

Publication Draft



REPUBLIC OF ZAMBIA

**MINISTRY OF GREEN ECONOMY AND
ENVIRONMENT**



KALUWE LOCAL FOREST – P337

MANAGEMENT PLAN

2024-2034

APPROVAL PAGE

KALUWE LOCAL FOREST No. P337 - FOREST MANAGEMENT PLAN

Notice of completion

This Forest Management Plan has been prepared in accordance with the requirements of section 40, Part IV of the Forests Act, 2015. National and local enquiries were conducted as required to obtain representation from the local community, Chief and other stakeholders in the prescribed manner. Further, consultations were conducted with holders of rights and the local community in the area and account taken of their submissions.

In accordance with section 43 of the Forests Act, 2015, I therefore cause notice of completion to be published in the Gazette.

Director of Forestry

Date:_____

Registration of the Forest Management Plan

Following receipt of notification from the Director of Forestry, that the Forest Management Plan has been notified in the Government Gazette in accordance with the provisions of section 43 of the Forests Act, 2015, I therefore cause this Forest Management Plan to be registered and approve a notice of registration to be published in the Government Gazette.

Minister for Green Economy and Environment

Date:_____



FORESTRY DEPARTMENT

FOREWORD

Forests provide essential functions and services to the local community and the country at large, conserving and protecting biodiversity, social and livelihood wellbeing. Zambia has adopted a participatory approach to forest management allowing community based natural resource management in respect to forest management between the Forestry Department whose function is to control, manage, conserve and administer Local and National Forests, promoting partnership with communities and civil society organizations. This forest management approach is driven by the need to promote sustainable use and management of forests across the country and reduce forest degradation and deforestation. The high demand for forest resource products and services due to increase in human population, and the ever-changing environmental conditions have highlighted the need to hasten the partnership approach to the management of forests in a planned manner. It is for this reason that Kaluwe Local Forest Management Plan (KLFMP) is formulated.

Signature:

Director of Forestry

Date:

ACKNOWLEDGEMENTS

The development of this Forest Management Plan was made possible through support from the Zambia Integrated Forest Landscape Project (ZIFLP). The Forestry Department would like to recognize and appreciate the efforts of His Royal Highness Senior Chief Mwase, Chief Zumwanda, Headmen and the community around Kaluwe Local Forest for the commitment to support this plan and importantly the sustainable management of Kaluwe Local Forest.

In addition, the Forestry Department, Eastern Province, would like to recognize and appreciate the efforts of the participants in the consultation workshop for their valuable contribution to the development of the Forest Management Plan.

The production of the Plan would not have been possible without the input from ZAMSTATS and present and past officers of the Forestry Department. The contribution of the members of the forestry inventory, livelihood data collection, analysis and reporting teams who made it possible to generate the needed information to develop this forest management plan is acknowledged. Local community contribution was vital in both the livelihood and biodiversity surveys as well as in the participatory discussion. Their Royal Highness' contributions during the awareness meetings leading to livelihood survey for the development of the FMP are also highly appreciated.

The Forestry Department acknowledge the financial support of the World Bank and its partners through the Zambia Integrated Forest Landscape Project (ZIFLP) in the development of the draft FMP. Finally, since it is not possible to mention each person engaged in the development of the FMP, the contribution of all persons who participated directly or indirectly in the preparation and completion of this document is appreciated.

EXECUTIVE SUMMARY

Forests, woodlands and trees are among the nation's most important natural heritage resources. The vision of the National Forestry Policy, 2014 is to attain sustainable forest management at all types of forests to enhance forest products and services that will contribute to mitigation of climate change, income generation, poverty reduction, job creation and protection and maintenance of biodiversity. The Policy encourages participatory forest management anchored on the active participation of local communities, traditional institutions, private sector and other stakeholders in the management and utilisation of forest resources at all levels of decision making, implementation, monitoring and evaluation.

This Forest Management Plan has been prepared for Kaluwe Local Forest with the aim of equipping the management team and other interested stakeholders with a capable tool of directing the approach to be followed, guiding the process of partnerships with key stakeholders and addressing the challenges facing the management of the forest at present. Adjacent communities can play an important role in the rational utilisation of the existing forest through participation in decision making, active management, protection and benefit sharing. Thus community collaboration is an imperative so as to protect the remaining forest cover of Kaluwe Local Forest from degradation in order for it fully contribute to local and national development as well as for the benefit of the future generations of Zambia.

Translating Policy into practice

This management plan translates national policies into a well thought-out strategic framework to guide the preparation of annual operational programmes for effective and efficient management of this Local Forest. The management plan will regulate forestry activities for a period of 10 years through the application of prescriptions that specify targets, actions and control arrangements. In this respect this plan will form part of the general forest management system that regulates protection, silviculture practices, conservation, monitoring and other relevant operations to ensure sustainable management of the forest.

Community based natural resource management is core to this Forest Management Plan. Through promoting community involvement in the management of Kaluwe Local Forest, rights to forest products and uses of the forest will be negotiated whilst agreeing obligations and other responsibilities for protection and management activities with local communities. This is intended to achieve the parallel goals of ending open access, promoting enhanced forest management, whilst unlocking the full potential of sustainable forest use for

economic development in the local communities. Surrounding communities have both the most to lose from its destruction and most to gain from its good management. The Community Forestry approach followed in Zambia provides an incentive mechanism and capacity development process to make this a reality.

To ensure effective implementation, including monitoring, this plan has been prepared using up to date and accurate information on the reserve covering: location and extent; ownership and rights; topography, climate and soils; flora and fauna; potential income and other benefits; challenges and opportunities for sustainable management. This forest management plan has the purpose not only of setting out approved management objectives and specified actions, but equally important, communicating these to the resource users and other stakeholders who are concerned with the implementation of the plan.

The Forest Management Plan was prepared through a consultative, interactive and participatory strategic planning process involving all key stakeholders. The data collection and consultation process was financed through the Zambia Integrated Forest Landscape Project (ZIFLP) a Zambian Government initiative in the Ministry of Green Economy and Environment.

Forest resource & community well being assessment

During 2019 and 2021, the Forestry Department undertook forest resource assessments, engaging surrounding local communities and their traditional leaders as part of the enquiries for the purpose of preparing this forest management plan in accordance with the Forests Act, 2015. In parallel, ZAMSTATS undertook forest livelihoods and economic surveys with communities surrounding the Local Forest.

Traditional leaders were consulted and approvals to proceed with data collection and subsequent participatory land use planning processes. Local stakeholder meetings were held with community representatives, local organisations and other Government Departments to raise awareness of climate change issues, the sources of greenhouse gas emissions in the Province, sensitise on the policy and legal framework, the proposed collaborative planning approach, issues affecting the specific forest areas and exploring opportunities for a partnership for management.

The information collected allowed assessment of the condition of the forest, the value of the forest both economic as well as biodiversity value in terms of species diversity and abundance. Past management, exploitation as well as current management and pressures on the forest can be seen in the species abundance and size distribution in the areas

assessed. These as well as the current Policies and development priorities can guide the short, medium, and long term management of Kaluwe Local Forest.

The inventory results indicate a total standing volume for all species in Kaluwe estimated at 14,152m³ (41m³/ha), with a total bole volume estimated at 6,504m³ (19.1m³/ha). Total Biomass for trees ≥5cm DBH is estimated 21,823 tonnes with an above ground carbon estimate of 10,971 tonnes. A basal area figure of 4.87m² per hectare is a low figure for the type of forest by over a factor of 10. This confirms the status of Kaluwe Local Forest as a secondary forest following past and most likely current high levels of exploitation of large sized trees. Further, there is great need to bring the plantation areas under sound management and prepare site specific management plans for the plantation compartment and sub compartments. Current levels of planting are not considered viable for commercial timber or sustained pole production in the short and medium term.

Summary socio economic analysis

The livelihood survey conducted in 2019 indicated that Kaluwe Local Forest is surrounded by approximately 30 villages with a total population of 1,224. These households depend on farming as their main occupation, the principal crops grown are maize, sunflower and groundnuts from land holdings ranging between 0.25ha to 6ha. Almost all households use firewood as their energy for cooking. The survey revealed that 100 percent of all the households were willing if called upon to voluntarily support management of the forest reserve with Forestry Department. At the time of survey, there were no squatters within the forest.

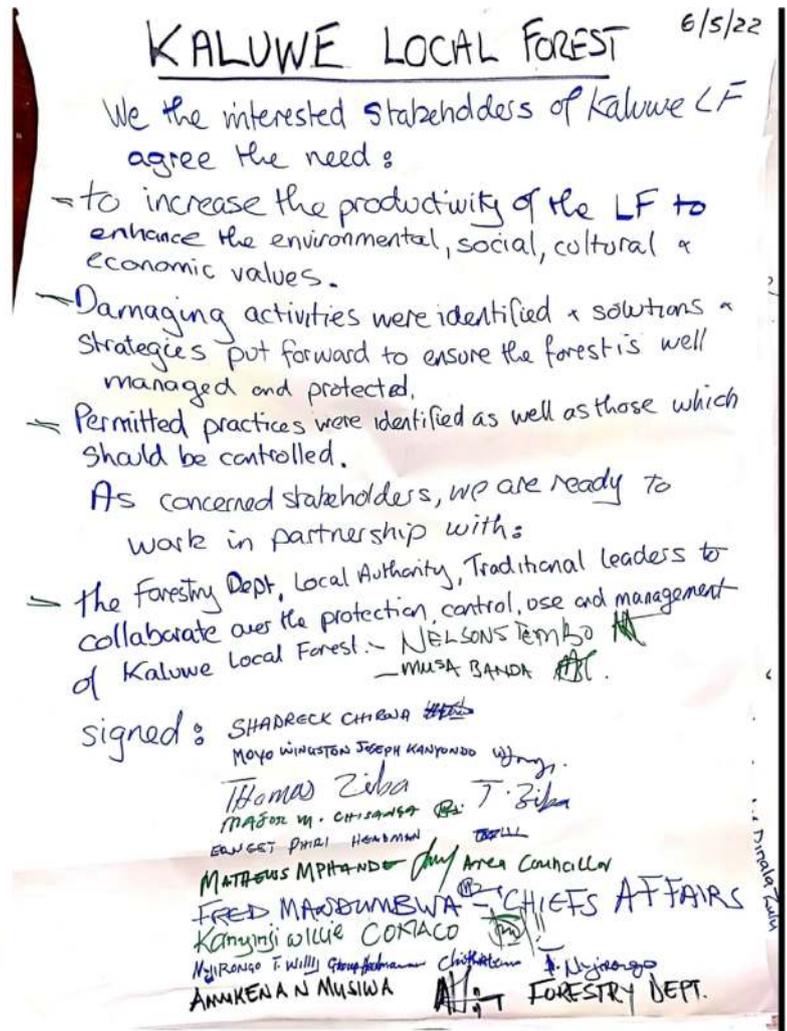
Forest change & issues analysis

A consultation meeting of stakeholders for Kaluwe Local Forest was held on 6th May 2022, at Gomatemwa Lodge, in Lundazi. Participants were requested to review the uses and users of the forest, the issues that are contributing to forest loss and forest degradation, but importantly to propose local solutions to these issues. Utilising forest cover imagery, participants were able to relate to the areas of forest and forest loss through agriculture and settlement across the forest and surrounding areas. This was used to focus discussion on issues, identifying different zones of use and management, possible strategies and priorities for management as well as agreeing permitted and non-permitted activities within each of the identified zones.

Making a commitment to work together for change

As a statement of concern, but interest to work together with the Forestry Department, the Local Authority, Traditional leaders, and stakeholders agreed that there was need to collaborate over the protection, sustainable use and management of the protected forest area and a declaration of intent was signed pledging to collaborate in the sustainable management of Kaluwe Local Forest.

The declaration confirmed that Kaluwe Local Forest is of importance for meeting the local social, cultural and economic needs of the surrounding communities as well as of environmental importance, primarily through securing local water resources. The stakeholders requested to work in partnership with the Forestry Department and others to safeguard the forest.



Objectives and management actions

Based on the policy and legal framework and the consultation process conducted, the General Objectives for the management of Kaluwe Local Forest are:

- To secure forest resources of local and national importance
- To protect and restore ecosystems, particularly the protection of land and water supplies of local and strategic importance;
- To ensure the sustainable utilisation of forest resources and other natural resources within the protected area;

- (d) To ensure full participation of all stakeholders at all levels of society for sustainable forest resource and ecosystem management through appropriate incentives and benefit sharing mechanisms
- (e) To meet the social, cultural and economic needs of the local community and wider society involved in management of the Forest in a gender equitable manner.

Proposed management actions

The following management actions which were proposed for Kaluwe Local Forest reflect the statutory purpose of the Local Forest as set out in section 19 of the Forests Act of 2015.

1 Forest Conservation through Community Participation and Livelihood Development

Community empowerment is central to participatory forest management for the effective coordination and sustainable management of forest resources. This Plan recognizes that communities surrounding Kaluwe Forest Reserve are key stakeholders in the conservation of this forest as well as beneficiaries from its sustainable management. This aims to meeting the social, cultural and economic needs and thereby improving the livelihoods of the communities around Kaluwe Local Forest. This will be achieved through promotion of community forestry and the establishment of a community forest management group to partner over the management of Zones 2 and 3 of the Local Forest, as well as a development zone (4) in the immediate surrounding area to promote greenhouse gas emission reduction interventions;

2 Forest Protection, Restoration, Management and Conservation of Biodiversity

Kaluwe Local Forest is an important forest ecosystem containing different plant species and fauna. The forest is surrounded by an increasing population which is highly dependent on it for subsistence and increasingly economic needs including collection of mushroom, wild fruits, caterpillars, honey, firewood and poles. The level of unsustainable use is anticipated to intensify with increasing human populations resulting in higher levels of resource exploitation and degradation. Protection of this forest habitat is therefore essential to ensure the continued ecosystem services and local livelihood needs.

Without considering the needs of local communities, gaining their support, and working with them, rather than against them, forest protection and management goals and objectives will not be reached. Consequently, the strategy will be to work together with communities to develop joint protection systems in return for agreed levels of utilization within the capacity of the forest to meet subsistence needs whilst safeguarding the environmental aspects including conservation of biodiversity.

3 Forest plantation establishment and management

Forest plantations are important for the supply of poles, timber and wood energy. Due to its proximity to the urban areas of Lundazi, the demand for construction timber and wood energy will increase over time there by increasing the pressures on Kaluwe Local Forest. Investment in the plantation area is therefore critical in order to meet future demand. This will require rehabilitation of plantations from which the timber products will be derived. Silvicultural operations are core to maximise the production potential of the demarcated plantation areas. Activities will include site preparation, planting, maintenance operations, production forecasting, harvesting and marketing with subsequent replanting/regeneration. These will be detailed in an annual plan of operations to be prepared by the Officers responsible for the management of the Local Forest. Such operations are expected to create employment and income generation opportunities in the local communities.

4 Safeguards & other crosscutting issues

In implementing the above management actions, cross cutting issues as well as other environmental and social safeguards processes will be mainstreamed in all aspects of forest management. Specific activities as well as the annual workplan and operational plans should include a process of social and environmental screening. These should be reviewed and updated in accordance with the type of activity being planned and general screening

reviewed annually. A Grievance Redress Mechanism will be operational at the District and Provincial level to allow a mechanism for grievances to be raised, documented and addressed. Documentation and tracking is core to this issue. Women shall be integrated into all aspects of management of Kaluwe Local Forest and empowered through equal participation in decision making, governance and benefit sharing.

Contribution to Emissions Reduction in Eastern Province

Improved management of Kaluwe Local Forest through the proposed interventions will directly address the need for emissions reductions through promotion of Sustainable Forest Management. This centres around expansion of community forestry and strengthening collaboration in the management of this and other protected forest areas in the Province. Carbon sequestration will also be achieved through plantation forestry and locked in timber products.

Delivering sustained results

The expected outcomes of participatory management through local stakeholder involvement in the management of this and other protected forest areas will be to reduce emissions in the Eastern Province. Strengthening sustainable land and forest management practices, creating increased incomes and resilience of local communities, conforming to national strategies will reduce the effects of climate change. Implementing the proposed management actions should result in improved local livelihoods and local economic development, improved availability of major forest products whilst sustaining the key ecological functions of the Local Forest and its surrounding area.

Definition of Terms

Above ground Biomass- refers to *vegetation above the soil, including stem, stumps, branches, bark, and foliage*

Basal Area- is the measure of cross-sectional areas of a tree trunk at breast height, typically measured in square meters per hectare

Below ground Biomass This is one of the carbon pools including biomass of the roots and organic matter

Biomass- refers to the total mass of living organisms in a particular ecosystem or biological community

Bole height - The distance from the base of a tree to the base of the living branch that part of the tree crown

Bole volume- refer to the amount of wood contained in the trunk or stem of the tree, typically from the ground level up to a point where the trunk reached a certain diameter or height. It is used in forestry inventory

Community Forest - refers to forest management that has ecological sustainability and local community benefit as central goal

Fauna- refers to the animals in particular region or ecosystem it includes all animal species that inhabit a given area from tiny insects to and microorganisms to large mammal and birds

Flora- refers to the plants, trees, flowers and other living organisms that are classified as part of the plant kingdom

Regeneration- refers to the process of renewing a forest or woodland to replace those that have been harvested or lost due to natural causes

Topography- refer to the physical features of a particular area of land, including its elevation, shape and relief

ACRONYMS

CFMG	Community Forest Management Groups
CSA	Climate smart agriculture
DBH	Diameter at Breast Height
EA	Enumeration Area
FD	Forestry Department
FMA	Forest Management Area
FMP	Forest Management Plan
GHG	Green house gases
HFO	Honorary Forest Officers
KLFMP	Kaluwe Local Forest Management Plan
MGEE	Ministry of Green Economy and Environment
MOE	Ministry of Energy
NGO	Non-Governmental Organization
PAPI	Paper Assisted Personal Interviews
REDD	Reducing emissions from deforestation and forest degradation
USAID	United States Agency for International Development
ZAMSTATS	Zambia Statistics Agency
ZIFLP	Zambia Integrated Forest Landscape Project

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Summary Cost of Forest Management Plan Implementation by: Programme Cost (ZMW)

Forestry Programme	Cost in ZMW for 10 years
1 Forest Conservation through Community Participation and Livelihood Development	659,317
2 Forest Protection, Restoration, Management and Conservation of Biodiversity	2,436,464
3 Forest plantation establishment and management	3,897,483
Grand Total (ZMW)	6,993,264

Cost breakdown is provided in Annex VII

KALUWE LOCAL FOREST MANAGEMENT PLAN

1. INTRODUCTION

The Kaluwe Local Forest Management Plan (KLFMP) is prepared in response to the National Forestry Policy of 2014 which has set forth clear guidelines to: “ensure adequate protection and sustainable utilization of forests, by promoting the development and use of forest and non-forest products by involving all interested key stakeholders particularly local communities around the forest reserve in the management of the forests and non-forest products in line with provisions of the Forests Act No. 4 of 2015.

1.1 Purpose of the forest management plan

The purpose of the forest management plan is to guide the rural communities, traditional and local leadership, and Key stakeholders in collaboration with the Forestry Department during the exploitation and management of the forest resources of the Kaluwe local Forest in a sustainable approach and manner.

The plan will serve as a legal document to guide utilization and management of resources by local communities and key stakeholders around the forest and the Forestry Department through the Green Economy and Environment (MGEE).

This Forest Management Plan aims to contribute towards the Goal of the National Strategy for REDD which is to reduce deforestation and forest degradation for sustainable natural resource management, improvement of livelihoods and achievement of a green economy.

1.2 Duration of forest management plan

The duration of the FMP is ten (10) years. In theory, this means that ten years from the date that the plan is approved and adopted. In practice, however, because of the need to be flexible and adjust from lessons learned along the way, the plan may be modified during the first few years of implementation. In other words, the plan should be dynamic, and lessons learned are incorporated as they become obvious.

1.3 Developmental Objectives

The Development Objectives for this Forest Management Plan are aligned with the objectives of the National Forestry Policy, 2014, which include:

Objective 1: To manage the country's forest resources in order to maximize productivity and the development potential of the forest resources:

Objective 2: To empower local communities and traditional leaders in order to ensure adequate protection and management of forests:

Objective 3: To improve the role of forests in addressing climate change in order to contribute to reducing its impact through mitigation and adaptation measures:

1.4 General Objectives

The General Objectives for the management for the Forest Reserve include:

- (a) To secure forest resources of local and national importance
- (b) To protect and restore ecosystems, particularly the protection of land and water supplies of local and strategic importance;
- (c) To ensure the sustainable utilisation of forest resources and other natural resources within the protected area;
- (d) To ensure full participation of all stakeholders at all levels of society for sustainable forest resource and ecosystem management through appropriate incentives and benefit sharing mechanisms
- (e) To meet the social, cultural and economic needs of the local community and wider society involved in management of the Forest in a gender equitable manner.

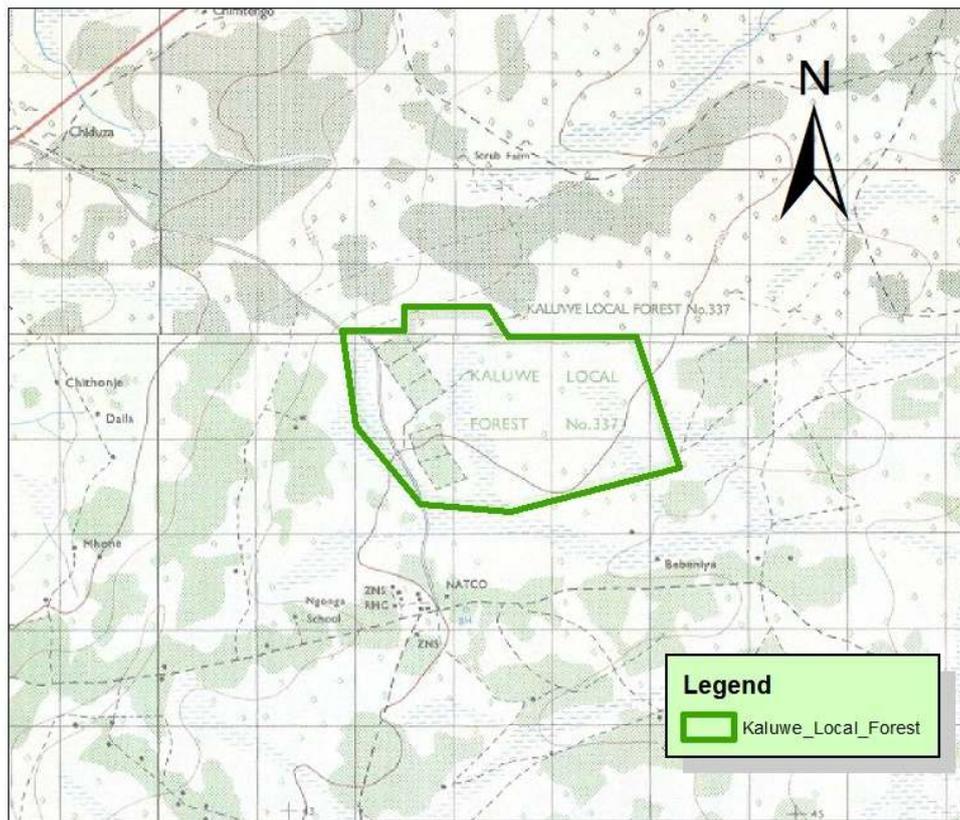
2. GENERAL DESCRIPTION

2.1. Location Details

Kaluwe Local Forest (Reserve No. P. 337) forms part of the forest estates in Eastern Province, covers a land area of approximately 596 hectares in extent with total perimeter of 7Km, and is situated approximately 35Km south of the administrative centre of Lundazi District.

KALUWE LOCAL FOREST NO. 337, LUNDAZI DISTRICT

1:50,000



0 0.5 1 2 3 4 Kilometers

Date: 22/04/23

Datum: Arc 1950 Zone 36 S

Figure 1: Map of Kaluwe Local Forest

A detailed description of the gazetted forest boundary is provided in Annex 1.

Ownership and control

Kaluwe Local Forest No. P. 337, was originally declared a forest reserve and gazetted under Statutory Instrument No. 177 of 1973. It is a protected forest area with the designation of “Local Forest” covered by section 19 of the Forests Act, 2015. The area is under the jurisdiction of the Forestry Department, Ministry of Green Economy and Environment through powers bestowed under the Forests Act No. 4 of 2015 of the Laws of Zambia.

Physical Environment

Topography, Geology & Soils

The Local Forest lies on a relatively flat land at an altitude of about 1210m above sea level. Part of the Northern and Eastern boundaries of the forest is bordered by dambo areas, while there are no perennial streams in the forest area. Geologically the area is located on Precambrian metamorphic rocks characterized by gneiss with igneous intrusion of syenite. Soils are well drained, deep to very deep, yellowish red to strong brown, friable, fine loamy and clay soils having a clear clay increase with depth. Sandy soils are found in some places of the forest and impacts species selection in plantation management.

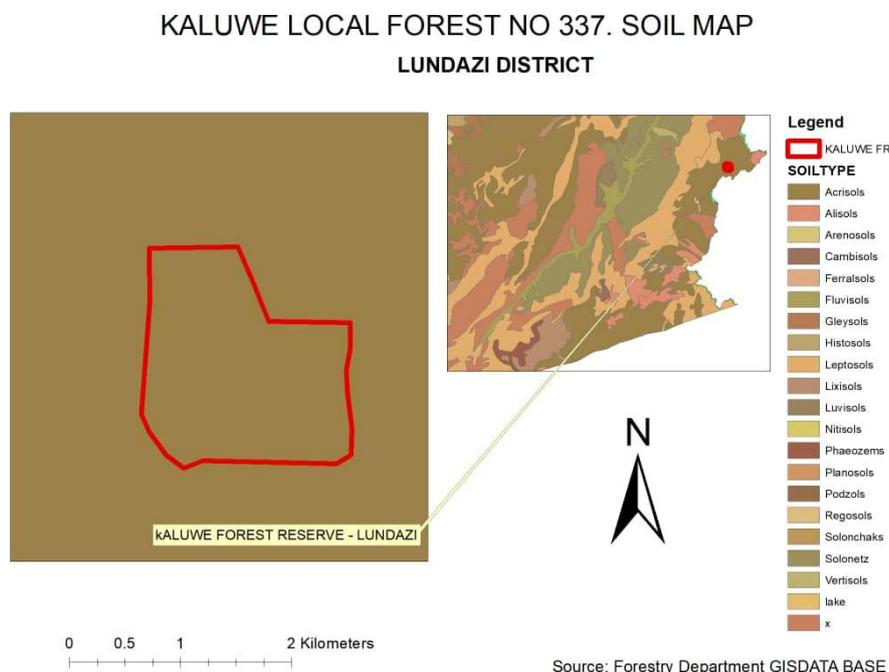


Figure 2: Soil map

Rainfall & Temperature

The rainfall usually lasts for 5 to 6 months starting from November to March and the peak months are December and February. The rainfall amount ranges from 900 to 1000mm.

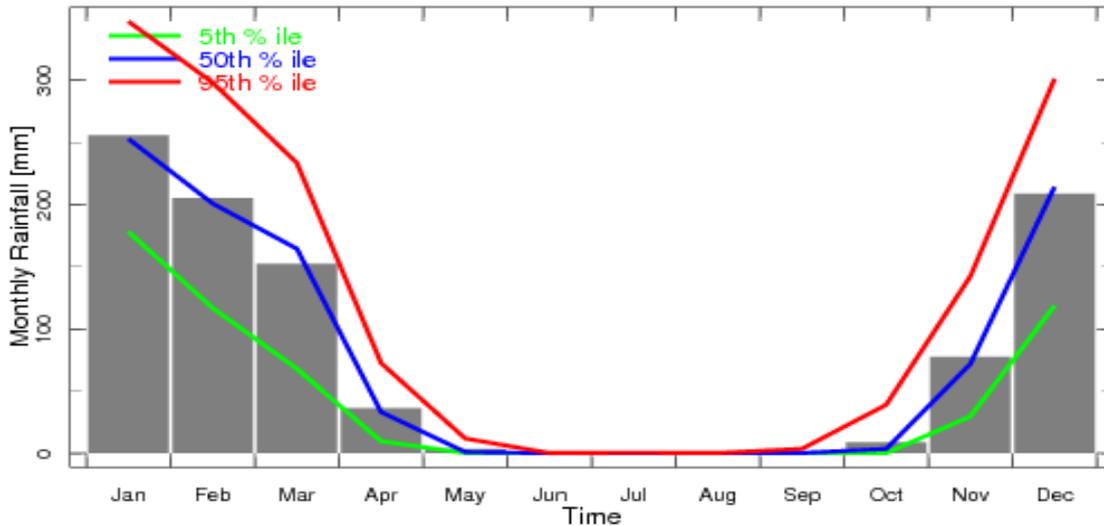


Figure 3: Monthly rainfall Source: The Zambia Meteorological Department

Normally, temperatures are very high, especially during the dry months which occurs between August and December. The maximum average monthly temperature is between 27°C and 34°C. The highest maximum temperature occurs in October. The lowest average temperature is between 21°C and 23°C during the cool dry season occurring especially between May and June.

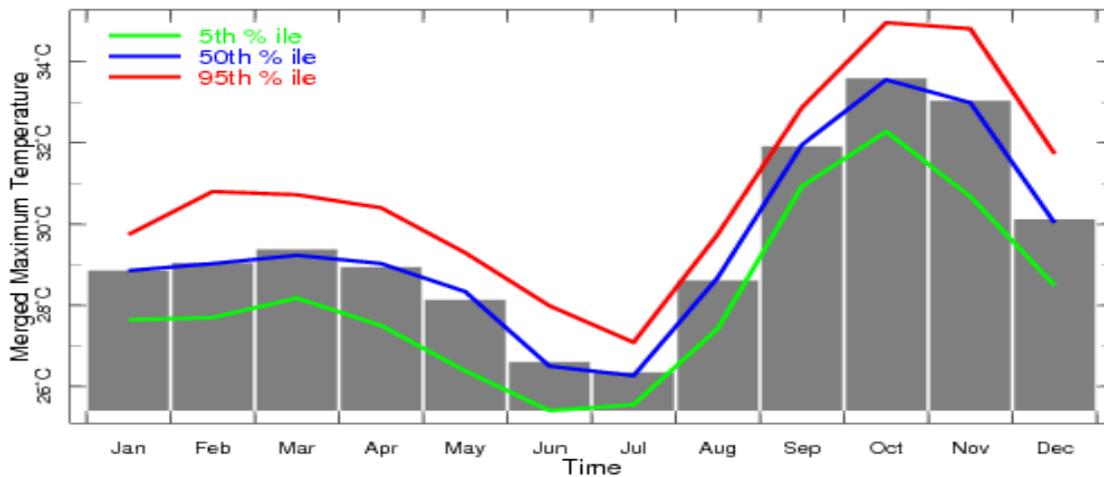


Figure 4: Monthly temperature Source: The Zambia Meteorological Department

Biophysical Environment

Vegetation Type

Kaluwe Local Forest is a homogeneous forest. The vegetation type is miombo woodland on the plateau with a diverse tree flora including *Julbernardia paniculata*, *Isoberlinia angolensis*, *Brachystegia boehimii*, *Brachystegia floribunda*, *Parinari curatellifolia* and many other species with *Brachystegia speciformis* being the dominant species. A portion of Kaluwe Local Forest was planted with *Eucalyptus grandis* with the intention of creating a pole production plantation. Planting commenced through trials in 1970 with an intention of developing an area of 125 ha, though this was not achieved. Past commercial exploitation of the plantation area for timber and poles has significantly contributed to its present degraded condition.



Figure 5: Small Pine plantation & Eucalyptus Plantation.

Fauna

During both the reconnaissance survey and the forest inventory, there was no physical observation of major wildlife. However, an indication of their presence was recorded through observations such as foot prints and droppings as well as through oral interviews with some community members. Animals such as Vervet Monkeys, Warthog, Bush pigs, Antelopes, Guinea fowls and common Duikers are present. Smaller animal species such as squirrels, birds, Snakes and Lizards were encountered during the surveys.

Infrastructure and communication

In order to achieve the forest management objectives for Kaluwe Local Forest a certain level of infrastructure is required. Roads, vehicles and buildings are essential to sound management of the forest. But they cannot be maintained without considerable financial expenditure since the forest itself yields very little in terms of direct revenue.

Road and Track network: A 7km track road from Lundazi-Chipata tarmac providing access to Kaluwe Local Forest exists. The cleared boundary around the forest reserve and some firebreaks in the exotic plantations which equally act as access ways exist in the forest reserve.

Buildings: A new forest office and two medium cost houses have been constructed within the Local Forest meant for staff to support day to day management of the plantation and forest area. These were constructed in 2022 with financial support from ZIFLP. Other structures are three grass thatched houses within the forestry office proximity.

3. PAST MANAGEMENT

The Kaluwe Local Forest was declared and gazetted under S.I No.177of 1973 as contained in the provisions of the Forests Act in force at the time. The reservation proposal of establishing Kaluwe Local Forest/plantation was based on consultations, including a series of meetings held with His Royal Highness Chief Zumwanda, the Councillor, farmers and all communities living around Kaluwe in November, 1970 proposing that, Kaluwe be gazetted as a forest reserve. Further meetings held at district level during district development Committee meetings and Lundazi Rural Council meetings in 1971 with the view to discuss gazetting of Kaluwe Forest Reserve. Initially the proposal was for plantation establishment with a view to:

- Employment Creation
- Supply of plantation poles to Lundazi and Chama districts
- Creation of a market for various farm products to people who will be staying in Kaluwe.

Maps were later developed and in 1973 Kaluwe was declared as a forest reserve/plantation.

Two previous forest management plans were found in the Kaluwe file, one was prepared in 1970 and the second was submitted to the Chief Conservator of Forests in 1981

The first trial plantation was established in 1970 with 20 hectares of *E. grandis* planted in 1971 and 1972 for coppice at 3.16m x 3.16m spacing, though heavy mortality was experienced. The objects of management were to supply poles and manage the plantation area in such a way to recover the direct capital and recurrent costs for the period 1973 – 1993. Secondly to conduct investigations into the nature, locality and level of demand for plantation produce and into economic methods of distributing and selling produce.

A total of 6 compartments were established totally 47 ha over the period 1970 to 1982.

In April, 1973 the following development were made;

- the whole reserve was fenced to ensure the forest was secured
- 3 staff houses and a well was dug.
- All weather road was constructed
- Other managerial activities of boundary clearing, ploughing, squaring, weeding and planting continued.

The Public Service Reform Programme (PSRP) combined with economic downturn, increase in population, high poverty levels had an adverse impact on the reserve.

In 2021 a request was received from RDA seeking for permission to construct a public road that was going to pass Kaluwe reserve No. P337. The Department forest conducted an assessment as a department which reviewed that a volume of 392m³ trees would be affected, after this assessment was done RDA's request was granted

Kaluwe Local Forest received support from USAID through the Forest Resource Support Programme (FRSP). The project provided resources to delineate forest boundaries, to erect beacons on the boundaries, to conduct forest patrols inside and outside the reserve, to enhance extension services and the production of information materials for communities living around protected forest areas help in promoting forest management and hence combating climate change. The project also helped in digitizing the maps of the reserve.

The boundary fence is no longer in place.

4. GROWING STOCK

Assessing the growing stock of the forest is important in terms of ensuring Sustainable Forest Management. In basic terms, assessment is needed to ensure that the removal of trees and forest products does not exceed the rate of replacement in terms of growth and abundance. This is the basic principle of sustainable forestry otherwise the forest will be depleted and degraded.

A forest inventory was conducted by the Forestry Department in 2019 with financial support from the Zambia Integrated Forest Landscape Project. The following section provides the results and analysis from the data collected. A systematic sampling system was used to determine the location of the sample plots, measurement of trees and soils followed the Department's Guidelines and the software *forestcalc* (version 6.4.1) used to process the data to provide the summary information contained in this chapter. A map of the distribution of the sample plots for Kaluwe is provided in Annex I. The information collected allows assessment of the condition of the forest, the value of the forest both economic as well as biodiversity value in terms of species diversity and abundance. Past management, exploitation as well as current management and pressures on the forest can be seen in the species abundance and size distribution in the areas assessed. These as well as the current Policies and development priorities can guide the short, medium and long term management of Kaluwe Local Forest.

Stratum Values	0-4	5-9	10-14	15-19	20-29	30-39	40+	Total
Vol (m ³)	0.00	0.34	0.71	1.31	1.87	1.59	0.11	5.93
Bole Vol (m ³)	0.00	0.16	0.32	0.65	0.88	0.67	0.05	2.72
Density (SPH)	0.00	16.67	8.42	6.57	4.55	1.77	0.08	38.06
Basal area (m ²)	0.00	0.07	0.10	0.15	0.20	0.15	0.01	0.69
Biomass (tons)	0.00	0.55	1.10	2.00	2.91	2.43	0.15	9.14
Carbon (tons)	0.00	0.27	0.55	1.00	1.45	1.22	0.08	4.57
Volume by Species Use								
Stratum Values	0-4	5-9	10-14	15-19	20-29	30-39	40+	Total
Sawlogs	0.00	0.00	0.00	0.00	0.00	1.02	0.00	1.02
Poles	0.00	0.16	0.38	1.08	1.38	0.00	0.00	3.01
Medicine	0.00	0.05	0.10	0.11	0.17	0.00	0.00	0.42
Fruits	0.00	0.10	0.16	0.12	0.19	0.50	0.11	1.17
Firewood	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Others	0.00	0.02	0.03	0.00	0.03	0.00	0.00	0.08
Seedlings total								706.5

Table 1: Summary information total for all species

Tree species abundance

The inventory data indicates that there are over 49 different types of tree species that include tree seedlings in the forest. However, the ten most frequent species are shown below.

Top Ten Abundant Species In The Forest Reserve

Species	Local Name	Species Code
Azelia quanzensis	Mupapa	13
Albizia adianthifolia	Mutanga	15
Brachystegia boehmii	Muombo	46
Brachystegia floribunda	Musamba	48
Brachystegia longifolia	Muombo	49
Brachystegia utilis	Tsamba	55
Dalbergia melanoxylon	Mukelete	101
Dalbergia nitidula	Mchindula	102
Diplorhynchus condylocarpon	Mchindula	114
Erythrophleum africanum	Kayimi	127

Tree and Sapling Distribution by Size Classes

Size Class Distribution is a way to describe the structure of a forest by categorizing the tree population by size of the tree through measurement of each tree, its diameter-at-breast-height (DBH) in centimetres and allocating each measured tree into a size range as means to assess the tree population. Trees below 5cm are counted, not measured. The actual distribution of measured trees into various classes is then compared to a suggested "ideal" benchmark as an indicator of forest health and sustainability. The presence or absence of trees in various size classes informs the manager of past management, current stocking and the future growth potential of the forest.



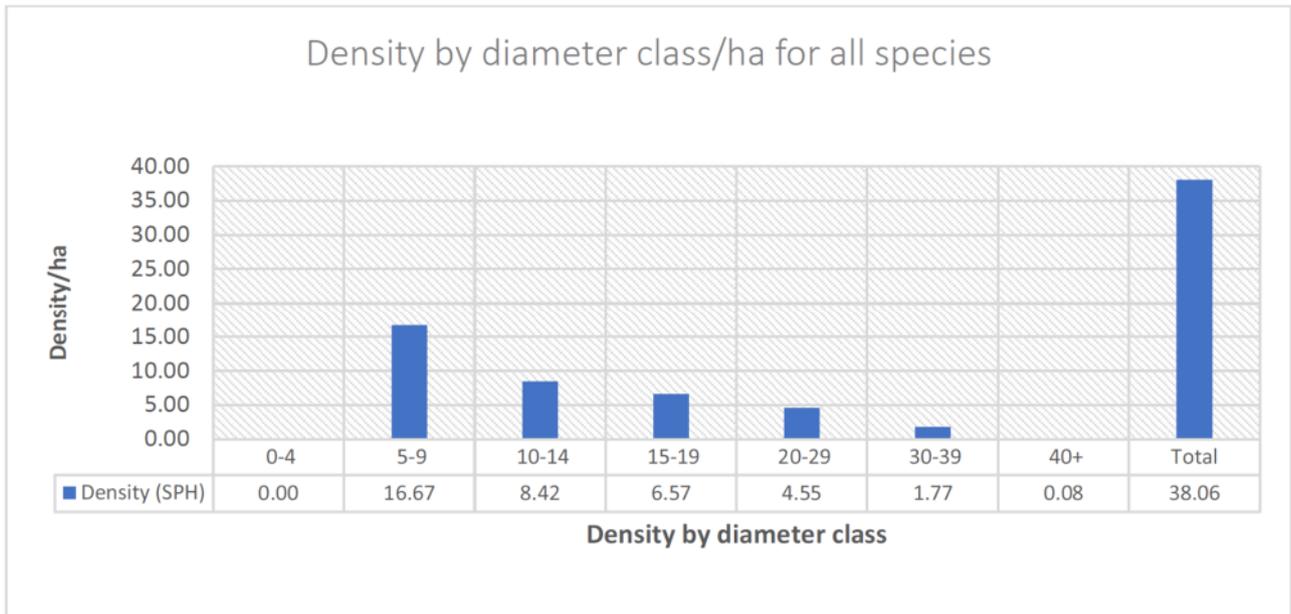


Figure 6: Density by diameter class/ha for all species

In Kaluwe Local Forest, a stocking density for trees ≥ 5 cm DBH was estimated as 38 stems per hectare. Tree seedlings below 5 cm DBH was estimated at 706 per hectare.

The stocking by diameter class basal area per hectare is more in 05 – 29cm classes and less from 30cm and above. The data indicates that there has been much tree harvesting resulting in high coppicing and regeneration. This indicates that the forest in terms of growth potential is in a relatively healthy condition allowing succession from one size class to the next higher one. The data also indicates this is a secondary forest which reflects past management and exploitation. The species with the high density is *Julbernardia paniculata* with 5 stems per hectare, this is followed by *Isoberlinia angolensis*, *Brachystegia specifformis*, *bohemii* and *Julbenadia globiflora*.

Basal area (m²) by diameter class/ha for all species

Forest condition is further assessed by the amount of area occupied by the stems of trees, termed basal area. This is measured by determining the cross-sectional area of a tree at breast height (1.3m), summing up all the measurements and expressing this as a figure of square metres, either in their size class categories or as a total per hectare.

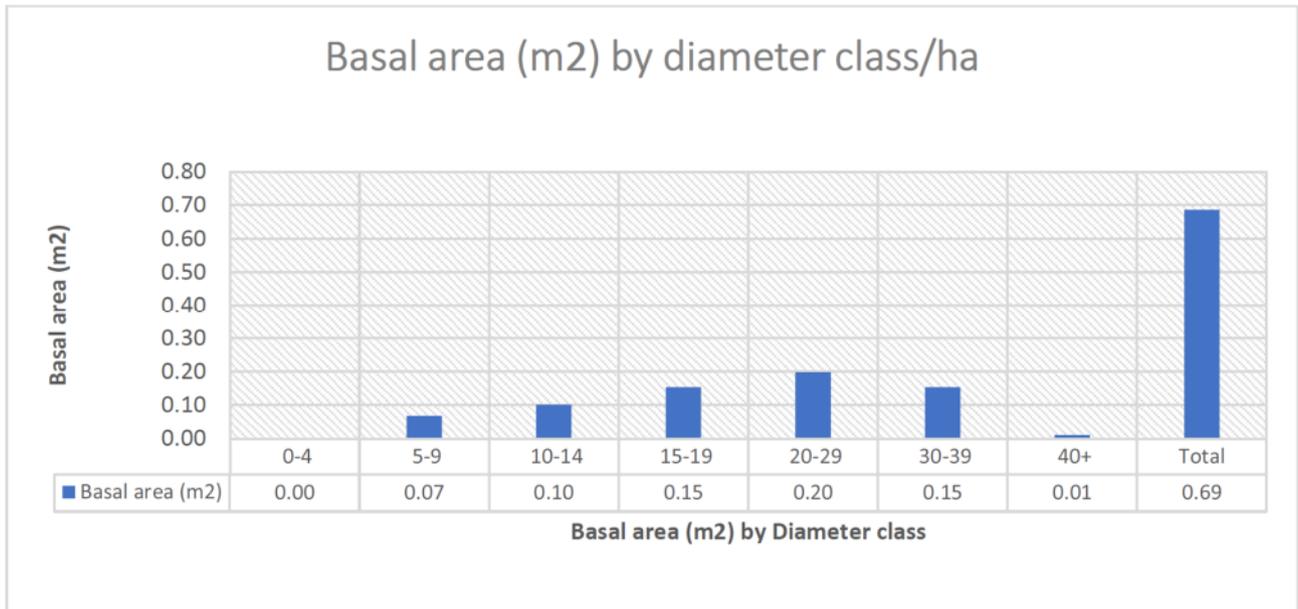
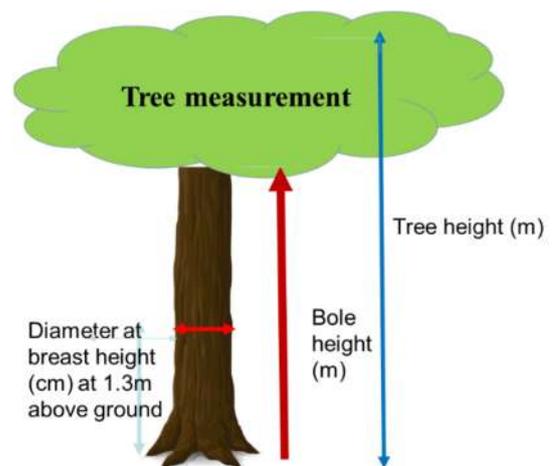


Figure 7: Basal area (m²) by diameter class/ha for all species

A figure of 0.69m² per hectare is a low figure for basal area in a similar type of forest type by over a factor of 10. This confirms the status of Kaluwe Local Forest as a secondary forest following past and most likely current high levels of exploitation of large sized trees.

Total Volume, Biomass and Carbon estimate of all Species

Calculating volume of the standing trees of DBH > 5cm is a further measure of the condition of the forest, site quality and previous management and exploitation. Tree volume to different heights is measured and calculated by individual trees and summed to give a total volume estimate per hectare. An estimate of the volume in a stand or plot is important for forests quantification and management decision making. The amount of merchantable wood in cubic metres (m³) in a tree, as well as across the forest, was estimated while the trees are still standing using the methods of forest mensuration. Tree bole volume is based on the timber height relating to the parts of the tree that could be cut and sawn. Stand volume based on tree height is important for providing an estimate of total wood biomass resource. An assessment of carbon stocks was then estimated using the methodological framework developed by the IPCC



The total standing volume for all species in Kaluwe is estimated at 5.93m³/ha, with a total bole volume estimated at 2.72m³/ha. Total Biomass for trees ≥5cm DBH is estimated 9.14 tonnes/ha and it has carbon estimated at 4.57 tonnes/ha.

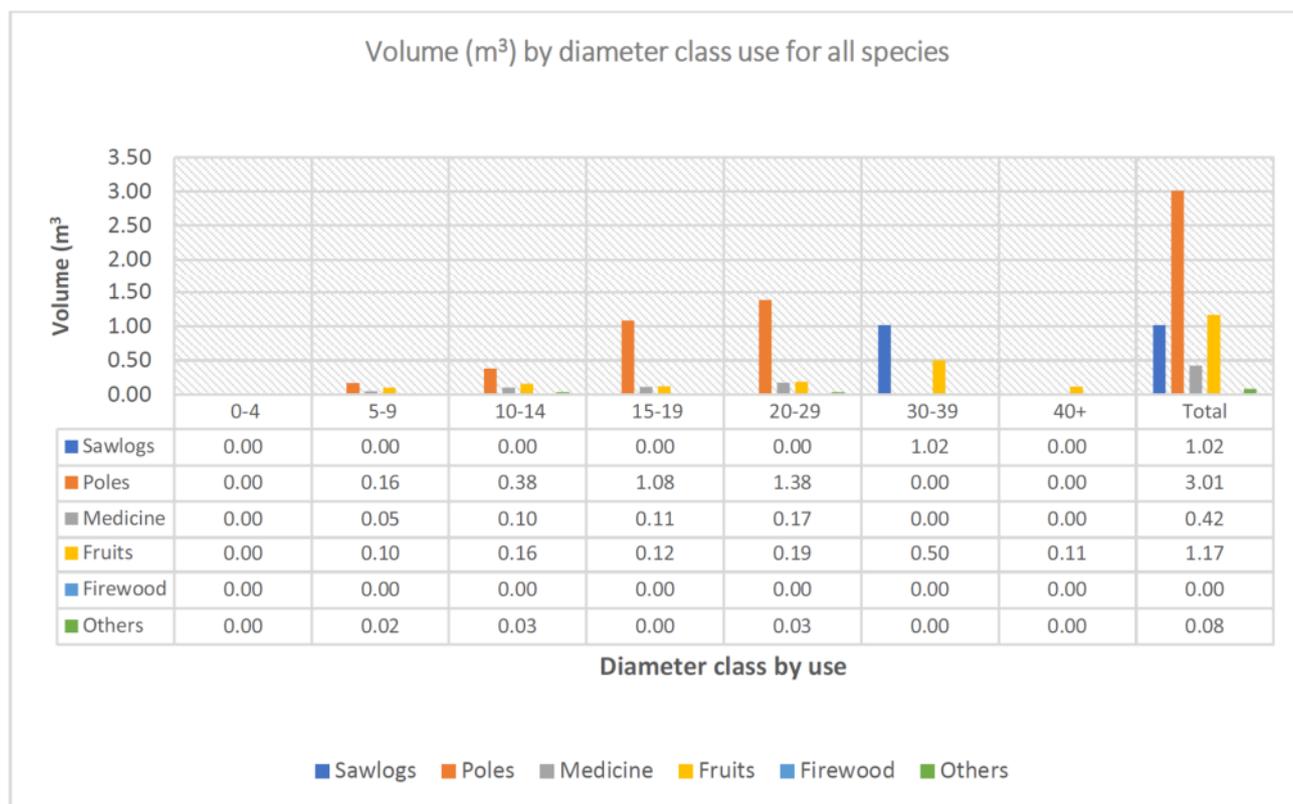


Figure 8: Volume (m³) by diameter class/ha for all species

Volume of all species by merchantable quality

Trees in Kaluwe Local Forest are relatively straight, about 99% of the trees assessed are straight and 1% are bent and 0.3% are crooked. Three quarters of the trees in Kaluwe are of harvestable quality.

No	Description	Volume (m ³ /ha.)	Explanation
1	Straight	5.78m ³	The entire bole length of these trees is straight
2	Slight bend	0.06m ³	The bole length of these trees is slight bend but its sawable
3	Crooked	0.02m ³	These trees have bad form, they are crooked and cannot be sawn

Table 2: Volume of all species by merchantable quality

Presence of Commercial Tree Species

Based on the inventory data, species used for high valued sawlogs such *Pericopsis angolensis*, *Pterocarpus angolensis*, *Dalbergia melanoxylon*, *Faurea saligna* and the medium valued are *Brachystegia speciformis* and *Julbenadia globiflora*, are not abundant in the forest. The harvestable volume is low. Therefore Kaluwe Local Forest in its current condition cannot sustain large scale logging operations or timber concession.

Volume of all species by use

No	Description	Volume (m ³ /ha.)	Explanation
1	Sawlogs	1.02m ³	These are merchantable trees with the average diameter of 40cm dbh and above and are of exceptionally high valued suitable for timber production
2	Poles	3.01m ³	These are tree species with relative straight bole length with the average diameter at breast height of 5cm to 29cm
3	Fruits	1.17m ³	The tree species include all fruit bearing either edible or not edible
4	Medicinal	0.42m ³	All medicinal plants
5	Firewood		These include all dead and or diseased trees which can be used for firewood
6	Others	0.08m ³	These include all tree species which are not classified in any of the above categories

Table 3: Trees in Kaluwe local forest in terms of forest product categories.

Biomass and carbon above ground

Based on the inventory data, the biomass and carbon figures by size class and total are summarised in figure 12. Note, this figure is standing carbon and not the amount of carbon that may be traded under carbon trading schemes which are based on measured reduction of emissions.

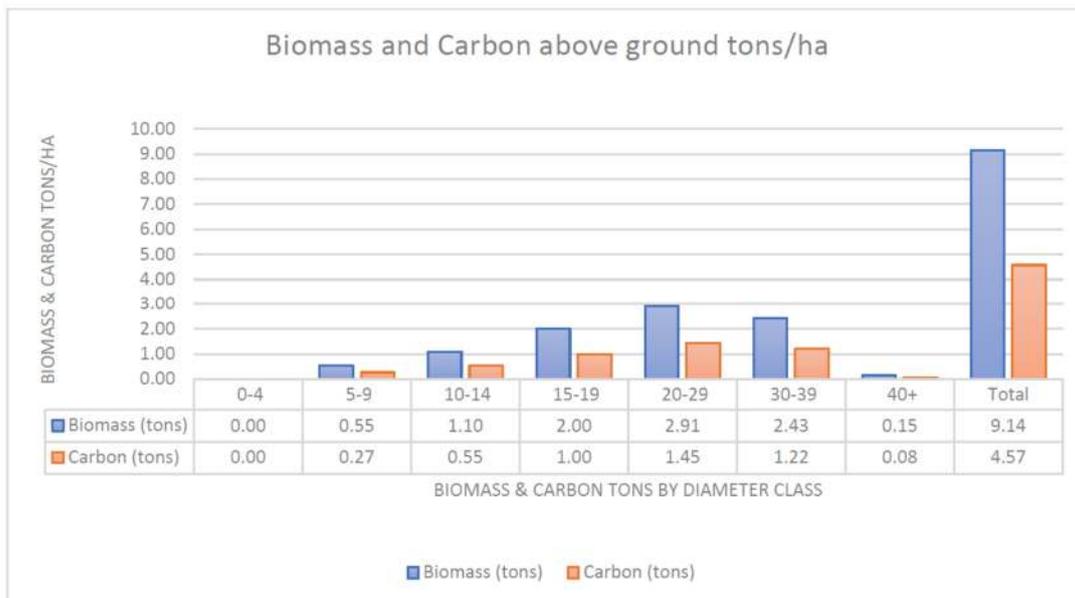


Figure 9: Biomass and Carbon above ground by diameter class/ha for all species

Plantation Area

In view of the systematic sampling system followed, the plantation areas were not assessed separately. Currently a relatively small area totaling about 24ha consists of newly established young plantations of *Eucalyptus grandis*. Under previous management regimes resources to establish and maintain the plantation area were limited. The involvement of the local community has been in supporting plantation establishment as paid labourers.

There is great need to bring the plantation areas under sound management and prepare site specific management plans for the plantation compartment and sub compartments. Firstly there is need to understand the factors that have led to poor performance of plantation species and put corrective actions in place. Current levels of planting are not considered viable for commercial timber or sustained pole production in the short and medium term. A separate study and preparation of a plantation management plan is highly recommended.

5. STAKEHOLDER DEMOGRAPHICS

Introduction & Methodology

A Forest livelihood survey was conducted by the Zambia Statistics Agency (ZAMSTATS) Eastern Regional office, between October and November 2019. The main objective of the Forestry livelihood Survey is to measure the well-being of the Kaluwe Local Forest population and to measure the utilisation and management of trees resources. Also, to determine the benefits the surrounding communities derive from the forest reserve.

The demographic characteristics of any area are important in understanding the living conditions of the people through the impact they have on the prevailing situations. Furthermore, data on the demographic characteristics provide background information and the necessary framework for the understanding of other aspects of the population, including economic activities, poverty and food security.

Considering the household population distribution of Kaluwe Local Forest can be translated as having an average size of the household membership of about 5 per household.

The systematic sampling method was used to select households from each Enumeration Area (EA). The method assumes that households are arranged in a straight line and the following relationship applies.

Let $K = N/n$ Where:

N = total number of households assigned sampling serial numbers

n = total desired sample size to be drawn from an EA

K = Sampling interval in each EA calculated as $K = N/n$

The 2019 forest survey was Paper Assisted Personal Interviews (PAPI) collected. All the field questionnaires were checked for completeness by the field supervisors. After data collection, all questionnaires were submitted for data entry using statistical software SPSS, Version 20.

After data entry was completed, the data were subjected to extensive checks on their validity and consistency in order to facilitate analysis using statistical package SPSS version 20, which was done by Mr Mully Phiri and Dr Richard Kaela.

Household and Population dynamics

Kaluwe Local Forest as at 2019 livelihood survey was surrounded by approximately 30 villages as indicated in Annex: III with a total population of 1,224. The main ethnic groups in the area are the Tumbukas and the Chewas. The forest adjacent population are mostly small-scale farmers who utilize the forest for some of their livelihood requirements. The main crops grown are Maize, Sunflower and groundnuts. There are no squatters within the forest.

The land tenure of the population surrounding the Kaluwe forest reserve is mostly under customary land tenure system and not state land as the households have no title deeds or letter of allotment. The sizes of the land occupied by households ranges between 0.25ha to 6ha.

Level of Education.

Education is one of the fundamental factors that enhance the well-being and quality of life for persons and for entire society. Education, therefore, has profound effect on the population's welfare in terms of health, employment earnings, poverty levels and nutrition.

Education levels of the head of households in the Villages/Localities surrounding the Kaluwe Local forest reserve was found to be mainly primary level that contributed 58 percent, while tertiary contributed the lowest indicating about 1.2 percent. The rest being No formal education and secondary education indicating 4.4 percent and 36.3 percent respectively. As shown in the figure below:

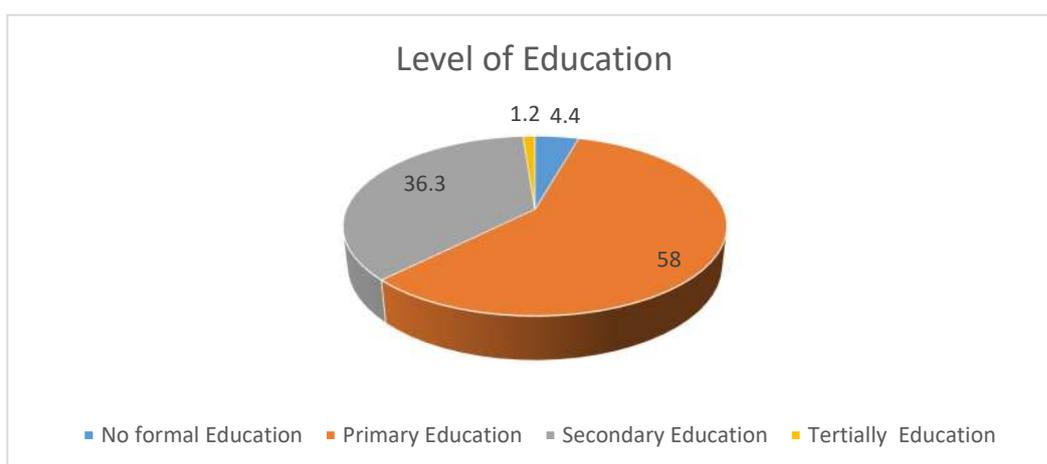


Figure 10: Level of Education of household heads of localities surrounding the reserve

Economic activity

The population around Kaluwe depends on farming as their main occupation. The results showed that 100.00 percent of the household population surrounding Kaluwe forest reserve had farming as their main occupation, while the rest of economic activities contributed (0 percent).

Utilization and zoning of forestry resources by stakeholders

At the consultative meeting held on 6th April 2022, the stake holders identified the uses of the forest reserve and zoned the Kaluwe Local Forest as below:



Figure 11: community zoning of Kaluwe Local Forest

The zones were identified for the following:

Zone 1.

- Forestry plantation
- Forest nursery

Zone 2.

- Mushroom harvesting
- Fruits
- Controlled harvesting of timber, poles, firewood
- Beekeeping

Zone 3.

- Fish farming
- Water points for livestock

Types of Energy Used For Cooking

Almost all households in the localities surrounding Kaluwe Local Forest reserve use firewood as their energy for cooking. The livelihood survey revealed a percentage of about 99 percent using firewood as energy for cooking, while 1 percent using electricity as cooking energy.

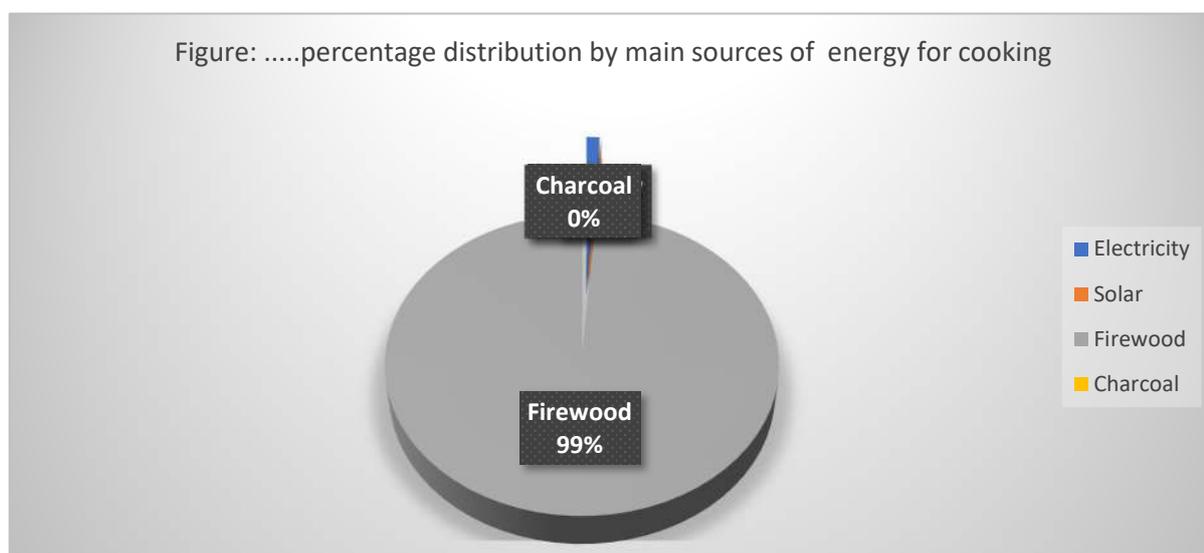


Figure 12: Main Types of Energy Used For Cooking

Main tree resources used by households for Firewood

The main tree resources used for firewood by households in the localities surrounding the Kaluwe Local Forest are as shown in the table below.

Main type of trees used for firewood
<i>Brachystegia boehmii</i>
<i>Brachystegia specitormis</i>
<i>Julbernardia paniculata</i>

Table 4: Main Tree Resources Used by households surrounding the Kaluwe Local Forest

Note, these species are therefore under serious threat for wood energy and mitigation measures are required in the management plan.

Non wood Forest products

The main non wood forest products used by households surrounding the Kaluwe Local forest reserve are as shown in the table below.

Main type of non-wood forest products used by households
Fruits
Honey
Mushroom

Table 5: Main non wood resources Used by households surrounding the Kaluwe Local Forest

Land Ownership and Use

The livelihood survey for the communities surrounding the Kaluwe Local Forest revealed that most of the land owned by the households was for Agricultural activities which indicated 48 percent, followed by other uses at 15 percent, fallow land 18 percent, Land maintained as natural forest 14 percent and land used for growing trees at 5 percent.

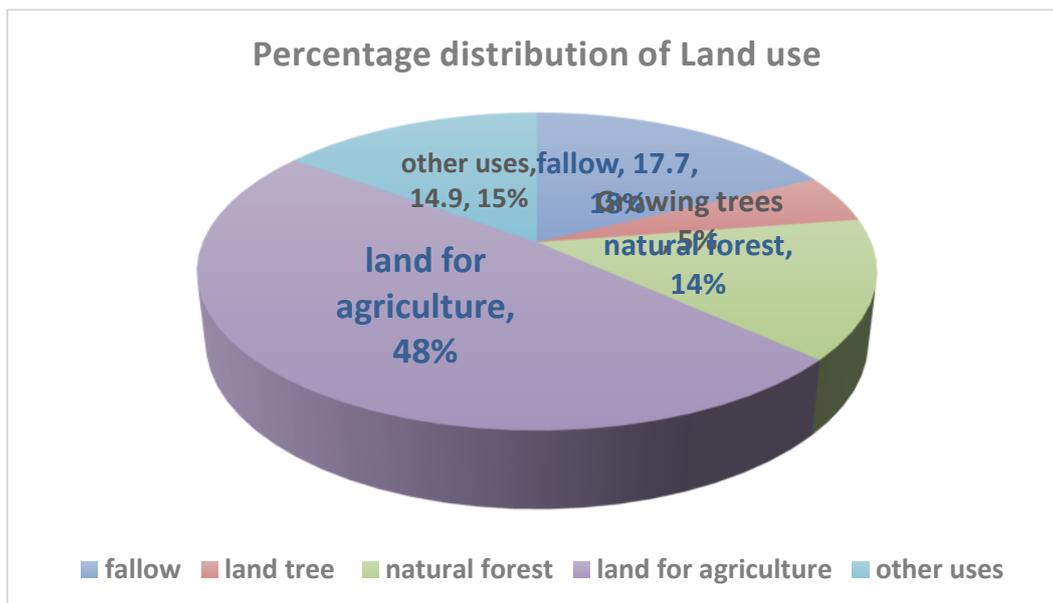


Figure 13: Land Ownership and Use

Willingness of community to participate in forest management

The livelihood survey revealed that 100 percent of all the households surrounding the Kaluwe Local Forest were willing if called upon to voluntarily support management of the forest reserve with Forestry Department and other stake holders in the community.

6 PROPOSED MANAGEMENT ACTIONS

The following management actions proposed for Kaluwe Local Forest reflect the statutory purpose of the Local Forest as set out in section 19 of the Forests Act of 2015. These include:

<p>19. Subject to the other provisions of this Act and any other written law, all land comprised in a Local Forest shall be used for the conservation and development of forests for—</p> <p>(a) the security of forest resources;</p> <p>(b) the protection of ecosystems, particularly the protection of land and water supplies of local strategic importance;</p> <p>(c) the utilisation of forest resources at the local level; and</p> <p>(d) meeting the social, cultural and economic needs of the local community.</p>	<p>Purpose of Local Forest</p>
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Zoning

This management plan recognizes the 3 zones identified during the stakeholder consultation of May 2022, which identified use of the forest, the main users of the forest, issues affecting Kaluwe Local Forest, local solutions and permitted activities. A further zone (4) covers the immediate area surrounding the Local Forest to act as a buffer which will be the focus of development and emissions reductions related activities.

- Zone 1:** Plantation production zone
- Zone 2:** Indigenous forest sustainable use area
- Zone 3:** Dambo wetland management area
- Zone 4:** Development buffer zone

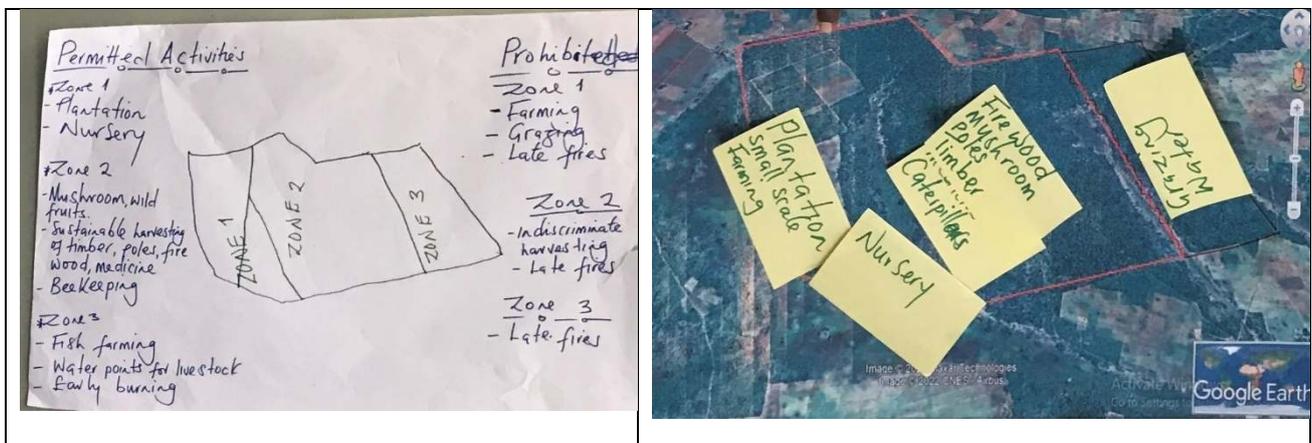


Figure 14: Zoning of Kaluwe Local Forest based on community consultation

The following management approaches are proposed for the identified zones:

Zone 1: Production forestry: In order to fulfil its regulatory mandate of establishing plantations and securing forest resources for the local economy, this zone will be managed by the Forestry Department. The plantation zone will be managed for the supply of wood products, timber, poles and wood energy to the nearby urban area of Lundazi and support local enterprise development. The plantation production zone includes the recently upgraded tree nursery, water reticulation system, office and forest staff housing. The need for market analysis mentioned in the 1982 forest management plan is still relevant and therefore should be updated to inform the product supply planning of forest products and appropriate commercial species.

Zones 2 & 3: Community forest areas to meet the social, cultural and economic needs of the local community. These zones will be managed in partnership with the local community following the community forestry approach as set out in the Forests (Community Forest Management) Regulations, 2018, and the National Guidelines for Community Forestry, 2018. This will be covered by a Community Forest Management Agreement, management plan and local resource use rules which set out both rights and obligations for control, protection and management of the identified forest area. Annual workplans will be developed by the community with technical guidance from the Forestry Department to ensure the sustainable management of these zones.

Zone 4: Development buffer area: This is the area immediately surrounding the reserved forest area where farming and settlements are located. These will be the focus for forest extension activities, creation of community and household woodlots, use of energy efficient stoves, promotion of agroforestry and other climate smart agricultural activities.

Core forest management actions

The identified management actions are described as follows:

Action 1: Forest Conservation through Community Participation & Livelihood Development

Community empowerment is central to participatory forest management for the effective coordination and sustainable management of forest resources. This Plan recognizes that communities surrounding Kaluwe Local Forest are key stakeholders in the conservation of this forest as well as beneficiaries from its sustainable management. This action aims to

meeting the social, cultural and economic needs and thereby improving the livelihoods of the communities around Kaluwe Local Forest. Within this management action, the following interventions will be undertaken in Zones 2 and 3 of the Local Forest as well as extension services and activities in Zone 4, the areas surrounding Kaluwe Local Forest;

- Promotion of community forestry and the establishment of a community forest management group;
- Forest enterprise development (based on stakeholder consultations to be further developed through the CFM process). These may include:
 - Beekeeping using improved hives;
 - Mushroom collection and processing;
 - Community management of wild fish stocks through local harvesting rules;

This management action will be operationalized and results measured as follows:

Specific Objectives	Strategy	Actions	Responsible	Indicator
1. Enter into partnership with clear roles and responsibilities with surrounding communities	Promote community forestry approach	Conduct CFM Steps 1-7	FD	Signed CFM agreement. Annual work plan reports from the CFMG
2. To contribute towards meeting social, cultural and economic needs and improving the livelihoods of forest-adjacent communities.	Forest resource condition is developed and improved through management actions emphasizing the use of best practices.	Training forest-adjacent communities in sustainable forest enterprises, such as beekeeping, and other	FD/NGOs	Forest enterprise activities developed and producing income.

		non- wood forest enterprises		
3. To reduce carbon emissions from deforestation and forest degradation by ensuring community benefit from carbon credits.	Establish an incentive benefit sharing mechanism through the carbon trading scheme to be established by Government in Eastern province	Stake holder participatory awareness meetings (Traditional leaders, Government, NGOs and the community)	FD/NGOs	Tonnage of GHG sequestered increased thereby income shared to community is improved year on year.
4 Reduce forest dependency by local communities.	Promoting diversification of activities, particularly on-farm activities such as agroforestry and establishment of wood-lots, to create alternative Sources for forest products.	Involve local communities in woodlot establishment.	FD/ Adjacent communities	Number of people dependent on the forests reserve reduced by half at mid term review

Action 2; Forest Protection, Restoration, Management & Conservation of Biodiversity

Kaluwe Local Forest is an important forest ecosystem containing a number of different plant species and fauna. The forest is surrounded by an increasing population which is highly dependent on it for subsistence and increasingly economic needs like collection of mushroom, wild fruits, caterpillars, honey, firewood and poles. The level of unsustainable use is anticipated to intensify with increasing human populations resulting in higher levels

of resource exploitation and degradation. Protection of this forest habitat is therefore essential to ensure the continued ecosystem services and local livelihood needs. In addition, awareness of the importance of ecosystem services, conservation of biodiversity and climate change mitigation services of Kaluwe Local Forest is low among the adjacent communities. Forest protection is therefore key in the sustainable management of forest resources. Traditionally, patrolling has been relied upon as the main protection activity but, despite these efforts and in view of the staffing levels, it has not been possible to control the level of unregulated use. Experience has shown that adequate levels of forest protection cannot be achieved through confrontation and conflict between the managers and forest-adjacent communities. In practice, both local people and the government have a mutual interest in conserving the forest, and utilizing forest products in a sustainable way. Without considering the needs of local communities, gaining their support, and working with them, rather than against them, forest protection and management goals and objectives will not be reached. Consequently, the strategy will be to work together with communities to develop joint protection systems in return for agreed levels of utilization within the capacity of the forest to meet subsistence needs whilst safeguarding the environmental aspects including conservation of biodiversity.

In order to achieve this the following activities will be undertaken;

- Fire management, boundary and firebreak maintenance.
- Joint forest patrols (FD/HFOs).
- Promotion of agroforestry and woodlots in surrounding villages (Zone 4).
- Promotion of energy saving cook stoves and production biomass for energy (Zone 4).
- Promotion of environmental education to create wider awareness of the forest, its importance, and the need for its conservation (review Biodiversity Conservation actions to be included here explicitly).
- Promotion of environmental standards for forest operations, use of chemicals and other hazardous substances to health and safety of employees and communities.

This management action will be operationalized and results measured as follows:

No	Specific Objectives	Strategy	Actions	Responsible	Indicators
1	To protect the Local Forest from late fires	Encourage early burning within and outside the	-Conduct prescribed and early burning.	FD/ Adjacent communities	Area in hectares of

		forest by involving local communities.	-Training the local communities on fire management techniques -Sensitizing the local community on the importance of early burning.		controlled burning
2	To secure the boundary and define the extent of the boundary and prevent possible encroachment	Involve forest adjacent communities in Forest protection and management.	-Carry out annual Boundary maintenance. -Beacon maintenance -Erection of sign post on roads entering the Forest	FD/ Community	Distance in km of forest perimeter cleared
3	To conserve and enhance the biodiversity of the forest reserve.	Enhance understanding of the forest ecosystem.	-Awareness on biodiversity with regard to indigenous knowledge. -Promote local participation and ownership through meetings.	FD/NGOs	
4	To ensure protection against pests and human damage	Frequent monitoring of forest resources	Inspections for diseases and pests and detection of possible illegalities.	FD/ Community	Hectarage of forest protected from pests and human damage
5	To significantly reduce levels of illegal forest product harvesting.	Involve the local communities in the management of forest resources in order to create a	-Conduct sensitization meetings. -Conduct forest patrols.	FD/ community and other security wings	Number of illegal harvesters/ activities reduced

		sense of ownership. Engage honorary forest Officers/guards			
6	To significantly reduce levels of tree cutting for wood energy.	Promotion of energy efficient Cook stoves and Alternative energy sources.	Training community members in construction of Permanent energy cook stoves. Provide incentives to people using the improved cook stoves.	FD/ DoE/ community	Volume of wood cut for energy reduced by 30% by mid term review
7	To reduce carbon emissions from agric soils and dependency on inorganic fertilizer	Promote CSA through Agroforestry	Partnership with MoA and others in training communities in CSA and agroforestry. Establishment of agroforestry tree nursery species in Kaluwe nursery.	FD/ Agric/ CSO's/ community	Tonnage of GHG emissions in the forest reserve reduced by 15% by mid year review.
8	To improve forest cover in the fringe areas of the forest reserve	To Provide Forest extension services.	Promotion of agroforestry and Woodlot establishment for communities surrounding the forest. Training the communities in assisted natural regeneration	FD	Hectarage of forest in the fringe areas increased year on year.

9	Improve local awareness of biodiversity and its value.	Seek greater participation of local communities in research and other biodiversity activities Such as eco-tourism, with the result that biodiversity values will become of more direct relevance to them.	1. Conduct research that documents and utilizes the indigenous knowledge of Forest-adjacent communities. 2. Promote local participation and benefits from eco-tourism as a means of creating better awareness of biodiversity	FD/Forestry Research	Levels of community participation in forest management activities is sustained over time.
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Action 3: Forest plantation establishment & management

Forest plantations are important for the supply of poles, timber and firewood. Due to its proximity to Lundazi urban, the demand for construction timber and wood energy will increase over time there by increasing the pressures on Kaluwe Local Forest. Investment in the plantation area is therefore critical in order to meet future demand. The programme will involve the rehabilitation of plantations in Zone 1 from which the products will be derived. The following shall be the interventions which will be employed;

- Production forecasting, market analysis and development for a plantation management plan.
- Nursery management as a tree seedling production facility for the Reserve and wider distribution.
- Silvicultural operations to maximise the production potential of the demarcated plantation areas. Includes site preparation, planting, maintenance operations, harvesting and marketing with subsequent replanting/ regeneration.
- Employment and income generation in the local communities.

These will be detailed in an annual plan of operations to be prepared by the Officers responsible for the management of the Reserve. This management action will be operationalized and results measured as follows:

Specific Objective	Strategy	Activity	Responsibility	Indicators
1. To promote nursery management as a tree seedling production facility for the plantation and wider distribution	Expand and manage the existing tree nurseries.	Resource mobilization for nursery establishment	FD/NGOs/ Community	Number of seedlings raised in the forest nursery increased year on year.
2. To increase productivity in demarcated plantation areas	Undertake Silvicultural operations to maximise the production potential of the demarcated plantation areas.	Resource mobilization on site preparation, planting, production, harvesting and marketing with subsequent replanting/ regeneration	FD/Community	Hectarage of plantation area increased year on year.
3. To improve livelihoods of the local community adjacent to the forest	Create employment for income generation to the communities around the forest.	Silvicultural and forest protection operations	FD/Community	Income of local community adjacent to the forest increased

Environmental and social safeguards and other crosscutting issues

The Forestry Department shall ensure that the management of Kaluwe Local Forest is carried out in accordance with the Environmental and Social Standards (ESSs) in relation

to national policies as well as international standards and agreements, both multilateral and bilateral as appropriate. Existing requirements are set out in the National Strategy to Reduce Deforestation and Forest Degradation, 2016 as well as new requirements that may come into force through the Eastern Province Jurisdictional Sustainable Landscapes Programme. In implementing the indicated management actions, these safeguards and other cross cutting issues will be mainstreamed in all aspects of forest management. In view of the participatory approaches applied in the development of the FMP and follow-up actions to promote community forestry it is expected that this FMP will have a positive impact upon local livelihoods and to provide support for the development of more sustainable or alternative livelihoods, where needed.

In brief, safeguards will ensure:

- Gender equity and empowerment including addressing issues of genderbased violence. Women shall be integrated into all aspects of management of Kaluwe Local Forest and empowered through equal participation in decision making, governance and benefit sharing. Gender equity shall be pursued to ensure that both men and women have the full range of opportunities and benefits arising from the management of Kaluwe Local Forest. This aspect should be in line with the National Gender Policy and Climate Change Gender Action Plan. Further safeguards in relation to emissions reductions benefit sharing plan for Eastern Province should be adhered to.
- Environmental and social screening processes. Specific activities as well as the annual workplan and operational plans should include a process of social and environmental screening. These should be reviewed and updated in accordance with the type of activity being planned and general screening reviewed annually.
- A Grievance redress mechanism will be operational at the District and Provincial level to allow a mechanism for grievances to be raised, documented and addressed. Documentation and tracking is core to this issue.

Specific Objectives	Strategy	Activity	Responsible	Indicator
To ensure cross cutting issues are mainstreamed in all aspects	Ensure that all environmental and social impacts, risks and liabilities are	Awareness raising Short courses Exchange visits	FD/NGOs	All crosscutting issues mainstreamed in all forest

of forest management for social equity wellbeing and empowerment through sustainable development	identified and mitigated. Identify training needs. Promote ownership and access to forest products and services.	Refresher courses		management aspects. Zero grievances raised. Grievances addressed and closed within 3 months
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Environmental Education

Environmental education is the key to ensuring the future of Kaluwe Local Forest reserve. With improved understanding and appreciation of its importance especially amongst the surrounding local communities, there will be less pressure on this forest with regard to destructive activities. In the long term, improved environmental education will lead to a better understanding of the importance of conserving Kaluwe Local Forest. The following interventions will be undertaken in order to create wider awareness of the forest, its importance, and the need for its conservation:

No	Specific Objectives	Strategy	Actions	Responsibility	Indicators
1	To create wider awareness of the forest, its importance, and the need for its conservation	1. To target a wider range of groups in the community through different actions including school children, and headmen.	-Conduct meetings and drama performances to assess community understanding on forest use and conservation. -Sensitization on Climate	FD/MOE/NGOs	Number of awareness raising activities undertaken

			change through radio. - Produce pamphlets on the need for forest conservation. (Local language).		
		2. To encourage the involvement of local clubs and schools to use the forest conservation Clubs as an educational resource.	-Facilitate the formation of forest conservation clubs in surrounding schools.	FD/MOE	Number of awareness raising activities undertaken
		3.Strengthen school environmental education programmes	-Conduct environmental talks in schools on forest conservation and climate change. Conduct study visits to other areas and projects to gather practical and potentially useful experiences from elsewhere.	FD/Other Partners	Number of awareness raising activities undertaken

Infrastructure Development

In order to achieve the forest management objectives for Kaluwe Local Forest, maintenance of infrastructure is required. To date, the forest itself yields very little in terms of direct revenue, the maintenance of infrastructure is an ongoing problem for forest management, where funds are always scarce. Maintenance of the track road connecting Kaluwe to the main road is a major challenge. Similarly, maintenance of the existing good quality infrastructure (office, houses, water and reticulation system) is vital.

No	Specific Objectives	Strategy	Actions	Responsibility	Indicators
1	To maintain the infrastructure necessary to achieve the multiple objectives of forest management.	Maintain the existing infrastructure	1. Maintain the road network. 2. Maintaining of offices and staff housing units at the Forest Station.	FD/Maintenance/Infrastructure	All infrastructure maintained to optimum standards

7 STAKEHOLDERS ROLES AND RESPONSIBILITIES

All key stakeholders will be involved in the implementation of the Kaluwe Forest Management Plan in line with the following roles and responsibilities:

Forestry Department

The Forestry Department (FD) have a key role to play in promoting sustainable forest management and shall inform all relevant government departments on the management plan and raise awareness on the programmes and activities. The Department shall facilitate the implementation of the FMP at District and local level with oversight from Provincial level.

Role of the Local Authorities

The Local authority have a key role to play to fully integrate the management plan into local development plans with good cross sectorial linkages. The Local Forest is a natural resource asset within the district boundary supporting local economic development and wider well being of the community.

Role of the Traditional Authorities

Traditional leaders play a vital role in providing mentorship and guidance to communities and helping resolve any conflicts and enforcement of customary laws relating to natural resource management. In terms of the community forestry approach, the chief plays a key role in providing consent to the process of recognition of the community and to the signing of the community forest management agreement between the community and the Director of Forestry. This agreement further reinforces the role of the traditional leaders in the oversight of the community forest management groups, including controlling access and use of the forest, hearing cases that can not be dealt with by the community, ensuring reporting and conduct of the election of office bearers is in conformity with the community constitution.

Role of communities

As key rights holders must take the lead in controlling access to the forest, ensuring benefits from sustainable use are maximized. Through the community forestry process roles, rights and responsibilities for controlling access and use as well as protection and sustainable management are clearly defined. The local community are therefore core to the implementation of the management plan.

Role of Honorary Forest Officers

As community members nominated by their peers and appointed by the Minister, Honorary Forest Officers are key to the protection of the Local Forest and therefore play an important role in the implementation of the Forest Management Plan. The District Forest Officials and officers allocated responsibilities for the management of Kaluwe Local Forest require to coordinate the work of the HFOs in enforcing community resolutions and bylaws and where necessary enforce the statutory laws provided by the Forests Act, 2015.

Role of Private sector & Civil society organization

Both private sector entities and civil society organisations can play a key role in providing services (both forest and non-forest) and promoting new investment, development of market linkages for community based forest enterprises. These can assist promoting economic value to the sustainable management of Kaluwe Local Forest and therefore well being of surrounding communities.

8 MONITORING AND EVALUATING IMPLEMENTATION

Monitoring and evaluation (M&E) of the management plan is essential since it provides a basis for observation, adjustment and improvement of the targeted activities and assessment of the achievements. The Forest Management Plan will be implemented by Forestry Department by involving local communities around the forest reserve. The Department will provide a forum for dialogue, consensus building, priority setting and balancing of the various interests involved. Monitoring and evaluation of this management plan will also be based on annual work plans that will be prepared for Kaluwe Local Forest which will operationalise the management actions described in Chapter 6.

8.1 Monitoring

To ensure that implementation of the management plan is on course, FD will facilitate monitoring of activities and programmes in coordination with partners, stakeholders and community representatives in the KLFMP including the impact of the FMP on the well being of the communities on the forest fringes. Implementation of the FMP will be monitored through a number of identifiable indicators as described in the management actions in Chapter 6. These will be subject to regular review during the plan period. Continuous monitoring during the implementation period will be maintained through preparation and submission of monthly, quarterly and annual progress reports.

8.2 Evaluation

The KLFMP implementation and impact will be evaluated at two points. Mid-term (5years) and at end of term (10 years). Evaluation will involve analysis of both activities and impact generated to sustainable management of the forest and the fringe communities as this will generate evidence to inform the development, focus and implementation of future management plans. Evaluation carried out will assess progress in the implementation of planned activities and achievement of objectives. The evaluation report will also provide essential information to revise the management plan.

8.3 Monitoring Responsibilities

The Provincial Forestry Office will undertake monitoring and evaluation of the implementation of the plan. The District Forestry Office will be responsible for submitting annual plans of operations, as well as monthly, quarterly, and annual progress reports to the Provincial Forestry Office.

8.4 Strategic monitoring indicators

strategic monitoring indicators provide a measure of assessing whether set targets are progressively being achieved as described in the management actions Chapter. The lead implementing agencies represented by the Forestry Department will undertake monitoring and evaluation of the implementation of the plan.

Programme	Indicator of Success	Means of Verification	Assumptions
Forest Protection	Reduced incidences of forest crimes Reported. Performance of the local communities and honorary forest officers.	Records and reports.	The Plan is successfully completed and implemented with Cooperation from community Members
Biodiversity Conservation	Increase in species biodiversity.	Surveys on biodiversity, records, photographs and reports.	The Plan is successfully implemented Good working relationship between stakeholders Availability of resources
Community Conservation and Livelihood development	-Number of people - trained and practicing sustainable forest enterprises. -No. of woodlots established -Number and types of IGAs. -Crop and livestock yields.	Records, reports and photographs. -Community Visits.	The Plan is successfully implemented Availability of funds
Environmental Education	Number of school conservation clubs formed. No. of	Records, monitoring & Evaluation reports and photographs.	The plan is successfully implemented with funds made available.

	awareness meetings and attendance. -No of trainings held/exposure visits		
Infrastructure Development	Number and type of infrastructure Developed/ maintained	Records Monitoring and evaluation reports	The Plan is successfully implemented Availability of funds
Human Resource Development	Number of people employed Number of people trained. Number of community members involved in forest activities	records Monitoring and evaluation report	The Plan is successfully implemented Availability of funds

Table 6: strategic monitoring indicators

ANNEXES

Annex 1: Declaration Order, Topo Map & Inventory Map

SECTIONS 5 AND 6-THE LOCAL FOREST NO. P337:

KALUWE (DECLARATION) ORDER

Order by the Minister

Statutory Instrument 177 of 1973

1. This Order may be cited as the Local Forest No. P337: Kaluwe (Declaration) Order. Title
2. It is hereby declared that the area described in the Schedule hereto is a Local Forest.

SCHEDULE LOCAL FOREST NO. P337: KALUWE

Starting at Beacon FB1, the boundary follows a cut line on a bearing of 80.5 degrees for a distance of 1,260 metres to Beacon FB2; thence on a bearing of 152.5 degrees for a distance of 730 metres to Beacon FB3; thence on a bearing of 82.5 degrees for a distance of 1,400 metres to Beacon FB4; thence on a bearing of 168 degrees for a distance of 1,750 metres to Beacon FB5; thence on a bearing of 259.5 degrees for a distance of 1,770 metres to Beacon FB6; thence on a bearing of 281 degrees for a distance of 930 metres to Beacon FB7; thence on a bearing of 324.5 degrees for a distance of 1,000 metres to Beacon FB8; thence on a bearing of 356 degrees for a distance of 990 metres to Beacon FB9 on the Access Road; thence on a bearing of 356 degrees for a distance of 300 metres to Beacon FB1, the point of starting.

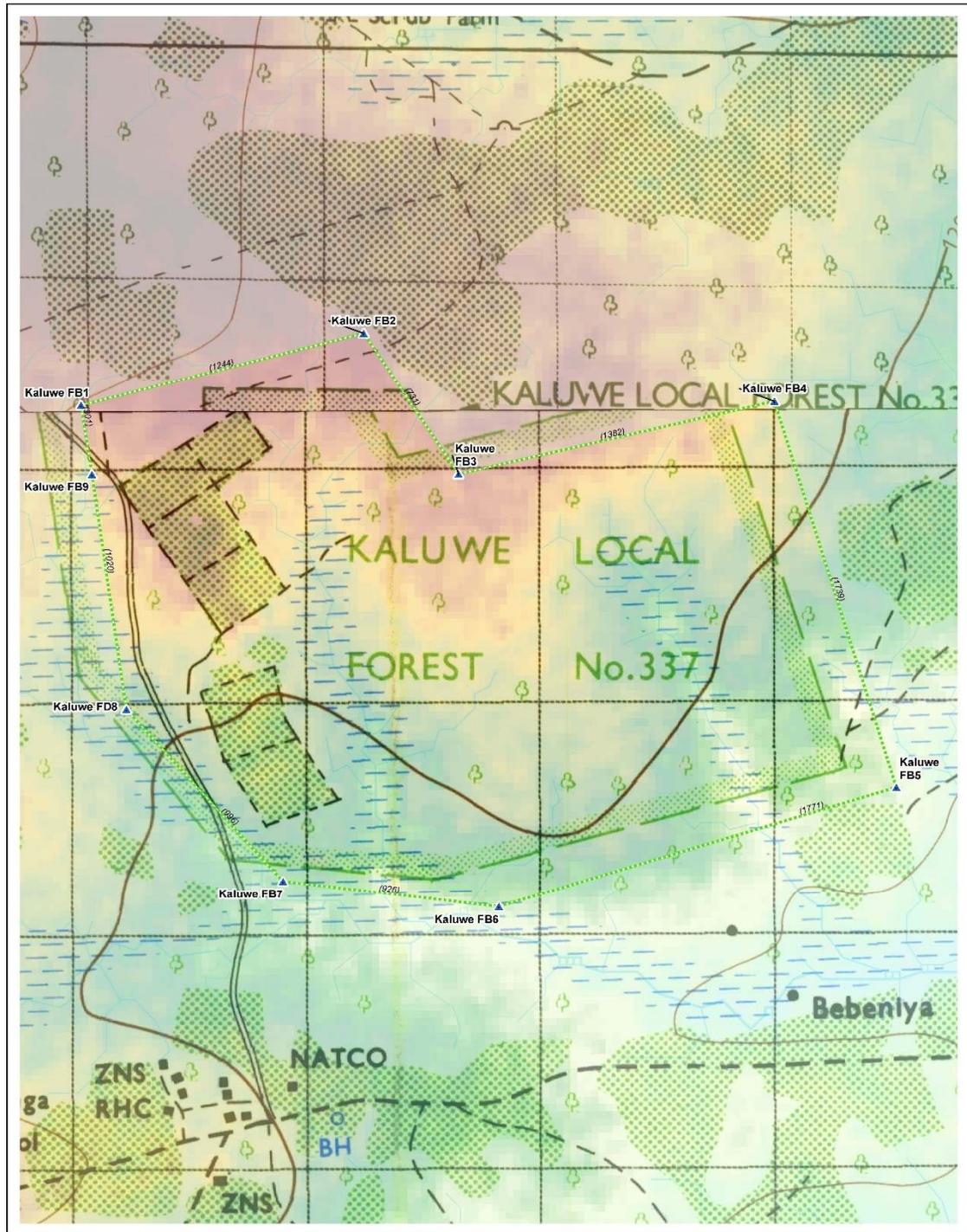
All bearings and distances are approximate and all bearings are magnetic.

The above-described area, in extent 596 hectares approximately, is shown bordered green on Plan No. FR391, deposited in the office of the Surveyor-General, signed by him and dated 1st February, 1973.

CONFIDENCE	BEACON/POINT NAME	LATITUDE DD	LONGITUDE DD	UTM EASTING	UTM NORTHING
GPS	Kaluwe FB1	-12.50130	33.11095	8618134	512055
GPS	Kaluwe FB2	-12.49847	33.12203	8618447	513259
GPS	Kaluwe FB3	-12.50397	33.12575	8617838	513663
GPS	Kaluwe FB4	-12.50113	33.13813	8618152	515009
GPS	Kaluwe FB5	-12.51613	33.14293	8616492	515529
GPS	Kaluwe FB6	-12.52080	33.12733	8615977	513835
GPS	Kaluwe FB7	-12.51981	33.11887	8616087	512915
GPS	Kaluwe FD8	-12.51312	33.11272	8616827	512248
GPS	Kaluwe FB9	-12.50399	33.11138	8617836	512102

Kaluwe Local Forest

598 Ha.

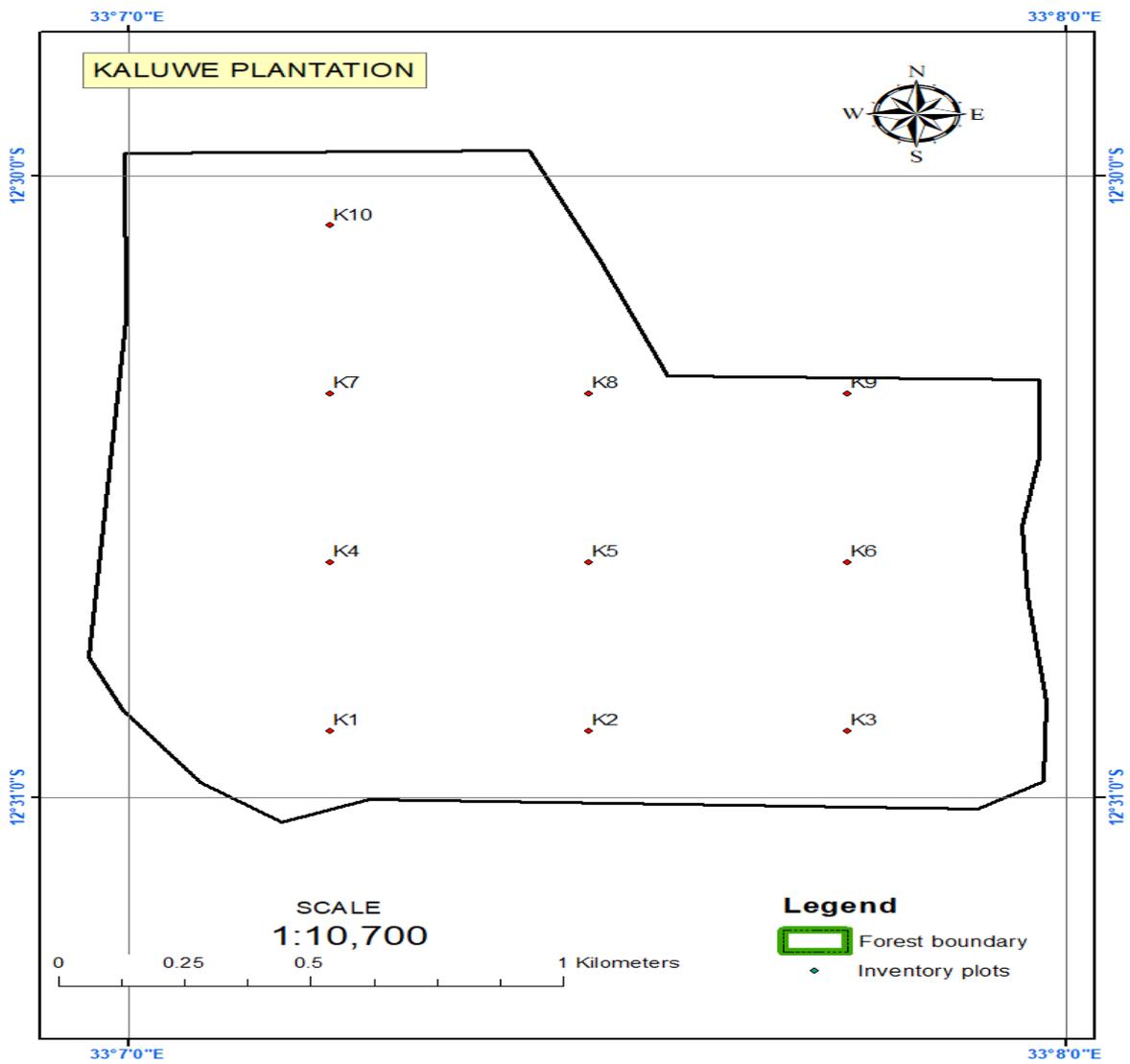


	Beacon/Corner		High		Topo		Cut Line		Digitized FSRP Boundary		Med		COGO	(Boundary segment in meters)
	GPS		Med		Low		Cut Line		High		Low			

Projection: Arc 1950 UTM Zone 36S
 Sources: Zambian Forestry Department Statutory Instruments, East View Cartographic, Inc (Topographic Maps),
 On-site GPS, Shuttle Radar Topography Mission
 Cartographer: Michael Keys, USDA Forest Service
 Date Published: 30 March, 2018




1. Map of Kaluwe Local Forest



2 Map of Sample points

Annex II: Inventory Data

DENSITY OF SEEDLINGS

Species	Species Code	Density
<i>Afzelia quanzensis</i>	13	7,669
<i>Albizia adianthifolia</i>	15	14
<i>Brachystegia boehmii</i>	46	1,139
<i>Brachystegia floribunda</i>	48	43
<i>Brachystegia longifolia</i>	49	72
<i>Brachystegia utilis</i>	55	14
<i>Dalbergia melanoxyton</i>	101	38,668
<i>Dalbergia nitidula</i>	102	865
<i>Diplorhynchus condylocarpon</i>	114	2,711
<i>Erythrophleum africanum</i>	127	14
<i>Euphorbia candelabrum</i>	139	144
<i>Faurea saligna</i>	145	505
<i>Faurea speciose</i>	147	663
<i>Ficus brachylepis</i>	149	216
<i>Ficus wakefieldii</i>	157	9,045
<i>Garcinia huillensis</i>	159	2,293
<i>Grumilea buchanani</i>	172	187
<i>Isoberlinia angolensis</i>	185	55,555
<i>Julbernardia globiflora</i>	188	10,854
<i>Julbernardia paniculate</i>	189	1,774
<i>Khaya nyasica</i>	190	87
<i>Kirkia acuminata</i>	192	72
<i>Landolphia kirkii</i>	193	260
<i>Lannea discolour</i>	194	851
<i>Monotes africanus</i>	221	9,247
<i>Olax obtusifolia</i>	226	361
<i>Ozoroa reticulata</i>	229	476
<i>Parinari capensis</i>	232	130
<i>Parinari curatellifolia</i>	233	15,150
<i>Pericopsis angolensis</i>	239	3,950
<i>Phyllocomus lemaireanus</i>	243	461
<i>Pseudolachnostylis maprouneifolia</i>	258	24,325
<i>Rothmannia engleriana</i>	272	548

Securidaca longipedunculata	280	29
Stereospermum kunthianum	287	389
Strychnos innocua	289	50,654
Strychnos pungens	292	43
Strychnos spinosa	293	14
Swartzia madagascariensis	295	101
Syzigium guineense	297	72
Uapaca kirkiana	310	447
Uapaca nitida	311	288
Vitex doniana	321	332
Ximenia Americana	328	29
Xylopia odoratissima	332	159

Annex III: Demographics of major forest fringe communities

Demographics of major forest fringe communities of Kaluwe Local Forest

NAME OF COMMUNITY	POPULATION MALE	POPULATION FEMALE	TOTAL	MALE HEADED HOUSEHOLDS	FEMALE HEADED HOUSEHOLDS	TOTAL NUMBER OF HOUSEHOLDS
COMMUNITY	24	16	40	8	1	9
KATABETABE VILLAGE	2	2	4	1	1	2
MCHEWA VILLAGE	3	3	6	1	0	1
MKOMBA VILLAGE	8	7	15	3	0	3
MKONJE VILLAGE	13	8	21	4	0	4
CHALUMBE FARMS	7	6	13	2	0	2
CHAVULA VILLAGE	4	4	8	1	0	1
MISHECK VILLAGE	10	10	20	4	0	4
CHIJUNGU VILLAGE	6	9	15	4	0	4
JOHN NYIRENDA VILLAGE	40	42	82	14	2	16
KALUWE FOREST CAMP	9	14	23	4	0	4
CHIMWELENDE VILLAGE	15	13	28	4	0	4
CHIMUTIKO VILLAGE	7	8	15	2	1	3
MPUTU VILLAGE	4	8	12	1	0	1
KHUPE VILLAGE	10	8	18	4	0	4
KAMUTEMUTE VILLAGE	13	14	27	4	2	6
SIKATENGWA VILLAGE	79	94	173	26	10	36
MAGALANGWA VILLAGE	5	7	12	2	0	2
BIZWAYO FARM	3	0	3	1	0	1
CHIMUSU VILLAGE	11	10	21	2	1	3
MUVUMA VILLAGE	1	2	3	1	0	1
KALOLA FARM	7	8	15	2	1	3
CHIDULA VILLAGE	23	20	43	7	1	8
KALATA VILLAGE	87	95	182	25	9	34
KAMALIZGA VILLAGE	16	13	29	5	0	5
CHIMTEMBO VILLAGE	66	64	130	17	3	20
JOHN KAMANGA VILLAGE	29	38	67	7	3	10
NGWENYA VILLAGE	6	10	16	3	1	4
CHINKOLONGO VILLAGE	28	31	59	10	2	12
JONGWE VILLAGE	22	16	38	10	0	10
MTALIMANJA FARMS	2	5	7	2	0	2
SHANZI VILLAGE	5	8	13	2	0	2
MUKONJE VILLAGE	44	39	83	12	2	14
CHIBWANA VILLAGE	3	2	5	1	0	1
KAITWINDE VILLAGE	4	3	7	1	0	1
TOTALS	616	637	1253	197	40	237

Annex IV: Stakeholder consultations

The Forestry Department in Eastern Province initiated a process to prepare forest management plans for 13 forest reserves with support from Zambia Integrated Forest Landscape Project (ZIFLP). In accordance with section 41 of the Forests Act, 2015, a process of engagement with traditional leaders was conducted in order to gain support from the Chiefs in the preparation of the Forest Management plans before the proposed data collection activities and later local validation meetings. It was planned to meet their Royal Highnesses to gain consent and have an input in these Forest Management Plans.

Therefore, the Chiefs under which Kaluwe forest reserves fall were targeted with the following objectives.

- To provide a platform of getting the views of the concerned Chiefs, in relation to the respective developed forest management plans for forest reserves in their Chiefdoms.
- To collect and incorporate the agreed views from the Chiefs in the message pack for the local validation meeting.

Visitations

1. Paramount Chief - Gawa Undi

Prior to meeting Chewa Sub Chiefs, the first visit was to pay courtesy call to the Paramount Chief of the Chewa people Kalonga Gawa Undi who was represented by his Induna Hon. Lucas Phiri in Chipangali district. Kaluwe Forest Reserves Chief Mwase Ntembwe in fall in Kalonga Gawa Undi.



Figure 18: Meeting with Paramount Gawa Undi's senior Induna Mr. Lucas Phiri

During the courtesy call the team gave the background of forest inventories conducted in Kaluwe LF reserve and the interventions that ZIFLP is helping, the importance of the Luangwa landscape and the areas of interventions including climate smart agriculture, support to Forestry Department to continue protecting existing forest estates, support to nurseries, assisted natural regeneration and also support to establishment and management of community forests. The specifics of the visit were also made clear as to have an input from the Royal Highnesses in the development of the forest management plans.

The Senior Induna informed the team that through the Chewa Development Trust, Gawa is able to bring a halt to all illegal cutting in the Chewa territory, and he acknowledges that development in the territory can only come by working with other stakeholders. Paramount Kalonga Gawa Undi therefore welcomed the ideas of developing forest management plans for the targeted forest reserves and encouraged the team to move forward and report to Gawa challenges that we may be encountered with any of his sub chief during this engagement.

2. Meeting the Senior Chief Lundazi District

At HRH Senior Chief Mwase's Palace the team briefed the Senior Chief about the upcoming validation meeting for FMP which included Kaluwe LF and solicited for his input in the FMP. HRH made his position very clear on Kaluwe local forest, he submitted that his desire is to practice community forest Management (CFM) in this forest reserve.

Annex V: Stakeholder validation meeting

REPORT FOR THE KALUWE LOCAL FOREST MANAGEMENT PLAN STAKEHOLDERS' VALIDATION MEETING HELD AT GOMATEMWA LODGE, LUNDAZI DISTRICT ON 6TH MAY 2022

1.0 Introduction:

The Forestry Department in 2019 undertook a forest inventory exercise to take stock of the forest resources in Kaluwe Local Forest (KLF) among others with the view of collecting data to inform the preparation of Forest Management Plans (FMPs). The FMPs are prepared to guide the community-government partnership in the management of protected forest areas (FPAs) in the Eastern Province. Following the forest inventory exercise, draft FMPs were prepared for all the FPAs in Eastern Province. The Stakeholders Validation Meeting for KLF in Lundazi was organized to validate the FMP for the KLF which was developed by the Forestry Department.

The meeting brought together 31 participants: (4 females and 27 males) drawn from government departments, civic leaders, CSOs, private sector, community groups and traditional leaders.

2.0 Official Opening

Mrs. Marjorie Banda, District Commissioner for Lundazi officiated at the KLF FMP validation meeting. The District Commissioner informed the participants that the formulation of Forestry Management Plans (FMPs) was required by law (Forestry Act No. 4 of 2015) to be validated by stakeholders. Hence the meeting was very important. The meeting was called to facilitate sustainable management of the KLF which has no current FMP. In this regard the District Commissioner implored the stakeholders to constructively engage and contribute actively in the meeting. The District commissioner reiterated that FMP formulation is a legal obligation and needed to be formulated and validated in a consultative and participatory way. The importance of the meeting could not be over emphasized.

3.0 Meeting's Expectations

Mr Katete facilitated the session on meeting's expectations. And the stakeholders brought out the following expectations:

- i) to learn how to manage their forest and what to do;

- ii) to learn how to establish tree nurseries locally

4.0 Meeting Objectives

As the meeting objectives were highlighted by the DC in her speech.

5.0 Structure of Meeting

The meeting had three main components presentations, group work and plenary discussions

5.1 Presentations

Three main context setting presentations were made by the workshop facilitators: i) Policy and legal context; ii) Natural Resources profiles; and iii) Socio-economic profile

5.1.1 Policy and Legal Context

The presentation on Policy and legal context was done by Mr. Alastair Anton, Community Forest Technical Advisor, ZIFLP. The presentation covered the roles and functions of protected forest areas (PFAs); and why they are established. To enhance comprehension of the information in the presentation imagery was also used. Also highlighted in the presentation was a brief overview of the Zambia Integrated Forest Landscape Project (ZIFLP) and its significance in the sustainable forest management. The major highlights from the presentation were:

- The objectives of ZIFLP that is “To improve the landscape management and increase environmental and economic benefits for the targeted rural communities in the Eastern Province” was highlighted;
- The ZIFLP as a GRZ project provided the Forestry Department with resources to enable it to fulfill its mandate and functions;
- Also highlighted in the presentation were the reasons that prompted government to implement the ZIFLP in Eastern Province which include the following on-going degradation, deforestation, unsustainable livelihood activities, low crop yields, increased adverse effects of climate change, and low community participation in forest management:
- The importance of forests in line with the legal framework were highlighted in the presentation such as soil conservation, carbon sequestration, water cycle and habitat protection;

- The ZIFLP was a REDD+ Project, to determine where Green House Gases (GHG) were being emitted and the sources of these emission, Green House Gases (GHG) baseline survey was conducted which revealed 3 main sources of GHG emissions in Zambia: degradation 46%, forestry loss to agriculture 16% and emissions from agriculture soils at 14 %. The underlying causes of the 3 main source of GHG emissions were also highlighted;
- Through ZIFLP government was not only intervening to arrest the situation but also to make the communities aware of the imminent consequences if no action was taken at national and subnational levels;
- An overview of selected of existing pieces of Forest legislation were shared such as the National Forest Policy 2014, National Strategy to Reduce Deforestation and Forest Degradation, National Forestry Act No 4 of 2015 among others. Contents such as vision, objectives and measures were also shared;
- Also presented were the policy and pieces of legal documents pertaining to KLF. It was highlighted that KLF was gazetted as a forest in 1973 as a local supply of timber. Forest protection was important for both the present and future generation as provided for in the legal documents;
- ZIFLP supported the Forestry Department through enhancement of tree nurseries to help with assisted natural regeneration of the degraded and deforested areas.
- The meeting was being held because sustainable forest protection and management required concerted efforts and that FMPs formulation was a legal obligation that needed to be done in a consultative and participatory manner;

5.1.2 Situation Analysis

The presentation on situation analysis focused on the two surveys- Natural Resources Profiles and the other on the socio-economic profile, that were undertaken in the national forests 2019 and the results.

a) Natural Resources Profiles- Forestry Inventory Results including Change Analysis

Mr. Jackson Mukosha, presented the situation analysis highlighting the natural resources profiles and inventory results and change analysis. Major highlights from the presentation included:

- Total number Protected Forest Reserves in eastern province was 73: 11 NFs and 62 LFs covering 469,142 ha which translates to 9.2% of the total surface area of the eastern province. the total boundary area covers 2,042.7km;

- KLF was gazetted in 1973 with total hectarage of 596,
- How volume was calculated/measured was demonstrated
- The sampling design used to select the sample plots in the survey was systematic sampling design through which sample plots were created and data was accordingly collected from all the sample plots;
- Parameters that were considered in the survey were highlighted and explained.
- Total CO₂ for the net are of 449ha was estimated at 11,449.5tons
- The proposed programmes as contained in the draft FMP for KLF were also presented.

b) Social-Economic Profile.

Mr. Muli Phiri from Zambia Statistics Agency made the presentation on Social-Economic Profile. Noteworthy highlights from the presentation included the following:

- The Province undertook the Socio-Economic Survey in LDLF in 2019 alongside the Forest Inventory.
- At the time of the survey, the total population for the 16 villages surrounding KLF included in the survey that derived benefits from the forest was 1,253 out of which 616 were male and 637 were female. The sample comprised 237 households, out of which 197 were male headed households and 40 were female headed households;
- Farming (100%) was the main source of livelihood for the people surrounding the Forest.
- Almost (99%) all the people sampled Majority depended on firewood for cooking while only 1.0% used electricity.
- KLF was the main source of water for the sampled population;
- All (100%) the people in the sample expressed willingness to protect and manage the KLF;
- The main form of land use for the sampled are was agriculture that is, 48.3% of the land in the sampled area was used for agriculture, while 14% was natural forest and 18% was left fallow

Clarifications raised by participants included:-

- The villages surrounding KLF had been willing to co-manage the forest since 2014 when the Forestry Department engaged pertaining joint management KLF. Through the same process the community a management plan was even developed. However,

the Department went quiet; there had been no follow-up since then until now. The community had been waiting for the actualization of the plan.

4.2 Group Work

Group work on issues and threats affecting the Protected Forest Area (PFA) and identification of hot spots of concern was facilitated by Mr. Anton. Two groups were formed to:-

- ✚ Identify issues and suggest possible solutions;
- ✚ Identify priorities and strategies;
- ✚ Identify uses of the forest and map where they were most prevalent
- ✚ Zone the FPA and identification of practices which should be allowed or not allowed in the respective zones
- ✚ Who should be involved in the management of KLF, how should they be selected, their role, office tenure, what authority in terms of decision making should they make, who decides, how should the benefits be shared?

4.2.1 Group Presentations

The Groups made presentations to facilitate agreement of the strategies and partnership for management.

6.0 Collaboration Declaration Pledge

The stakeholders signed a joint declaration pledging to collaborate in the sustainable management of KLF. Below are the contents of the Declaration Pledge:

“We the interested stakeholders of KLF agree the need to increase the productivity of the KLF to enhance the environmental, social, cultural and economic values.

Damaging activities were identified and solutions and strategies put forward to ensure the forest is well managed and protected. Permitted practices were identified as well as those which should be controlled.

As concerned stakeholders we are ready to work in partnership with the Forestry Department, Local Authority, traditional leaders to collaborate over the protection, control, use and management of KLF”.

5.0 Next steps

The team facilitated the session on next steps. Below were the agreed next steps/ way forward

- Forestry Department team to capture discussions, issues, strategies and recommendations from the meeting and report the opportunities to the Provincial Forestry Office and the Forestry Department Headquarters
- The chiefs' representative should report Their Royal Highnesses the proceedings of the meeting
- Forestry Department Team to:
 - Support follow up activities
 - Develop proposal to secure funding for development of KLF with stakeholders' involvement
 - Subject to Project extension, check for opportunities for supporting enterprise development

7.0 Vote of thanks, Closing Remark and Prayer

A representative of the stakeholders thanked government for convening that important meeting but appealed to government to implement the recommendations.

Mr Katebe thanked everyone for attending the meeting and contributing through their inputs in perfecting the FMP. He implored the stakeholders to report back to their superiors and/or their communities. The closing prayer was done by one of the stakeholders.

The following is a synopsis of the group work and write up from flipcharts and other materials:

GROUP WORK - 1

1. Identify in Kaluwe local Forest

What- Uses of the forest

- Firewood
- Poles
- Mushroom collection
- Caterpillars
- Fruits
- Charcoal production
- Water catchment
- Animal grazing

- Small scale farming
- Plantation (Exotic)
- Habitant for small animal

Who- Uses the forest?

- Local community around the forest
- People from other places
- Department of Forestry
- Livestock

Where- it is used/harvested

ISSUES	Solutions/opportunities
Indiscriminate cutting of trees	<ul style="list-style-type: none"> - Enforcement of existing laws - Sensitization of community members - Voluntary local guarding - Traditional by- laws
Trespassing that leads to Arson and unwanted fires	<ul style="list-style-type: none"> - Sensitization - Signage along walking paths.
Late fires for the purpose of hunting small animals	<ul style="list-style-type: none"> - Sensitization - Intensification of patrols - Introduction of volunteer fire guards - Erection of fire tower
Inadequate staff	<ul style="list-style-type: none"> - Recruitment of more staff - Volunteer local guards.

3. Zoning of forest

4. List permitted practices/prohibited practices in each zone identified.

Permitted practices in Plantation zone

- Nursery mgt.
- Early burning
- Boundary maintenance

Permitted practices in an intact forest- zone

- Mushroom, Wild fruits collection.
- Sustainable harvesting of Timber, poles, fibre wood and medicine
- Bee keeping

- Fish farming
- Water points for livestock
- Early Burning

Prohibited in an intact forest zone

- Farming
- Grazing
- Late fires
- Indiscriminate harvesting

5. List suggestions/strategies to improve productivity/management of the forest.

- What should be the priority?
 - Putting up of a Committee (Management)
 - Capacity Building of the Local Community
 - Beefing up of Human Resource at Kaluwe
 - Promotion of Non – wood Forest enterprises (bee Keeping) and fish farming
 - Raising of assorted tree seedlings for planting and selling
 - Plantation expansion
- Who should be involved?
 - Traditional Leaders
 - Forestry Department
 - Local Authority
 - NGOs
 - Local Communities
 - Ministry of Agriculture
 - Fisheries and Livestock Department
- How do we work together?
 - By having quarterly meetings with all stakeholders
 - Visiting villages around
 - Sensitization through posters
 - Sensitization through media such as Radio

GROUP WORK -2

2. Identify in Kaluwe local Forest

What- Uses of the forest

- Firewood
- Poles
- Mushroom collection
- Caterpillars
- Fruits
- Charcoal production
- Water catchment
- Animal grazing
- Honey
- Fishing
- Fibre
- Grass
- Medicine

Who- Uses the forest?

- Local communities
- Animals /Livestock
- Birds
- Insects

Where- it is used/harvested

.ISSUES	Solutions/opportunities
Farming	- Stop farming in the Forest
Charcoal Burning	- Stop Charcoal burning and start Bee Keeping - Introduce penalties /prosecutions - Fencing the forest - CFMG formation
Fuel wood	- Getting dried branches (tree) - Wood lots for individuals
Fishing	- Avoid using of Mosquito Nets and using of Poisonous substances will not be allowed - Seasonal fishing
Cutting of poles	- Farming of wood lot individually

6. Zoning of forest

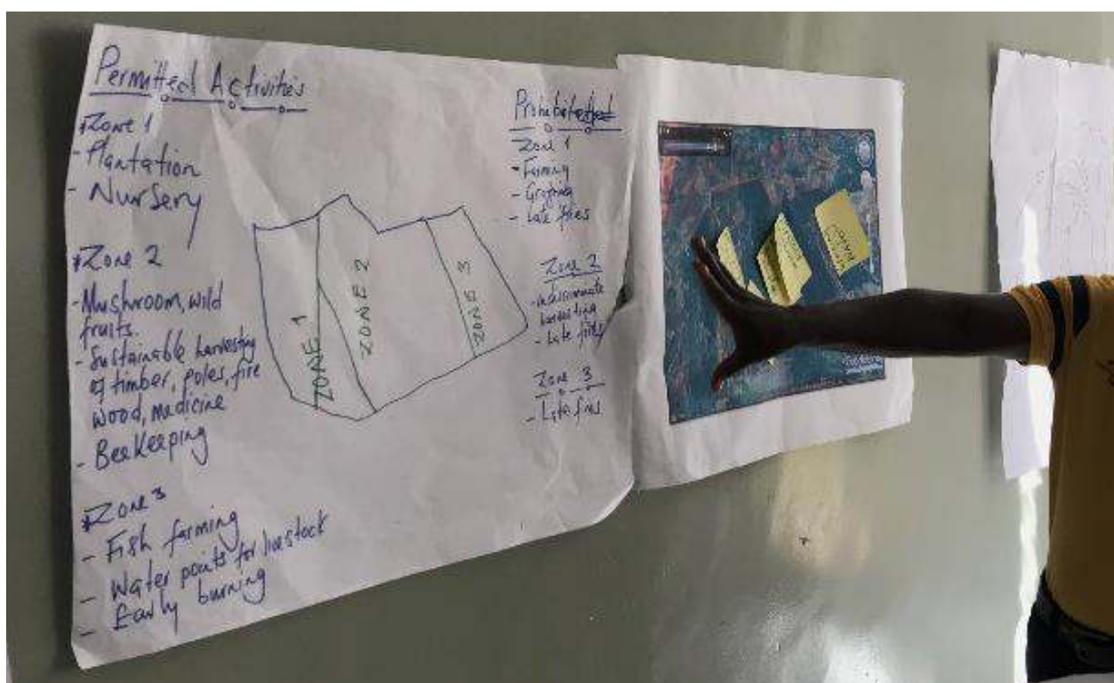
7. List permitted practices/prohibited practices in each zone identified.

Permitted practices in the forest.

- Fishing
- Bee keeping
- Taking of mushroom, fruits, caterpillars and grass

Prohibited practices in the forest.

- No use of Mosquito Nets and poisonous substance
- When harvesting don't use fire, use modern way
- When harvesting caterpillars, cutting down of trees is not allowed.



8. List suggestions/strategies to improve productivity/management of the forest.

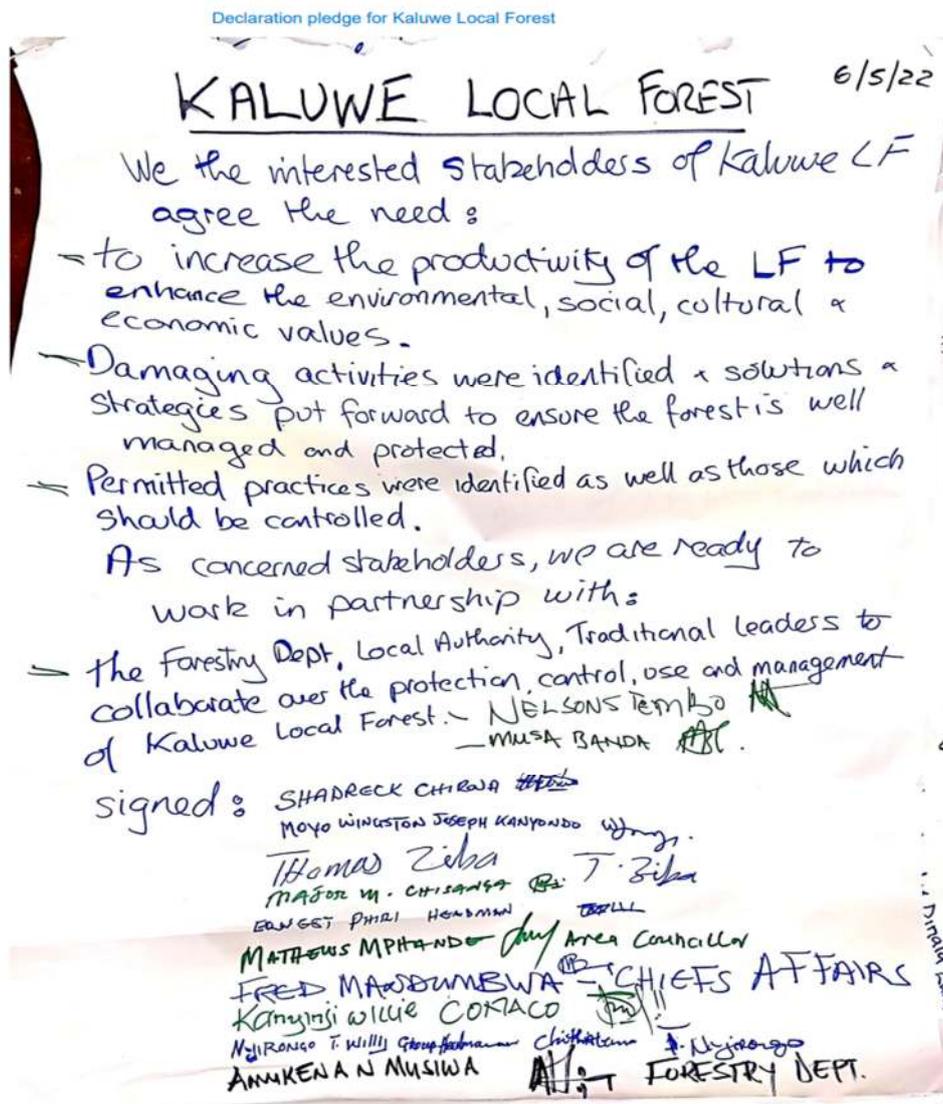
- What should be the priority?
 - Forming committee at Community level to spearhead in the mgt. of the forest.
 - Intensify By laws at community level.
- Who should be involved?
 - Traditional Leaders

- Local Communities
- Technical groups (stakeholders)
- How do we work together?
 - Formation of Community Forestry Groups (CFMGs)

Declaration

The stakeholders meeting for Kaluwe local forest that was held on 6th May 2022, at Gomatemwa Lodge, in Lundazi district. The stakeholders signed a joint declaration pledging to collaborate in the sustainable management of Kaluwe Local Forest.

Below are the contents of the Declaration Pledge prepared and signed by stakeholders.



Annex VI: References

References that were used in the collection of information for this Forest Management Plan included the following:

- Fanshawe D.B (1971), The Vegetation of Zambia, Forest Research Bulletin No. 7 Ministry of Rural Development, Republic of Zambia, Government Printer, Lusaka, Zambia
 - Hollingworth, L.T D. Johnson, G. Sikaundi, S. Siame, (2015) Fire Management Assessment of Eastern Province, Zambia. Washington. DC: USDA Forest Service.
- ILUA II (2006) Integrated Land Use Assessment Phase 1- Field Manual. The Food and Agriculture Organization of the United Nations and the Forestry Department, Ministry of Lands and Natural resources, Lusaka, Zambia
- ILUA II (2008) Integrated Land Use Assessment Phase 1- Report for Zambia. The Food and Agriculture Organization of the United Nations and the Forestry Department, Ministry of Lands and Natural resources, Lusaka, Zambia
- ILUA II (2014) Forest Biophysical Field Data Entry Booklet; Forestry Department, Ministry of Lands and Natural Resources, Lusaka, Zambia
- ILUA II (2016) Integrated Land Use Assessment Phase II- Report for Zambia.
- The Food and Agriculture Organization of the United Nations and the Forestry Department, Ministry of Lands and Natural resources, Lusaka, Zambia
- ILUA II (2016) Integrated Land Use Assessment Phase II- Technical Report for Eastern Province.

Annex VII: Cost of Implementing management actions

The various prescribed activities are outlined and their corresponding costs are indicated

Programme: Forest Conservation through Community participation and Livelihood Development															
Specific Objective	Prescribed treatment	Unit of Measure	Quantity	Frequency	Unit Cost	Total Cost Year 1	Total Cost Year 2	Total Cost Year 3	Total Cost Year 4	Total Cost Year 5	Total Cost Year 6	Total Cost Year 7	Total Cost Year 8	Total Cost Year 9	Total Cost Year 10
To Enter into partnership with clear roles and responsibilities with surrounding communities	Establish community forest	No	8	1	145,000	145,000									145,000
	Forest enterprise development • Beekeeping • Mushroom collection & production		8	8	2000	16,000	17,600	19,360	21,296	23,426	25,768	28,345	31,179	34,297	37,727
To contribute towards meeting social, cultural and economic needs and improving the livelihoods of forest-adjacent communities.	Trainings; • Beekeeping • Mushroom drying • Gardening	No.	15	1	4000	60,000	66,000	72,600	79,860	87,846	96,631	106,294	116,923	128,615	141,477
To reduce carbon emissions from deforestation and forest degradation by ensuring community benefit from carbon credits.	Stake holder participatory awareness meetings(Traditional leaders, Government, NGOs and the community)	No	2	1	20000	40,000	44,000	48,400	53,240	58,564	64,420	70,862	77,949	85,744	94,318
	Establish an incentive benefit sharing mechanism			1	5,000	5,000									5,000
To reduce forest dependency by local communities.	Woodlot establishment for communities surrounding the forest.	No.	10	2	5000	100,000	110,000	121,000	133,100	146,410	161,051	177,156	194,872	214,359	235,795
Subtotal						366,000	237,600	261,360	287,496	316,246	347,870	382,657	420,923	463,015	659,317

Programme: Forest Protection, Restoration and Management and Conservation of Biodiversity															
Specific Objective	Prescribed treatment	Unit of Measure	Quantity	Frequency	Unit Cost	Total Cost Year 1	Total Cost Year 2	Total Cost Year 3	Total Cost Year 4	Total Cost Year 5	Total Cost Year 6	Total Cost Year 7	Total Cost Year 8	Total Cost Year 9	Total Cost Year 10
To secure the boundary and define the extent of the boundary and prevent possible encroachment.	Carry out annual external boundary maintenance in accordance with the boundary maintenance schedule.	km	7	1	1500	10,500	11,550	12,705	13,976	15,373	16,910	18,601	20,462	22,508	24,758
	Forest beacon maintenance	No.	14	1	650	9,100	10,010	11,011	12,112	13,323	14,656	16,121	17,733	19,507	21,457
	Erection of sign post on roads entering the Forest	No.	15	1	300	4,500	4,950	5,445	5,990	6,588	7,247	7,972	8,769	9,646	10,611
To significantly reduce levels of illegal forest product harvesting.	Conduct sensitization meetings	No.	24	1	2000	48,000	52,800	58,080	63,888	70,277	77,304	85,035	93,538	102,892	113,181
	Conduct forest patrols	No	72	6	1100	475,200	522,720	574,992	632,491	695,740	765,314	841,846	926,030	1,018,633	1,120,497
To reduce carbon emissions from agric soils and dependency on inorganic fertilizer	Promotion of Climate Smart Agriculture	No.	8	4	3000	24,000	26,400	29,040	31,944	35,138	38,651	42,516	46,767	51,443	56,587
To protect Forest Reserve from late fires	Conduct prescribed and early burning.	596Ha	1	1	5500	5,500	6,050	6,655	7,321	8,053	8,858	9,744	10,718	11,790	12,969
	Training the local communities on fire management techniques	No	5	1	2500	12,500	13,750	15,125	16,638	18,301	20,131	22,145	24,359	26,795	29,474
To ensure protection against pests, fire, and human damage for the sustainability of forest fringe areas of the forest	Inspections for diseases and pests, and detection of possible illegalities.	No	4	4	15,000	240,000	264,000	290,400	319,440	351,384	386,522	425,175	467,692	514,461	565,907
	Woodlot establishment for communities surrounding the forest.	No	20	1	1500	30,000	33,000	36,300	39,930	43,923	48,315	53,147	58,462	64,308	70,738
To conserve and enhance the biodiversity of the forest reserve.	Promote local participation and ownership through meetings.	No	8	4	2000	64,000	70,400	77,440	85,184	93,702	103,073	113,380	124,718	137,190	150,909
	Awareness on biodiversity with regard to indigenous knowledge through drama.	No.	8	4	2500	80,000	88,000	96,800	106,480	117,128	128,841	141,725	155,897	171,487	188,636
Improve local awareness of biodiversity and its value.	Conduct meetings and drama performances to assess community understanding on forest use and	No	12	1	2500	30,000	33,000	36,300	39,930	43,923	48,315	53,147	58,462	64,308	70,738
Subtotal						1,033,300	1,136,630	1,250,293	1,375,322	1,512,855	1,664,139	1,830,553	2,013,607	2,214,967	2,436,464

Programme: Plantation establishment and Mangement															
Specific Objective	Prescribed treatment	Unit of Measure	Quantity	Frequency	Unit Cost	Total Cost Year 1	Total Cost Year 2	Total Cost Year 3	Total Cost Year 4	Total Cost Year 5	Total Cost Year 6	Total Cost Year 7	Total Cost Year 8	Total Cost Year 9	Total Cost Year 10
To promote nursery management as a tree seedling production facility for the plantation and wider distribution	Expand and manage the existing tree nurseries	No.	1	1	10000	10,000	11,000	12,100	13,310	14,641	16,105	17,716	19,487	21,436	23,579
To increase productivity in demarcated plantation areas	Undertake Silvicultural operations to maximise the production potential of the demarcated plantation areas.	No		1	250000	250,000	275,000	302,500	332,750	366,025	402,628	442,890	487,179	535,897	589,487
To improve livelihoods of the local community adjacent to the forest	Create employment for income generation to the communities around the forest.	No	1	1	80000	80,000	88,000	96,800	106,480	117,128	128,841	141,725	155,897	171,487	188,636
Subtotal						340,000	374,000	411,400	452,540	497,794	547,573	602,331	662,564	728,820	801,702
Grand Total						1,739,300	1,748,230	1,923,53	2,115,358	2,326,895	2,559,582	2,815,541	3,097,094	3,406,802	3,897,483



REPUBLIC OF ZAMBIA

Ministry of Green Economy & Environment

The Zambia Integrated Forest Landscape Project is a Government initiative which provides support to rural communities in the Eastern Province to allow them to better manage the resources of their landscapes so as to reduce deforestation and unsustainable agricultural expansion; enhance benefits they receive from forestry, agriculture, and wildlife; and reduce their vulnerability to climate change.

Simultaneously the project is creating the enabling environment for emission reduction purchases to be done through the subsequent phase - the Zambia Eastern Province Jurisdictional Sustainable Landscape Programme (EP-JSLP).

The ZIFL- Project is a product of cooperation between the Government of Zambia, the World Bank & partners.



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