Merops persicus</i> 490	WV, PM	P,Ae							0.2	
393	MADAGASCAR BEE-EATER <i>Merops superciliosus</i> 493	AfM/ NB	A						0.4	0.2	
394	EURASIAN BEE-EATER <i>Merops apiaster</i> 480	WV, PM	P,f						0.4	0.1	
401	BROAD-BILLED ROLLER <i>Eurystomus glaucurus</i> 500	RB, AfM/ NB?	A,f,w	P	3		2	P	0.7	1.1	
404	GREEN WOOD HOOPOE <i>Phoeniculus purpureus</i> 508	RB		P				P		1.5	
405	COMMON SCIMITARBILL <i>Phoeniculus</i>	R(B)								0.3	

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				FD ^b	Strict NR ^c		Sequestration ^c			Kat ugo	Nakito ma
					Gras s	Woodl and	Cleare d	Slash ed			
	<i>cyanomelas</i> 505										
408a	AFRICAN HOOPOE <i>Upupa epops</i> 502	WV	p	P		2			P	0.2	
409	ABYSSINIAN GROUND HORNBILL <i>Bucorvus abyssinicus</i> 527	RB		P					P		
419	CROWNED HORNBILL <i>Tockus alboterminatus</i> 515	RB	f	P					P	0.4	
420	GREY HORNBILL <i>Tockus nasutus</i> 524	RB		P					P	0.4 2.3	
422	BLACK AND WHITE CASQUED HORNBILL <i>Ceratogymna subcylindricus</i> 513	RB	F	P					P	0.2	
431	YELLOW- RUMPED TINKERBIRD <i>Pogoniulus bilineatus</i> 548	RB	F					6	P	0.2 0.1	
433	YELLOW- FRONTED TINKERBIRD <i>Pogoniulus chrysoconus</i> 549	RB	f	P		3		3	P	3.4 3.6	
437	SPOTTED- FLANKED BARBET <i>Tricholaema lachrymosa</i> 539	RB	R-RR	P				5	P	0.4 1.9	

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				FD ^b	Strict NR ^c		Sequestration ^c			Kat ugo	Nakito ma
					Gras s	Woodl and	Cleare d	Slash ed			
439	WHITE-HEADED BARBET <i>Lybius leucocephalus</i> 540	RB		P					P	1.0	2.8
441	BLACK-BILLED BARBET <i>Lybius guifsobalito</i> 537	RB?							P		
443	DOUBLE- TOOTHED BARBET <i>Lybius bidentatus</i> 534	RB	f	P					P	1.8	2.0
454	SCALY- THROATED HONEYGUIDE <i>Indicator variegatus</i> 569	RB	f	P					P		
455	GREATER HONEYGUIDE <i>Indicator indicator</i> 563	RB	f						P		0.1
456	LESSER HONEYGUIDE <i>Indicator minor</i> 566	RB	f	P					P		
465	NUBIAN WOODPECKER <i>Campethera nubica</i> 583	RB		P					P		0.6
473	CARDINAL WOODPECKER <i>Dendropicos fuscescens</i> 585	RB					3				0.2
477	GREY WOODPECKER <i>Dendropicos goertae</i> 590	RB	f								0.0
498	WHITE-HEADED ROUGHWING <i>Psalidoprocne albiceps</i> 639	RB, AfM/ NB?	R- RR,f, Ae	P					P	0.5	0.1

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				FD ^b	Strict NR ^c		Sequestration ^c			Kat ugo	Nakito ma
					Gras s	Woodl and	Cleare d	Slash ed			
500	SAND MARTIN <i>Riparia riparia</i> 643	WV, PM	P,W,A e							0.9	0.4
504	MOSQUE SWALLOW <i>Hirundo</i> <i>senegalensis</i> 636	RB	Ae						P		0.4
505	LESSER STRIPED SWALLOW <i>Hirundo</i> <i>abyssinica</i> 624	RB	Ae	P					P		0.2
512	ANGOLA SWALLOW <i>Hirundo</i> <i>angolensis</i> 627	RB, AfM/ B?	w,Ae							0.7	0.4
513	EURASIAN SWALLOW <i>Hirundo rustica</i> 634	WV, PM	P,w,A e							0.7	0.6
514	HOUSE MARTIN <i>Delichon urbica</i> 623	WV	P,Ae							0.2	
527	TREE PIPIT <i>Anthus trivialis</i> 984	OW, PM?	Pf							0.2	
529	YELLOW- THROATED LONGCLAW <i>Macronyx croceus</i> 988	RB	G	P	6				P		0.3
530	RED- SHOULDERED CUCKOO SHRIKE <i>Campephaga</i> <i>phoenicea</i> 690	RB, AfM/ NB?		P				4	P	0.6	
531	BLACK CUCKOO SHRIKE <i>Campephaga flava</i> 688	AfM/ NB?	A,f						P		0.1

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				FD ^b	Strict NR ^c		Sequestration ^c			Kat ugo	Nakito ma
					Gras s	Woodl and	Cleare d	Slash ed			
535	WHITE-BREASTED CUCKOO SHRIKE <i>Coracina pectoralis</i> 695	R(B)? AfM/ NB?	F								0.1
538	LITTLE GREENBUL <i>Andropadus virens</i> 705	RBf									0.2
540	CAMEROON SOMBRE GREENBUL <i>Andropadus curvirostris</i> 697	RB	FF	P					P		
542	YELLOW-WHISKERED GREENBUL <i>Andropadus latirostris</i> 701	RB	F	P					P		
553	CABANIS'S GREENBUL <i>Phyllastrephus cabanisi</i> 727	RB	FF	P					P		
562	COMMON BULBUL <i>Pycnonotus barbatus</i> 732	RB	f	P		6	6	6	P	6.0	5.4
576	WHITE-BROWED ROBIN CHAT <i>Cossypha heuglini</i> 751	RB	f	P	3				P	0.3	1.3
578	SNOWY-HEADED ROBIN=CHAT <i>Cossypha niveicapilla</i> 753	RB	F,w	P			4	3	P		0.1
586	SPOTTED MORNING THRUSH <i>Cichladusa guttata</i>	RB							P		

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				FD ^b	Strict NR ^c		Sequestration ^c			Kat ugo	Nakito ma
					Gras s	Woodl and	Cleare d	Slash ed			
	748										
589	WHITE-BROWED SCRUB ROBIN <i>Cercotrichas leucophrys</i> 744	RB		P	1		5		P	0.8	0.6
609	GREY GROUND-THRUSH <i>Zoothera princei</i> -	R(B)	FF	P					P		
612	AFRICAN THRUSH <i>Turdus pelios</i> 801		F	P		5			P	1.8	0.8
621	MOUSTACHED WARBLER <i>Melocichla mentalis</i> 915	RB		P					P	0.4	0.1
638	RED-FACED CISTICOLA <i>Cisticola erythropus</i> 857	RB	w							1.2	
640	WHISTLING CISTICOLA <i>Cisticola lateralis</i> 864	RB		P	3				P	0.2	0.2
641	TRILLING CISTICOLA <i>Cisticola woosnami</i> 873	RB								0.2	0.5
650	CROAKING CISTICOLA <i>Cisticola natalensis</i> 866	RB	G		5						
652	SIFFLING CISTICOLA <i>Cisticola brachypterus</i> 850	RB								0.3	
658	TAWNY-FLANKED	RB	fw	P					P	2.0	0.4

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				FD ^b	Strict NR ^c		Sequestration ^c			Kat ugo	Nakito ma
					Gras s	Woodl and	Cleare d	Slash ed			
	PRINIA <i>Prinia subflava</i> 913										
662	WHITE-CHINNED PRINIA <i>Schistolais leucopogon</i> 911	RB	F							0.3	
664	BUFF-BELLIED WARBLER <i>Phyllolais pulchella</i> 902	RB	F							0.1 0.1	
677	GREY-BACKED CAMAROPTERA <i>Camaroptera brachyura</i> 837	RB	F	P	5	6	6	6	P	5.2 4.9	
679	OLIVE-GREEN CAMAROPTERA <i>Camaroptera chloronota</i> 838	RB	FF	P					P		
685	YELLOW-VENTED EREMOMELA <i>Eremomela flavicrissalis</i> 877	R(B)?							P		
690	NORTHERN CROMBEC <i>Sylvietta brachyura</i> 921	RB		P					P		
691	RED-FACED CROMBEC <i>Sylvietta whytii</i> 925	RB	F	P					P	2.0	
695	WILLOW WARBLER <i>Phylloscopus trochilus</i> 908	WV, PM	Pf							0.3 0.4	
701	GREY-CAPPED WARBLER <i>Eminia lepida</i> 875	RB	R-RR,f,w	P					P	0.1 0.1	
703	GARDEN WARBLER	WV, PM	P,f	P					P		

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ATL ASN O	SPENAME	Status ^a	KASAGALA FR						FD Luwe ro ^d	NBDB ^e	
				FD ^b	Strict NR ^c		Sequestration ^c			Kat ugo	Nakito ma
					Gras s	Woodl and	Cleare d	Slash ed			
	Sylvia borin 918										
706	BROWN PARISOMA Parisoma lugens 900	RB?	F	P					P		
707	YELLOW- BELLIED HYLIOTA Hyliota flavigaster 891	RB	F	P					P	0.2	
713	BLACK FLYCATCHER Melaenornis edoliodides 934	RB		P			3		P	0.8 0.3	
714	PALE FLYCATCHER Melaenornis pallidus 928	RB								0.1 0.4	
717	SPOTTED FLYCATCHER Muscicapa striata 945	WV, PM	P							0.1	
728	LEAD- COLOURED FLYCATCHER Myioparus plumbeus 946	RB	F	P					P	0.1 0.2	
730	SEMI- COLLARED FLYCATCHER Ficedula semitorquata 930	PM	P							0.1	
732	AFRICAN BLUE FLYCATCHER Elminia longicauda 963	RB	F							0.1	
739	PARADISE FLYCATCHER Terpsiphone viridis 968	RB	F	P					P	1.8 0.6	

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ATL ASN O	SPENAME	Status ^a	KASAGALA FR						FD Luwe ro ^d	NBDB ^e	
			F	FD ^b	Strict NR ^c		Sequestration ^c			Kat ugo	Nakito ma
					Gras s	Woodl and	Cleare d	Slash ed			
742	BLACK-AND-WHITE SHRIKE-FLYCATCHER Bias musicus 955	RB	F								0.1
746	WATTLE-EYE Platysteira cyanea 960	RB	f	P		6			P	1.0	0.5
747	BLACK-THROATED WATTLE-EYE Platysteira peltata 961	RB?	F	P					P		
749	CHIN-SPOT BATHIS Batis molitor 951	RB	f								0.2
751	BLACK-HEADED BATHIS Batis minor 949	RB	f	P					P	0.1	0.3
761	BROWN BABBLER Turdoides plebejus 684	RB		P				6	P		0.2
762	ARROW-MARKED BABBLER Turdoides jardineii 681	rb									0.7
764	BLACK-LORED BABBLER Turdoides sharpei 683	RB	R-RR						P		
771	BLACK TIT Parus leucomelas 666	RB	f	P					P	0.3	0.6
781	GREEN-HEADED SUNBIRD Cyanomitra verticalis 1130	RB	F	P					P	0.1	
784	OLIVE SUNBIRD	RB	FF	P					P		

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ATL ASN O	SPENAME	Status ^a	KASAGALA FR						FD Luwe ro ^d	NBDB ^e	
				FD ^b	Strict NR ^c		Sequestration ^c			Kat ugo	Nakito ma
					Gras s	Woodl and	Cleare d	Slash ed			
	Cyanomitra obscura 1112										
787	SCARLET- CHESTED SUNBIRD Chalcomitra senegalensis 1122	RB	f	P	5			P	2.5	0.7	
794	COLLARED SUNBIRD Hedydipna collaris 1080	RB	F	P				P	0.6	0.1	
796	OLIVE-BELLIED SUNBIRD Cinnyris chloropygia 1094	RB	F	P				P	1.0		
801	BEAUTIFUL SUNBIRD Cinnyris pulchella 1116	RB						P			
802	MARIQUA SUNBIRD Cinnyris mariquensis 1107	RB						P	3.4	1.2	
804	PURPLE- BANDED SUNBIRD Cinnyris bifasciata 1092	RB?	f	P			3	P			
808	VARIABLE SUNBIRD Cinnyris venusta 1128	RB	f						1.7	0.4	
810	COPPER SUNBIRD Cinnyris cuprea 1096	RB	fw						1.1	0.2	
811	YELLOW	RB	f	P				3	P	1.8	0.1

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ATL ASN O	SPENAME	Status ^a	KASAGALA FR						FD Luwe ro ^d	NBDB ^c	
				FD ^b	Strict NR ^c		Sequestration ^c			Kat ugo	Nakito ma
					Gras s	Woodl and	Cleare d	Slash ed			
	WHITE-EYE Zosterops senegalensis 1133										
815	GREY-BACKED FISCAL Lanius excubitoroides 1032	RB	A,f,w					P			
821	YELLOW- BILLED SHRIKE Corvinella corvina 1026	RB		P	6			P		0.8	
822	NORTHERN WHITE- CROWNED SHRIKE Eurocephalus rueppelli 1041	RB						P			
824	GREY-HEADED BUSH-SHRIKE Malaconotus blanchoti 1012	RB? AfM/ B?						P			
828	SULPHUR- BREASTED BUSH SHRIKE Malaconotus sulfureopectus 1019	RB? AfM/ B?	f	P		1		5	P	1.2 0.8	
831	BROWN- HEADED TCHAGRA Tchagra australis 1022	RB		P			3		P	0.6 0.2	
833	BLACK- HEADED TCHAGRA Tchagra senegala 1025	RB			6				P	0.2 1.0	
836	NORTHERN	RB	F	P					P	0.8 0.6	

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ATL ASN O	SPENAME	Status ^a	KASAGALA FR						FD Luwe ro ^d	NBDB ^e	
				FD ^b	Strict NR ^c		Sequestration ^c			Kat ugo	Nakito ma
					Gras s	Woodl and	Cleare d	Slash ed			
	PUFFBACK Dryoscopus gambensis 1000										
837	SOOTY BOUBOU Laniarius leucorhynchus 1007	RB	FF	P					P		
841	TROPICAL BOUBOU Laniarius aethiopicus 1004	RB	f	P		6	2		P	3.7 1.8	
843	BLACK- HEADED GONOLEK Laniarius erythrogaster 1003	RB	f	P	6	3	4		P	1.8 3.1	
845	WHITE- CRESTED HELMET- SHRIKE Prionops plumatus 1043	RB	f	P					P	0.7	
850	BLACK- HEADED ORIOLE Oriolus larvatus 649	RB	f	P					P	0.7 2.7	
851	AFRICAN GOLDEN ORIOLE Oriolus auratus 646	AfM/ NB	A,f			6	6		P	0.1 0.1	
852	EURASIAN GOLDEN ORIOLE Oriolus oriolus 651	PM	P,f							0.1	
853	FORK-TAILED DRONGO	RB	f,F	P					P	2.7	

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ATL ASN O	SPENAME	Status ^a	KASAGALA FR						FD Luwe ro ^d	NBDB ^e	
				FD ^b	Strict NR ^c		Sequestration ^c			Kat ugo	Nakito ma
					Gras s	Woodl and	Cleare d	Slash ed			
	Dicurus adsimilis 644										
855	PIED CROW Corvus albus 654	RB								0.2	
858	PIAPIAC Ptilostomus afer 659	RB				2				0.2 0.4	
867	PURPLE STARLING Lamprotornis purpureus 1059	RB	F						P		
869	GREATER BLUE-EARED STARLING Lamprotornis chalybaeus 1055	R(B)								1.0	
870	LESSER BLUE- EARED GLOSSY STARLING Lamprotornis chloropterus 1056	RB				4				0.6 4.4	
871	SPLENDID GLOSSY STARLING Lamprotornis splendidus 1061	RB	F						P	0.8	
872	RUPPELL'S LONG-TAILED GLOSSY STARLING Lamprotornis purpuropter 1060	AV							P	0.5 4.5	
876	VIOLET- BACKED STARLING Cinnyricinclus leucogaster	R(B)	R- NT,FF	P					P	0.2	

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ATL ASN O	SPENAME	Status ^a	KASAGALA FR						FD Luwe ro ^d	NBDB ^e	
				FD ^b	Strict NR ^c		Sequestration ^c			Kat ugo	Nakito ma
					Gras s	Woodl and	Cleare d	Slash ed			
	1048										
881	GREY-HEADED SPARROW Passer griseus 1206	AV? R(B)?							P	0.8	0.1
893	BAGLAFECHT WEAVER Ploceus baglafecht 1159	RB	f	P					P	0.1	
894	SLENDER- BILLED WEAVER Ploceus pelzelni 1179	RB	f	P					P	0.2	
896	BLACK- NECKED WEAVER Ploceus nigricollis 1176	RB		P					P		0.1
897	SPECTACLED WEAVER Ploceus ocularis 1177	RB	f	P					P	0.1	
900	HOLUB'S GOLDEN WEAVER Ploceus xanthops 1189	RB	R- RR,G- RR,F	P					P		
903	LESSER MASKED WEAVER Ploceus intermedius 1170	RB	R- RR,f, W	P					P		0.1
908	BLACK- HEADED WEAVER Ploceus cucullatus 1165	RB		P					P	0.8	0.3

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ATL ASN O	SPENAME	Status ^a	KASAGALA FR						FD Luwe ro ^d	NBDB ^e	
				FD ^b	Strict NR ^c		Sequestration ^c			Kat ugo	Nakito ma
					Gras s	Woodl and	Cleare d	Slash ed			
922	RED-HEADED WEAVER Anaplectes rubriceps 1135	RB								0.3	0.4
927	BLACK BISHOP Euplectes gierowii 1144	RB	w							0.2	
928	BLACK- WINGED RED BISHOP Euplectes hordeaceus 1146	RB		P					P	0.4	
930	NORTHERN RED BISHOP Euplectes franciscanus 1143	RB								0.4	
933	YELLOW- MANTLED WIDOWBIRD Euplectes macrourus 1148	RB									
			w	P					P		
945	GREEN-WINGED PYTILIA Pytilia melba 1256	R(B)?									
				P					P	0.2	0.2
956	BROWN TWINSPOT Clytospiza monteiri 1221	RB									
			FF	P					P		
959	RED-BILLED FIREFINCH Lagonosticta senegala 1241	RB									
				P		1			P	0.9	0.2
962	BLACK- BELLIED FIREFINCH Lagonosticta rara 1237	RB?									
			R- NT,G						P		0.4

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ATL ASN O	SPENAME	Status ^a	KASAGALA FR						FD Luwe ro ^d	NBDB ^e	
				FD ^b	Strict NR ^c		Sequestration ^c			Kat ugo	Nakito ma
					Gras s	Woodl and	Cleare d	Slash ed			
963	AFRICAN FIREFINCH Lagonosticta rubricata 1239	AV? R(B)?							P	0.2	0.2
966	FAWN- BREASTED WAXBILL Estrilda paludicola 1231	RB	F	P					P		
969	WAXBILL Estrilda astrild 1226	RB	w, G							0.7	
970	BLACK- CROWNED WAXBILL Estrilda nonnula 1230	RB	w,G						P		
972	BLACK-FACED WAXBILL Estrilda erythronotus	R(B)?								0.1	
974	RED-CHEEKED CORDON-BLEU Uraeginthus bengalus 1261	AV? R(B)?		P					P	1.8	0.6
980	BRONZE MANNIKIN Lonchura cucullata 1266	RB		P	4				P	3.5	0.4
981	BLACK AND WHITE MANNIKIN Lonchura bicolor 1265	RB	F							0.8	0.2
984	RED-BILLED FIREFINCH INDIGOBIRD Vidua chalybeata 1211	RB		P					P	0.4	
985	PIN-TAILED WHYDAH Vidua macroura	RB	G	P	5				P	0.4	0.2

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ATL ASN O	SPENAME	Status ^a	KASAGALA FR						FD Luwe ro ^d	NBDB ^e	
			FD ^b	Strict NR ^c		Sequestration ^c		Kat ugo		Nakito ma	
				Gras s	Woodl and	Cleare d	Slash ed				
	1216										
991	AFRICAN CITRIL Serinus citrinelloides 1283	R(B)	F						P	0.5	
995	YELLOW- FRONTED CANARY Serinus mozambicus 1290	RB					6		P	2.2 0.2	
997	BRIMSTONE CANARY Serinus sulphuratus 1293	RB								0.1	
1005	GOLDEN- BREASTED BUNTING Emberiza flaviventris 1273	RB?								0.1	
	Total species			119	24	17	21	17	195	116 139	
					July 2011: 54 species						

Indicates some doubt over status (but not of occurrence)

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ANNEX 4: BUTTERFLIES SPECIES RECORDED IN KASAGALA FOREST RESERVE

Species	Ecotype	FD	Strict Nature Reserve		Plantation	
			Grassland	Woodland	Clearing	No Clearing
PAPILIONIDAE						
<i>Papilio demodocus</i>	M	1	1	1	1	1
<i>Papilio nireus</i>	F	1		1		1
<i>Papilio phorcus</i>	F	1		1		
<i>Papilio dardanus</i>	W	1	1	1	1	1
<i>Graphium angolanus</i>	M	1		1		1
<i>Graphium polícenes</i>	f	1		1		1
<i>Graphium loenidas</i>	M	1				
PIERIDAE						
<i>Catopsilia florella</i>	M	1	1	1	1	1
<i>Eurema brigitta</i>	M	1	1		1	
<i>Eurema hepale</i>	S	1	1			
<i>Eurema hecabe</i>	M	1	1	1	1	1
<i>Eurema regularis</i>	W	1	1		1	1
<i>Eronia cleodora</i>	O	1		1		1
<i>Colotis aurigineus</i>	W	1	1		1	
<i>Colotis euipe</i>	W	1	1			1
<i>Colotis hetaera</i>	O	1				
<i>Belenois crawshayi</i>	F	1		1	1	
<i>Belenois creona</i>	M	1	1	1	1	1
<i>Belenois solilucis</i>	f	1				
<i>Belenois thysa</i>	f	1	1	1		1
<i>Leptosia nupta</i>	F	1		1		1
<i>Dixeia pigea</i>	W	1				
LYCAENIDAE						
<i>Hypolycaena hatita</i>	F	1				
<i>Hypolycaena philippus</i>	W	1				
<i>Pilodeudorix caerula</i>	W	1				
<i>Anthene amarah</i>	O	1	1	1	1	

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Species	Ecotype	FD	Strict Nature Reserve		Plantation	
			Grassland	Woodland	Clearing	No Clearing
<i>Anthene luminata</i>	W	1	1			
<i>Anthene indefinita</i>	O	1				
<i>Anthene schoutedeni</i>	F	1				
<i>Lampides boeticus</i>	M	1	1	1		1
<i>Leptotes sp.</i>	U	1				
<i>Zizina antanossa</i>	W	1	1	1	1	1
<i>Actizera lucida</i>	W	1				
<i>Zizula hylax</i>	W	1	1	1	1	1
<i>Zizeeria knysna</i>	W		1		1	
<i>Euchrysops malathana</i>	O	1		1	1	
NYPHALIDAE						
<i>Danaus chrysippus</i>	M	1	1	1	1	1
<i>Tirumala petiverana</i>	M			1		1
<i>Gnophodes betsimena</i>	F	1				
<i>Melanitis leda</i>	W	1	1	1	1	
<i>Bicyclus angulosus</i>	O	1		1		1
<i>Bicyclus auricrudus</i>	F	1				
<i>Bicyclus campus</i>	f	1		1		1
<i>Bicyclus campinus</i>	f	1				
<i>Bicyclus safitza</i>	W	1		1	1	1
<i>Ypthima asterope</i>	O				1	
<i>Ypthima doleta</i>	W	1				
<i>Ypthima sp.</i>	U	1				
<i>Charaxes epijasius</i>	O	1				
<i>Charaxes etheocles</i>	F	1				
<i>Charaxes cedreatis</i>	F	1				
<i>Charaxes varanes</i>	W	1	1	1	1	1
<i>Charaxes picta</i>	O	1				
<i>Charaxes etesipe</i>	f	1		1		1
<i>Charaxes tiridates</i>	FL	1		1		
<i>Hamanumida daedalus</i>	W	1	1	1	1	1

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Species	Ecotype	FD	Strict Nature Reserve		Plantation	
			Grassland	Woodland	Clearing	No Clearing
<i>Pseudacraea boisduvali</i>	f	1				
<i>Aterica galena</i>	F	1		1		
<i>Neptis kiriakoffi</i>	W	1		1	1	1
<i>Neptis morosa</i>	W	1				
<i>Neptis saclava</i>	W	1	1	1	1	1
<i>Neptis serena</i>	W	1		1		1
<i>Byblia anvatarata</i>	M	1			1	
<i>Eurytela dryope</i>	W	1				
<i>Salamis parhassus</i>	f	1		1		
<i>Junonia oenone</i>	W	1	1	1	1	1
<i>Junonia chorimene</i>	O	1	1	1	1	1
<i>Junonia hierta</i>	M	1				1
<i>Junonia Sophia</i>	W			1	1	
<i>Precis pelarga</i>	f	1		1	1	1
<i>Vanessa cardui</i>	M	1		1		1
<i>Phalanta eurytis</i>	M	1				1
<i>Phalanta phalantha</i>	M	1		1	1	
Acraeinae						
<i>Acraea eponina</i>	W	1	1	1	1	1
<i>Acraea acerata</i>	W				1	
HESPERIIDAE						
<i>Eretis lugens</i>	W	1	1	1		1
<i>Sarangesa lucidella</i>	O	1	1			1
<i>Sarangesa maculata</i>	O	1				1
<i>Spialia spio</i>	O		1		1	
<i>Sarangesa bouvieri</i>	F	1				
<i>Coeliades forestan</i>	W	1				
<i>Pardaleodes incerta</i>	F	1				
<i>Pelopidas mathias</i>	M	1				

FD refers to records of Davenport *et al.* **Key:** **F** Forest-dependent species **FH** Highland closed forest species **FL** Lowland closed forest species **f** Forest edge/woodland species **O** Open habitat species **M** Migratory species **S** Swamp/wetland species **W** Widespread species **U** Unknown habitat preference


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ANNEX 5: PEOPLE CONSULTED

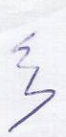
CONSULTATIVE MEETING FOR EIA FOR KASAGALA CFR HELD AT KIRARAMBA TRADING CENTRE ON 7/9/2011 AT 4:30 PM.

NAME	CONTACT	SIGNATURE
1 SENSORA MUSA	0788768261	<i>Sensora</i>
2 Ruzindana Salongo	-	<i>Ruzindana</i>
3 SEMPUNGU G. KILIMAM	0782855220	<i>Sempungu</i>
4 Lumala Ismael	0787658988	<i>Ismael</i>
5 Mutebi Christyne	-	<i>Mutebi</i>
6 Muhigirwogott		
7 MBIINDI		
8 Nakamya Jane		<i>Nakamya J.</i>
9 Nanyonga Hadijah		<i>Nanyonga</i>
10 Semayenga christoph	0788638583	<i>Semayenga</i>
11 Kambanda Samu	0775063559	<i>Kambanda</i>
12 Kaiba John		<i>Kaiba</i>
13 mutebi benard	078559099	<i>Mutebi</i>
14 bullega		<i>Bulega</i>
15 SEKABIRI Robert	0775769846	<i>Sekabiri</i>
16 Nkalubo mose	0785991019	<i>Nkalubo</i>
17 GAHIRE JO		<i>Gahire</i>
18 RWABUBUKI		<i>Rwabubuki</i>
19 ZIZINGA L. STONE	0774060392	<i>Zizinga</i>
20 Kyolaba vicent	0779292424	<i>Kyolaba</i>
21 SENTULA	0783027788	<i>Sentula</i>
22 BULE.		<i>Bule</i>
23 Nakazzi Rose Natonga	0779823177	<i>Nakazzi</i>
24 Kajeero Jeffrey		<i>Kajeero</i>
25 KYALISI KAZODA		
26 Sembalirwa AMOS	0789608859	
27 Sekibeyu Gw.	B	<i>Sekibeyu</i>
28 Nabanicema JESCA	0784299171	<i>JESCA</i>

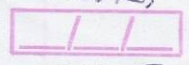

You may delay, but time will not.

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CONSULTATIVE MEETING HELD AT WAMPITI HEALTH CENTRE WITH COMMUNITY (EIA FOR KASAGALA CFR) ON 11/7/2011. TIME 2:50 PM.



	NAME	CONTACT	SIGNATURE
1	Lubowa George William	0783257263	
2	Kasimba Karoli	0781538283	KK
3	Kalisa Abassi	0778930643	
4	Nahwanga Agnes	0787715516	
5	Nanono MARY	0778252943	
6	Najjuba Scorai		
7	KERIKHANDO AMINAH	0777136735	Aminah K.
8	NARWIRE Caroline	0772314692	
9	Kityo-Livingstone		
10	Gawera Naphtali	0785719334	
11	GUMBIRI John	0784736685	
12	KAGGWA F.		
13	Semugabi S.		
14	SEMUGABI BOSCO	0789607801	BOSCO
15	ECAU FRANCIS	0787683361	
16	DUTAMU THOMAS	0772540732	
17	HARISON KASSWA	0772931774	
18	Kambwa Mukamed	0782312711	
19	Kameshony Godfrey	0772691207	
20	Katukawa Charles	0778182950	
21	Joice Birungi	0392945799	Joice
22	KALISA GRESS		
23	Bayiteembes Joice		
24			
25			
26			
27			
28			



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	NAME	CONTACT	SIGNATURE
1	Lubega Henry	0775130030	Henry
2	Nankata Josephine	0788397358	Josephine
3	Sembuse Godfrey K.	0775104994	Godfrey
4	Mwoyizi Ronald	0775624424	Mwoyizi
5			
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You may delay, but time will not.