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PLANTATION MANAGEMENT PLAN

PUBLIC SUMMARY

LUKOSI PLANTATION, TANZANIA

Updated: November 2014

Approved By	Position
Rob Parker	Forestry Manager – Tanzania

Introduction

This document is a public summary of the plantation management plan (PMP) for Lukosi Plantation. It briefly outlines key elements of the PMP. Fuller details are available from the PMP, which is available upon request from the New Forests Company (NFC (T)) offices.

Objectives

- Establish profitable commercial timber plantations of fast growing tree species which have adapted well to the Tanzanian environment and have successfully been grown in this country.
- Protect the remaining natural forests that occur along streams and rehabilitate those forests that have been destroyed and degraded by illegal activities.
- Provide employment to rural communities where unemployment levels are very high.
- Identify community oriented upliftment projects in which the company can assist in facilitation and execution.
- Investigate and where appropriate initiate an Outgrower scheme whereby the Tanzania plantations would be a nucleus resource and centre of excellence providing extension assistance to the local community.
- To create a multi-faceted timber company and to develop the Tanzania-based forest lands into a centre of forestry excellence and best practises, with investment in pole plants, saw milling and other value added processing, providing a role model for both Tanzania and East Africa.
- To help meet government goals of alleviating rural poverty and to stimulate the development of the local private sector through contracting and spin-off private enterprise.

The main activities that NFC will be carrying out on Lukosi plantations are;

1. Silviculture
2. Timber Harvesting
3. Transportation of timber, sawing & drying – for sawn boards,
4. Drying and carbonization for industrial biofuels,
5. Drying and chemical treatment – for electricity transmission poles,
6. Building housing units for Staff,
7. Distribution and sale of value added products to the forest processing industry.
8. Improvement of the road infrastructure within the plantation.
9. Construction of the plant (factories) and camp sites (staff housing)

Resource Description

The New Forest Company (Tanzania) Project area is located in Kilolo District in Iringa Region. The project area covers three wards of Dabaga, Idete and Ukwega. The district extends between latitudes 7⁰ – 8⁰ South and longitudes 34⁰ – 37⁰ east. NFC is hoping out to acquire approximately 10,000 hectares of land in the Kilolo district.

The project area cuts across several topographic features from highlands, midlands and lowlands. The altitude ranges from 900 to 2700m above mean sea level. The region is dominated by the Kipengere and Livingstone mountain ranges, the Udzungwa Mountains and the Great Rift Valley. Rainfall is largely bi-modal with a mean annual rainfall of approximately 1 975mm. Temperatures (maximum) range between 17°C (July) and 26°C (February). Frost is occasional but uncommon. Iringa Region has red/yellow, well-drained and highly weathered and leached clay soils in the high altitude areas. The Midlands areas are occupied by intermediate clay soils, which are characterized by being moderately drained and leached. The Lowlands are occupied dominantly by red / brown loams and are highly fertile.

The plantation has a total area of 8 098 ha, of which 4 699 ha is planted to pine and eucalyptus. 3 284 ha are set aside in their natural state.

The following positions currently occur on the plantation:

- Country CEO – Oversees all aspects of New Forests Company operations in Tanzania, including forestry.
- Forestry manager: Oversees all aspects of Forestry in Tanzania
- Plantation manager: Oversees all operations throughout the Plantation, including all Silviculture, Nursery and road building operations. Manages all the relevant contractors and is responsible for the delegation of duties to key Foresters.
- Foresters: Currently there are two Silviculture foresters and one Technical forester on Lukosi. Silviculture foresters are responsible for the execution of all Silviculture operations and management of Silviculture contractors. The Technical forester is responsible for all planning, survival counts and enumeration measurements. They are also responsible for the fire protection on the plantation. The Silviculture foresters report directly to the Plantation Manager.
- Lands Officer – Oversees negotiation with communities and government officials in relation to purchasing land for forest development.
- Community Development Officer (CDO) – Oversees all social aspects of the company's business and social projects conducted by the company in surrounding communities.
- Human Resources Manager – Oversees all aspects of welfare for our staff and employees.

Health and safety requirements on the plantation are compliant with country legislation and International Labour Organisation (ILO) guidelines. These have been included in the company's procedures where needed. The nearest government health facility is located within 5 kms from the plantation.

Natural environment

The landscape variation in the project area gives it a high value in terms of ecosystems, habitats and component species. The project area cuts across several topographic features from highlands to midlands and lowlands. Biodiversity wise, the different topographic gradients that exist in the area gives it a potential for high biodiversity. The area is also within the eastern Afromontane biodiversity hotspot which makes it a good repository of different biodiversity (flora and fauna) and endemic species which need be identified.

Among the most unique residents of the Udzungwas on the eastern side of the project area are the Kihansi spray toad, Sanje crested mangabay, the Matundu galago and the Iringa red colobus. The vegetation in the project area is mainly unmanaged grassland and some remnants of scattered native species of miombo trees and shrubs. Recent observations show a presence of important biodiversity (flora and fauna) of different types in the area. Based on the recently completed biodiversity study in the Lukosi project there are 23 potential high conservation value (HCV) points. Stakeholder consultation is yet to be carried out to determine if these points are HCV.

Resource Management

There is a company Policy Manual that has details on:

- Storing of information and document control (refer also to system documents in the Integrated Management System, IMS)
- Information transfer and training (refer also to Training prescriptions in the IMS)
- Corrective and preventative action (refer also to monitoring and action prescriptions in the IMS)
- Operational Auditing and Compliance Monitoring (refer also to Auditing and Monitoring prescriptions in the IMS)
- Monitoring and Reporting (refer also to the Monitoring and Management Review prescriptions in the IMS)

Budgeting is done per Budgeting Guidelines that are mandated by the company executive committee annually in January.

Planning

All required processes are followed to acquire land in a legally and socially compliant way.

NFC(T) requests on a continues basis the aid of local District Council staff to point out the corner cairns so that external boundaries can be opened up. Once completed, local resident communities are informed of the borders. NFC(T) maintain the corner cairns and boundaries on an annual basis.

For ease of management, NFC(T) divides the Plantation into blocks and compartments whose borders are physical boundaries such as roads, fire-breaks and wetlands. If no natural boundary exists, a formal one such as a fire-break will be created.

NFC(T) commissions annually a detailed soil and terrain survey to match tree species and silviculture practices to suitable sites for optimum productivity. Terrain conditions will aid with harvest and road planning by indicating problem areas where special management practices need to be applied.

Land Use

Various maps are available for different purposes. These maps also include information on boundaries, some roads and compartments. Contours, rivers and other physical details will be added as this information gathering is commissioned. Microforest is used to maintain all data and plan all operations on the plantation. The planning forester is responsible for updating and maintenance of this data.

The plantation will be managed on the following working cycles below:

- PST – Pine sawtimber

Grown on a 18yr rotation with initial stocking of 1372 spha.

- EST – Eucalypt sawtimber

Grown on a 14yr rotation with initial stacking of 1667spha, with poles being extracted from within this rotation.

- FST – Furniture wood sawtimber (rotations may vary based on species);

The land classification MP details requirements for representative ecosystems and vegetation, conservation of high conservation values and wildlife corridors and this exercise should be completed by FY 15, with some work being done as part of the biodiversity study in 2014. An EIA of the plantation area has been completed and a certificate for the EIA issued by the National Environmental Management Council and all conditions complied with. Any new development on plantation should be verified against the IMS EIA MP regarding change of land use to determine if an internal screening assessment or external EIA approval is required before development can begin.

Research

The company will undertake a tailored programme of applied research to develop the most appropriate policies and technologies for the management and operation of the plantations. In addition to this, NFC should monitor and import best practice and research findings from, not only the Tanzanian Forestry Research Institutes, but other forestry operations and agricultural industries.

NFC has an applied research program with clear objectives and will enter into agreements with established research institutes, and universities to do research on a co-operative basis.

Silviculture

The company uses the Swazi-bed nursery method of raising seedlings in plastic polyurethane sleeves in beds. Establishment includes land clearing, planting and blanking. Herbicide application will be considered where appropriate and necessary, and is by knapsack sprayer. Compartments that have less than 80% survival are blanked within 8 weeks of planting for eucalyptus and in the next season for pine.

The number of weedings will be a function of the natural vegetation, the climate, the spacing of the plants and the type of weeding performed prior. If only manual weeding is to be performed, slashing and hoeing should be done at least twice per annum. Chemical weeding is normally done every six months. Weeding should continue until canopy closure occurs, for fast-growing eucalypts this may be as early as 18 months and for pines at 36 months.

The company is committed to employing non-chemical weed control wherever practical and a strategy of reduction in chemical use over time, where chemical control is considered necessary for current pest and weed problems. NFC shall only use eco-friendly products for weed control that are acceptable in terms of international best practice for responsible forest management.

Integrated alien weed control

Noxious (Alien) weed is not a major problem in Tanzania but there are areas of black wattle, pine, eucalyptus, bramble and Mauritius thorn and these shall be managed in line with IMS prescriptions.

Pruning and thinning

A 1.5m pruning is implemented at age 4 years, and a 3.0m pruning is implemented at age 8 years on all P. patula compartments. A brushing operation may be considered in some Eucalyptus compartments for access and fire control purposes. Thinning will be carried out according to

the prescription.

Forest Protection

The main dry season runs from June to November. Existing fire protection plans shall be reviewed by May 2014 (i.e. before the start of the next fire season). Fire awareness campaigns are carried out with local communities before the beginning of the fire season.

Tanzania has been lucky in that major diseases or pests have not affected pine plantations to much extent.

Due to the steep terrain in Lukosi, erosion is an issue of concern and needs to be managed. Prescriptions are in place to manage this and for operational impact assessments for site disturbing activities. Any erosion that occurs outside this is managed through Corrective Action prescriptions. Monitoring also takes into account erosion through turbidity and siltation in stream monitoring. This is reported on in the monitoring.

2. Forest Roads

There are clear specifications for the three classes of roads, A, B and C. Roads to be constructed due to necessity with a gradient above 5 degrees must be approved by the Forestry manager.

All foresters and contractors working on plantation monitor road conditions and drainage. A practical monitoring and corrective action procedure for road maintenance is in place to ensure that negative impacts from roads are managed as soon as is practically possible.

Quarries and gravel pits are monitored for signs of erosion and any other problem as per the management plan for each gravel pit. A Screening Assessment is done for any new gravel pits, quarries or sandpits – or where a major expansion of an existing site is planned. This includes where work is planned to maintain Provincial roads on behalf of the authorities.

Infrastructure

All vehicles and equipment are currently maintained off site or by equipment manufacturers' onsite using mobile workshops. These mobile workshops are checked to ensure compliance with our policies and standards.

A chemical store will be constructed in FY15 for plantation use to ensure correct and safe storage of chemicals and a chemical store man will be appointed to oversee this store.

Responsible persons have been allocated to all the fuel storage facilities on Lukosi Plantation. The responsible person completes checklists on a weekly basis, ensuring that fuel and oils are stored, issued and dispensed to prevent damage to the environment while also ensuring the safety of people working with these substances.

Currently waste is disposed of on site, all off-site waste disposal investigated to date can only be done at substantial transport and disposal costs and was therefore discarded as a viable waste disposal option.

Management of natural areas

New Forests Company will maintain and enhance their natural resource base, endorsing the concept of sustainable forest management, which will ensure a sustained contribution of the company to the country, its people and our future.

As part of this commitment we commission local experts to do extensive biodiversity studies of the land areas under our management and control. This has been done in November 2014 to identify fauna, flora, IUCN listed red data listed species and the management of these species. This biodiversity study shall be reviewed on a five yearly basis, so the next review would be scheduled for 2019.

Initially areas on plantation have been identified as conservation rehabilitation areas. These are:

- Riparian zones and other wetlands, which shall have a buffer zone of 60 meters on the entire watercourse as per national legislation. Stream flow rates and quality will be monitored and reported on in the Annual Sustainability Reports.
- Representative samples of natural vegetation.

For more details on identification and management refer to the IMS Natural Resource Monitoring Procedures and associated documents.

Monitoring of Conservation Areas, Flora and Fauna

Monitoring is done by local experts during the biodiversity studies and reviews, and in-house monitoring is done in compliance with prescriptions found in the Conservation Management and Monitoring prescriptions in the IMS.

Monitoring of birds, mammals, butterflies and flora forms part of the terms of reference for the biodiversity studies. The monitoring of other species, notably dragonflies, reptiles and amphibians will be reviewed during the next monitoring phase, or as specialists become available. A monthly report of animals seen is compiled by the Forest Guards. These reports are filed.

Poaching control is the main duty of the forest guards. A team of forest guards currently patrol the Plantation weekly, on random days, to ensure that there is no traceable pattern. Their main priority is poaching control, especially snare removal. They also assist with security and identify problems, which could affect access (in the case of blocked roads), and general issues such as erosion areas and encroachment control. An informal means of collecting environmental information is possible from their reports.

Game is not commercially utilised and no hunting is allowed on NFC property.

Social Management

Lukosi conducted a Participatory Rural Appraisal in 2010. Objectives have been set to ensure that the bottom up implementation of social projects is achieved. A Community Development Officer (CDO) is permanently employed to liaise directly with local communities regarding any concerns the communities may have and to manage community projects on behalf of the company.

The plantation maintains a list of all known stakeholders and neighbours have been mapped on the Community Development Map and the Fire Map.

Significant cultural-historical sites

NFC is aware and managing the existence of burial sites in the “spiritual land”. NFC, in consultation with local communities, has identified a number of grave sites. These graves have been identified on the ground, GPSed and mapped. These will be managed in consultation and co-operation with local communities associated with these sites. The company ensures that the burial sites are respected, maintained and managed according to laws of Tanzania and local environmental authorities’ guidelines.

Multiple resource utilisation

Non-timber forest products (NTFP) should be assessed and agreement over use identified in consultation with local communities and regulating authorities. Based on this list and regulating authority requirements access to NTFP is agreed along with any constraints or requirements and monitoring requirements to ensure the sustainability of NTFP.

Land ownership and claims

Lukosi has long term leases from the Tanzania government, and therefore concerns surrounding land claims are not anticipated.

Reporting

The New Forests Company produces an Annual Sustainability Report based on the Global Reporting Initiative (GRI) Guidelines that contains detailed summaries of the company’s performance. This report is available on request.