Publication Draft

REPUBLIC OF ZAMBIA

MINISTRY OF GREEN ECONOMY AND ENVIRONMENT

NCHEMBWE LOCAL FOREST: P118 MANAGEMENT PLAN 2025-2035

APPROVAL PAGE

NCHEMBWE LOCAL FOREST No. 118 - 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 Nchembwe Local Forest Management Plan (NLFMP) 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 their Royal Highnesses, Headmen and the community around Nchembwe Local Forest for the commitment to support this plan and importantly the sustainable management of this 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 as well as 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

Forest management planning is a crucial component of Sustainable Forest Management (SFM), in accordance with the provisions outlined in the Forests Act No. 4 of 2015. Forests serve as vital resources for the conservation and sustainable utilization of forest ecosystems and biological diversity. They are among the nation's most valuable natural heritage resources, supporting ecological balance, livelihoods, and economic development.

The vision of the National Forestry Policy, 2014, is to achieve sustainable forest management across all forest types. This aims to enhance forest products and services, contribute significantly to climate change mitigation, reduce poverty, increase income, create employment opportunities, and preserve biodiversity. The policy emphasizes participatory forest management, encouraging active involvement of local communities, traditional institutions, the private sector, and other stakeholders in all aspects of decision-making, implementation, and monitoring.
This Forest Management Plan has been developed for Nchembwe Local Forest with the purpose of providing management teams and stakeholders with a practical framework to guide their actions. It aims to foster effective partnerships among stakeholders and address current challenges that threaten the forest's integrity. Without prompt intervention, these challenges—if left unaddressed—could lead to the irreversible loss of the forest and its ecological functions. Communities bordering the forest play an essential role in its sustainable use through inclusive decision-making, active management, protection efforts, and equitable benefit sharing. Community collaboration is therefore vital to safeguard the remaining forest cover of Nchembwe Local Forest, ensuring it continues to contribute to local and national development, as well as to the well-being of future generations in 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 Name of forest National 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 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 Nchembwe Local Forest.

The inventory results indicate a total standing volume for all species in Nchembwe Local Forest estimated at (39.74m^3/ha), with a total bole volume estimated at 17.73m^3/ha). Total Biomass for trees ≥5cm DBH is estimated 58.47 tonnes per hectare with an above ground carbon estimate of 29.23t/ha. A basal area figure of 5.93m^2 per hectare is a low figure for the type of forest by over 50 percent. This confirms the status of Nchembwe Local Forest as a forest not achieving optimum growth potential.

Summary socio economic analysis

The 2021 livelihood survey revealed that Nchembwe Forest is bordered by approximately 14 villages, with a combined population of 1,161 people. The majority of these households rely primarily on farming as their main source of income. The main crops cultivated include maize, sunflower, and groundnuts, typically grown

on land holdings ranging from 0.25 hectares to 6 hectares. Nearly all households utilize firewood as their primary energy source for cooking. The survey also found that 86 percent of the households expressed willingness to voluntarily support the management of the forest reserve in collaboration with the Forestry Department. However, at the time of the survey, the forest reserve was experiencing serious encroachments primarily for agriculture.

Forest change & issues analysis

A stakeholder consultation meeting for Nchembwe Local Forest was held on December 20th, 2023, at Chochi Lodge in Sinda District. Attendees were asked to review how the forest is used and by whom, discuss the factors contributing to forest loss and degradation, and, importantly, to suggest local solutions to these challenges. Using forest cover imagery, participants were able to identify specific areas of the forest affected by agriculture and settlement activities, both within the forest and in surrounding regions. This visual aid helped focus discussions on key issues, delineate different zones based on existing uses and management needs, and prioritize strategies for sustainable management. The group also reached agreements on activities that are permitted and those that are not allowed within each of the identified zones.

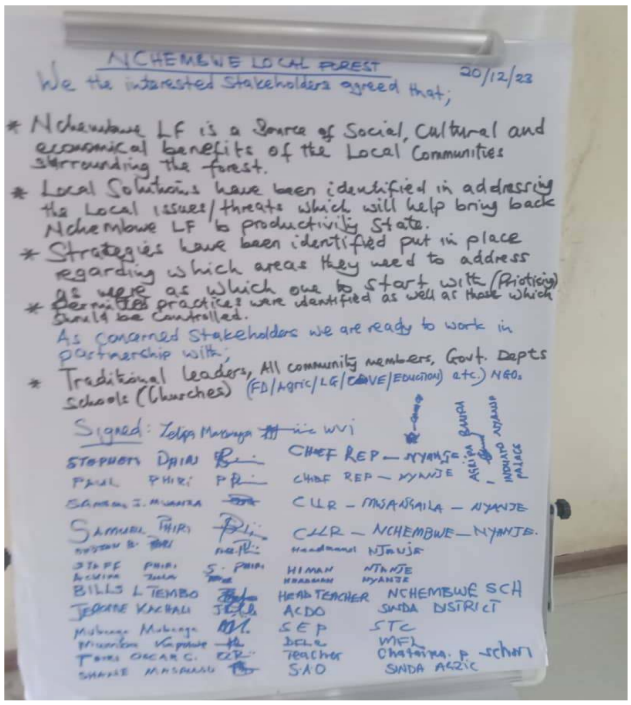
Stakeholders' observations and Concerns

The stakeholders made several observations and raised some concerns notable among them include the following:

- The forest is important to the surrounding communities as well as a habitat for animals. Forest loss threatens everyone and everything that depends on this forest.
- There are serious encroachments in NLF, therefore there is need to protect what is remaining of the forest as well as bring it back to its former glory at the same time find a lasting solution to the illegal settlements.
- Need to change the mind-set of the people for them to appreciate the grave consequences of deforestation as well as need to provide sustainable/ alternative livelihoods.
- To resolve the inadequate human resource issue there was need to be re-introduce forest guards to police the NLF and need to stiffen laws.
- Headmen, senior headmen and Indunas, are allocating land to people coming from outside, in this regard consideration should be to ensure no further encroachments and means to restore the forest found.
- The community forestry model should be promoted as it also promotes local ownership.

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 Nchembwe Local Forest.



The declaration confirmed that Nchembwe 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. Local solutions to issues were identified and need for strategies and local rules agreed. 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 Nchembwe Local Forest are:

(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.

These in the case of Nchembwe Local Forest are urgent and if not actioned immediately may result in the loss of the forest and the functions it was reserved to protect.

Proposed management actions

The following management actions which are proposed for Nchembwe Local Forest reflect the statutory purpose of the Local Forest as set out in section 19 of the Forests Act of 2015. The actions are intended to address and reverse the degrading factors threatening the current existence of the Local Forest.

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 Nchembwe Local Forest 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 Nchembwe 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 the Local Forest, as well as a development in the immediate surrounding area to promote greenhouse gas emission reduction interventions;

2 Forest Protection, Restoration, Management and Conservation of Biodiversity

Nchembwe 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.

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 work plan 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 Nchembwe Local Forest and empowered through equal participation in decision making, governance and benefit sharing.

Contribution to Emissions Reduction in Eastern Province

Improved management of Nchembwe Local Forest through the proposed interventions will directly address the need for emissions reductions through promotion of Sustainable Forest Management. This centres on 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 Nchembwe 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

CAPI	Computer Assisted Personal interview
CCAs	Community conservation areas
CFMG	Community Forest Management Groups
COMACO	Community Markets for Conservation
CSA	Climate smart agriculture
DBH	Diameter at Breast Height
EA	Enumeration Area
EP-JSLP	Eastern Province Jurisdictional Landscape Programme
FD	Forestry Department
FMA	Forest Management Area
FMP	Forest Management Plan
FPIC	Free Prior Informed Consent
GHG	Greenhouse gases
HFO	Honorary Forest Officers
IPCC	Intergovernmental Panel on Climate Change (UN)
NFMP	Nchembwe Forest Management Plan
MGEE	Ministry of Green Economy and Environment
MOE	Ministry of Energy
NGO	Non-Governmental Organization
REDD	Reducing emissions from deforestation and forest degradation
SFM	Sustainable forest management
USAID	United States Agency for International Development
ZAMSTATS	Zambia Statistics Agency
ZIFLP	Zambia Integrated Forest Landscape Project

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NCHEMBWE LOCAL FOREST MANAGEMENT PLAN

1 INTRODUCTION

The Nchembwe Local Forest Management Plan (NLFMP) has been developed in response to the National Forestry Policy of 2014. This policy provides clear guidelines to ensure the adequate protection and sustainable utilization of forests by promoting the development and use of both forest and non-forest products. It emphasizes the importance of involving all interested stakeholders, particularly local communities surrounding the forest reserve, in the management of these resources. The management plan aligns with the provisions of the Forests Act No. 4 of 2015, fostering participatory approaches that support conservation and sustainable use.

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 Nchembwe 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 from the date that the plan is approved and registered in the Government Gazette. However, implementation of the Plan will be monitored periodically and evaluated at year 5 and may be adjusted accordingly as lessons are learned.

1.3 Policy 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 Management 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

Nchembwe Local Forest (Reserve No. 118) forms part of the forest estates in Eastern Province, covers a land area of approximately 654 hectares and is situated approximately 15Km south of the administrative Centre of Sinda District.

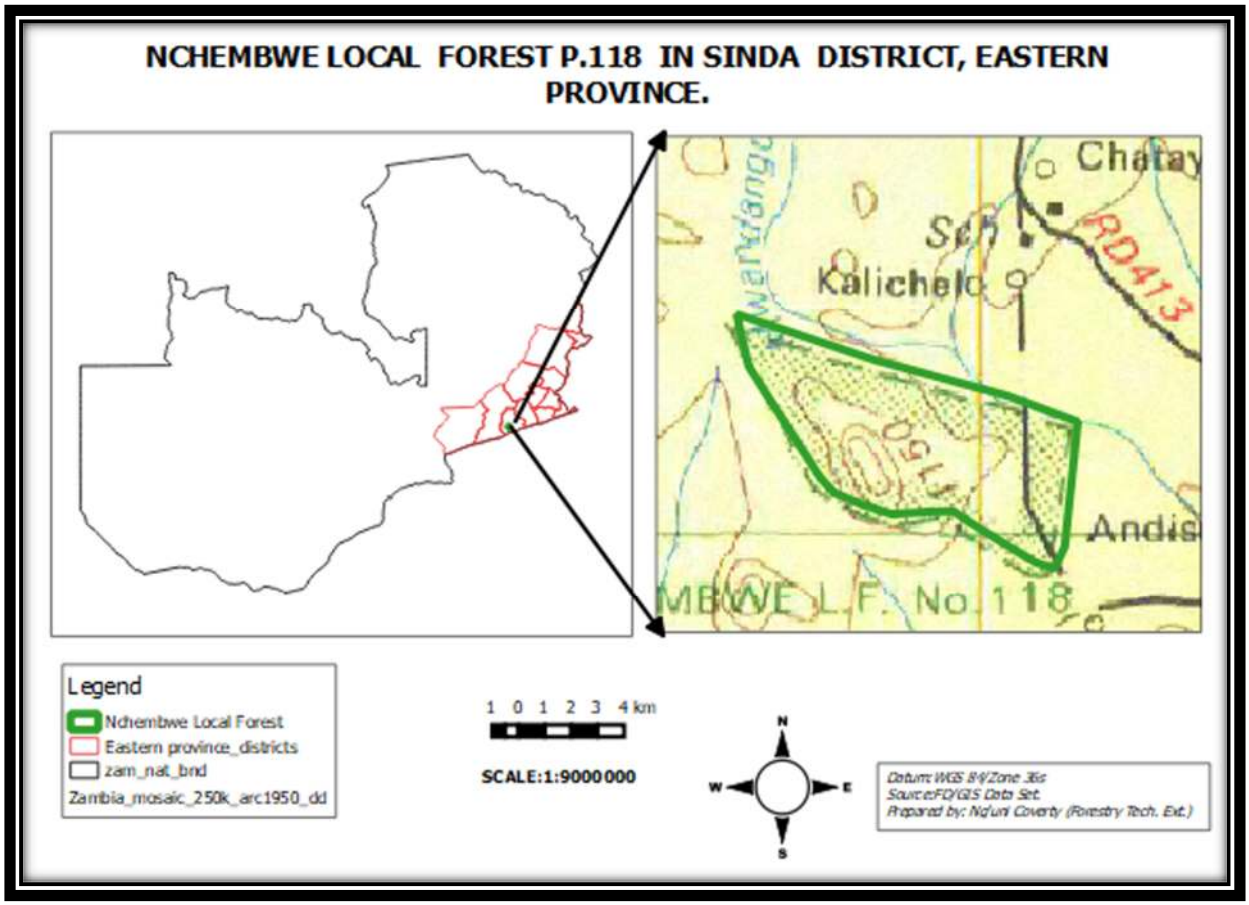


Figure 1 Map of Nchembwe Local Forest

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

2.2 Ownership and control

The forest is under the administration of the Forestry Department in the Ministry of Green Economy and Environment. The Forestry Department is responsible for the management of this protected forest reserves through the Sinda District Office which also fall under the Provincial Forestry Office in Chipata. As it is a forest reserve, collection of any forest produce by any individual without a permit is an offence which is punishable by the law under the Forests Act No.4 of 2015.

2.3 Reasons for Reservation

The forest area forms part of the series of indigenous pole production which was reserved to meet the local demands for the poles. It was also intended that proposal be handed over under section 10 of the forest ordinance to the Nsenga-Ambo Native Authority to manage on a simple early burning - cum- coppice system.

2.4 Physical and Biophysical Environment

Topography, Geology & Soils

The Nchembwe hills cover most of the area. There are no streams or dambos except for the Myezi stream and its main tributary which form the northern boundary. Between the hills the soils are mainly brown sandy loams generally classed as sandveld and probably of granitic origin. The Nchembwe hills are of granite. The exploratory soil map of Zambia compile by the soil survey section research branch of the Ministry of Agriculture 1971 classified the area covering Nchembwe Local Forest well drained, moderately deep, red to strong brown, friable, gravelly, moderately weathered fine loamy to clayey soils (chromi-haplic ALISILS, partly skeletic phase).

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.

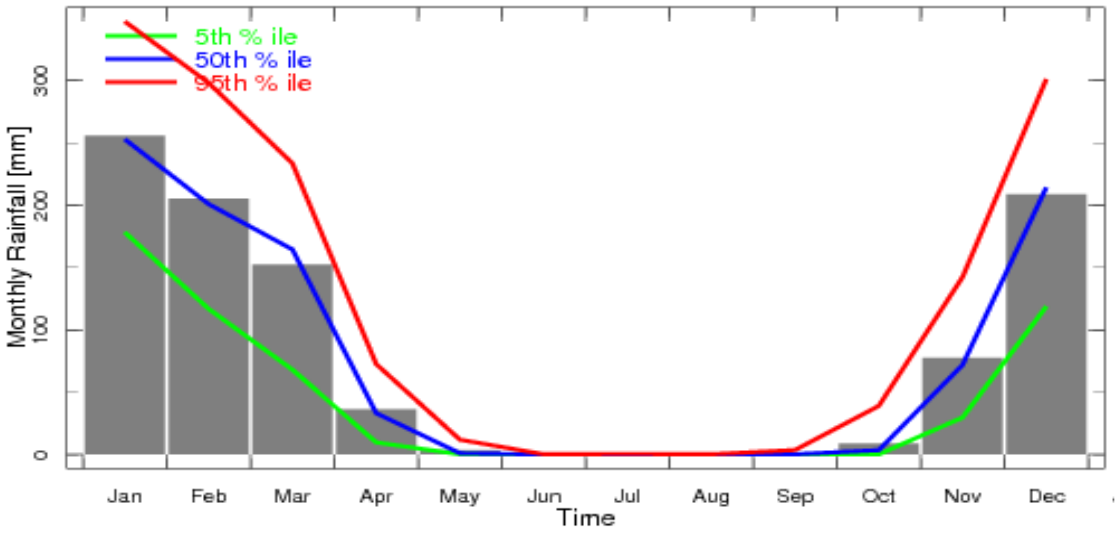


Figure 2 Monthly rainfall Eastern Province *Source: The Zambia Meteorological Department*

Normally, temperatures are very high, especially during the dry months which occurs between August and December. The maximum average monthly temperature is between 27C and 34 C. The highest maximum temperature occurs in October. The lowest average temperature is between 21^{0}C and 23^{0}C during the cool dry season occurring especially between May and June.

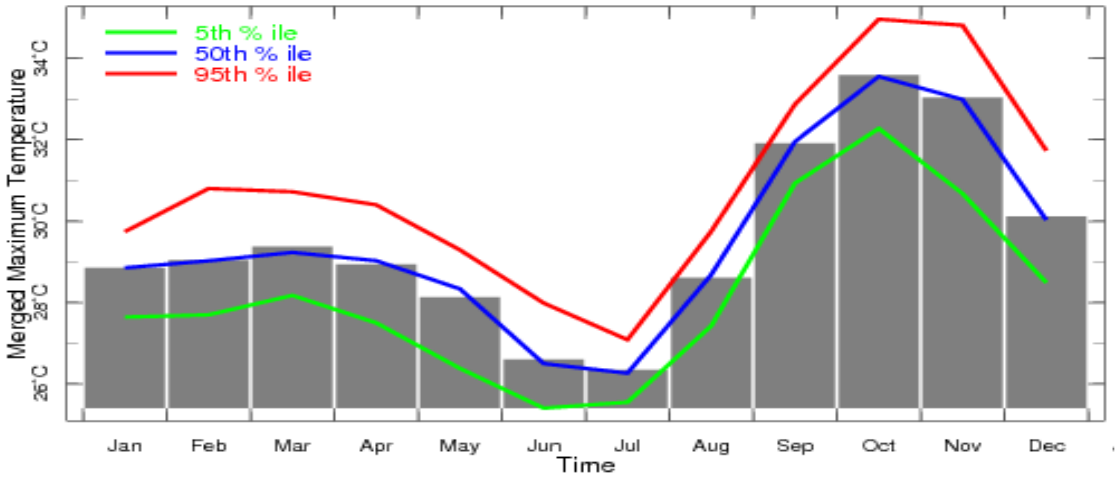


Figure 3 Monthly temperature Eastern Province Source: The Zambia Meteorological Department

Vegetation Type

Nchembwe Local Forest is a homogeneous forest. The vegetation type is miombo woodland on the plateau with a diverse tree flora including *Brachystegia allenii*, *Julbernardia globiflora, Brachytegia bussei*, *Brachystegia boehmii, Brachystegia burtii* and many other species.

Fauna

During both the reconnaissance survey and the forest inventory, there was 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. Smaller animal species such as squirrels, birds, Snakes and Lizards were encountered during the surveys.

3 PAST MANAGEMENT

Nchembwe Local Forest was declared and gazetted in 1964. Its management has been guided by the objectives outlined in the reservation proposal, which was prepared at the time of gazettement under Notice No. 264 of 1964. The primary aim of the reservation was for indigenous pole production to meet the local demand.

However, the management of the forest has faced significant challenges over the years. The Public Service Reform Programme (PSRP) of 1997, coupled with economic downturns, had a detrimental impact on forest management. This was compounded by increasing population pressures, high poverty levels, and a reduction in departmental manpower. Major threats include encroachment for agriculture, timber logging, and informal land allocations for settlements. Several initiatives have been undertaken to address these issues, including stakeholder meetings and consultations with traditional leaders.

An initiative to establish joint forest management took place in 2005 with identification of forest user groups and steps to form a village resource management committee, but this process wasn't completed due to external funding.

Recent maintenance works

In 2018, Nchembwe Local Forest boundary beacons were verified and new maps produced under the Forest Reserve Support Project funded by US Forest Service (see Annex 1 for details and map).

In 2021 ZIFLP supported the district officers to conduct boundary clearing and checking boundary beacons. Boundary beacons were renewed where required. In 2022, 3 signboards were erected to indicate the Local Forest and restrictions therein. Sporadic prescribed burning has been implemented, most recently in 2025.

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 2021 with financial support from the Zambia Integrated Forest Landscape Project. The following section provides the results and analysis from the data collected. A map of the location of the squares and therefore distribution of the sample plots for Nchembwe Local Forest is provided in Annex I. 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. 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 Nchembwe Local Forest. The following table presents the summary information from the forest inventory:

Stratum total by diameter class per hectare for all species.

Diameter Class	0-4	5-9	10-14	15-19	20-29	30-39	40+	Total
Total Vol (m^3)/ha	0.00	3.26	2.34	1.94	5.01	5.37	21.81	39.74
Total Bole Vol (m^3)/ha	0.00	1.69	1.23	0.86	2.63	2.46	8.87	17.73
Density/SPH	2.14	270.70	53.50	17.11	20.33	7.49	11.77	383.04
Basal (m^2)/ha	0.00	0.97	0.57	0.39	0.96	0.70	2.34	5.93
Biomass, (Tons)/ha	0.00	4.70	3.41	2.83	7.37	8.21	31.93	58.47
Carbon, Total (Tons)/ha	0.00	2.36	1.71	1.41	3.69	4.11	15.96	29.23
Vol (m^3) Sawlogs/ha	0.00	0.50	0.27	0.14	0.20	4.41	16.26	21.79
Vol (m^3) Poles/ha	0.00	0.74	0.60	0.84	0.80	0.00	0.64	3.66
Vol (m^3) Fruits/ha	0.00	0.44	0.47	0.11	0.96	0.00	0.00	1.97
Vol (m^3) Medicinal/ha	0.00	0.70	0.56	0.23	1.29	0.96	0.00	3.73
Vol (m^3) Firewood/ha	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01
Vol (m^3) Other/ha	0.00	0.79	0.40	0.47	1.33	0.00	0.00	2.97
Seedlings								2,726.20

Table 1 stratum total for all species

4.1 Tree species abundance

The inventory data indicates that there are over 46 different types' tree species that include tree seedlings in the forest. However, the ten most frequent species are shown below.

Species	Local Name(Nyanja)	Species Code
Brachystegia speciformis	Kaponi	52
Brachystegia boehmii		46
Brachystegia floribunda		48
Brachystegia longifolia		49
Diplorhynchus condylocarpon		114
Pterocarpus angolensis	Mukwa	262
Lannea discolor		194
Combretum molle		86
Combretum zeyheri		89
Syzigiumguineese		297

Table 2 Top Ten Abundant Species in the Forest Reserve

4.2 Tree and Sampling 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.

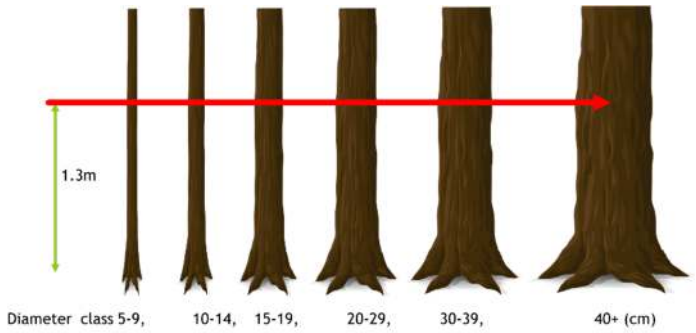


Figure 4 Size class distribution graphic

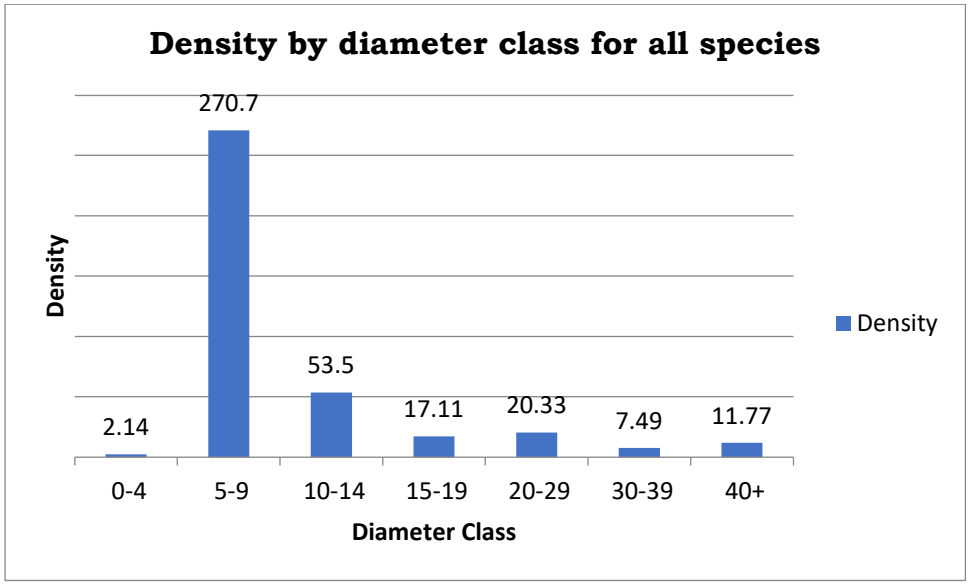
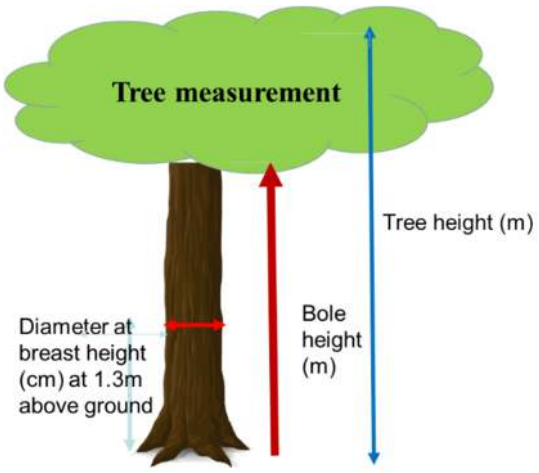


Figure 4: Density by diameter class/ha for all species

In Nchembwe Local Forest, a stocking density for trees ≥ 5 cm DBH was estimated at 383 stems per hectare. The species with the highest density is Diplorhynchus condylocarpon, with 44.9 stems per hectare, followed by Brachystegia boehmii and Pterocarpus angolensis.

4.3 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.



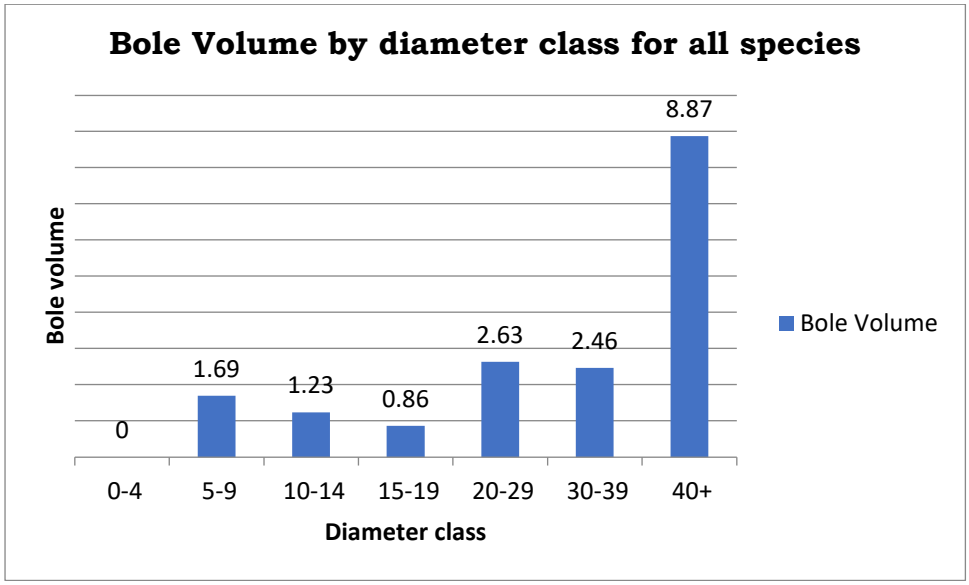


Figure 5 Bole volume (m^3) by quality diameter class for all species

The total bole volume by diameter class per hectare is 17.73 cubic meters with higher in diameter class 40+ and less from 15-19. The outcome indicate that the forest can support some selective harvesting.

Basal area (m^2) by diameter class/ha for all species

Forest condition is further evaluated by the amount of area occupied by tree stems, known as basal area. This is measured by calculating the cross-sectional area of each tree at breast height (1.3 meters), summing these areas, and expressing the total as square metres per hectare. In this case, the measured basal area for Nchembwe Local Forest is 5.93 m^2 per hectare. Compared to similar forest types, this figure is lower than it should be, indicating it is growing at below optimum. This underscores the significant impact of past and likely ongoing levels of exploitation or degradation from fires and highlights the need for urgent management and conservation actions for Nchembwe Local Forest.

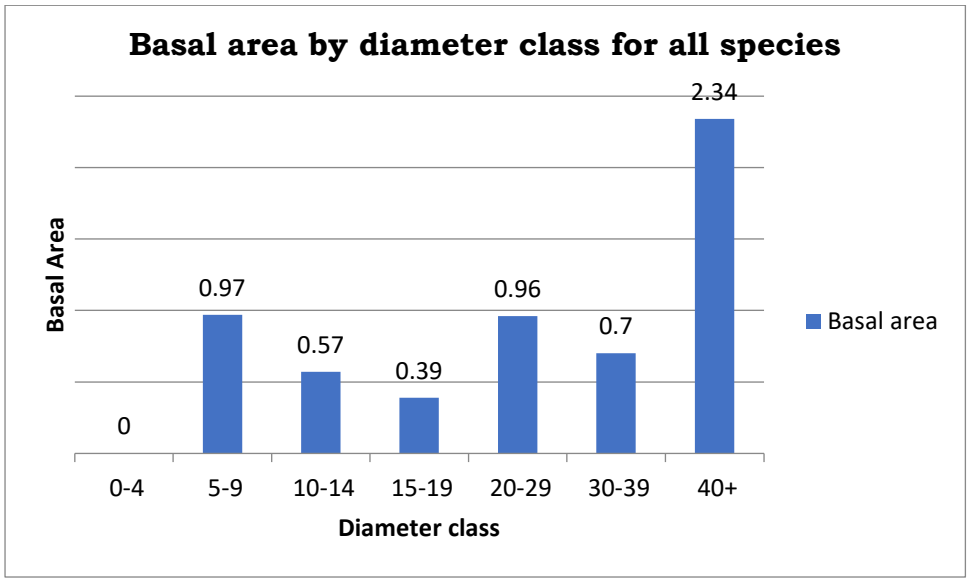


Figure 6 Basal area (m^2) by diameter class/ha for all species

The stocking by diameter class, based on basal area per hectare, shows that the highest contribution is in the 40+ cm diameter class. This pattern indicates that the forest remains in a relatively healthy growth phase, with potential for natural succession from smaller to larger size classes.

4.4 Presence of Commercial Tree Species

Based on the inventory data, species used for high valued sawlogs such Pterocarpus angolensis, are present in the forest. Therefore, Nchembwe Local Forest in its current condition can sustain limited small scale selective timber harvesting operations or timber concession.

Technical characteristics- Volume of all species by use

No	Description	Volume(m^3/ha)	Explanation
1	Sawlogs	21.79	These are merchantable trees with the average diameter of 30cm dbh and above and are of exceptionally high valued suitable for timber production
2	Poles	3.66	These are tree species with relative straight bole length with the average diameter at breast height of 5cm to 29cm
3	Fruits	1.97	The tree species include all fruit bearing either edible or not edible
4	Medicinal	3.73	All medicinal plants
5	Firewood	0.01	These include all dead and or diseased trees which can be used for firewood
6	Others	2.97	These include all tree species which are not classified in any of the above categories

Table 3 Trees in Nchembwe local Forest in terms of forest product categories.

The volume of other technical characteristics or use are computed per hectare as follow: Saw-log 21.79m^3, Pole 3.66m^3, Firewood 0.01m^3, Fruit 1.97m^3 and others 2.97m^3. The poles are evenly distributed mainly in diameter class 5 to 29 and less above 30. The category of saw logs above at 21.79 cubic meters per hectare, indicates that the forest can support limited selective timber harvesting.

Biomass and Carbon total (tons) by diameter class/ha for all species

The total biomass and carbon stocks per hectare respectively of 58.47t/ha and 29.23 t/ha.

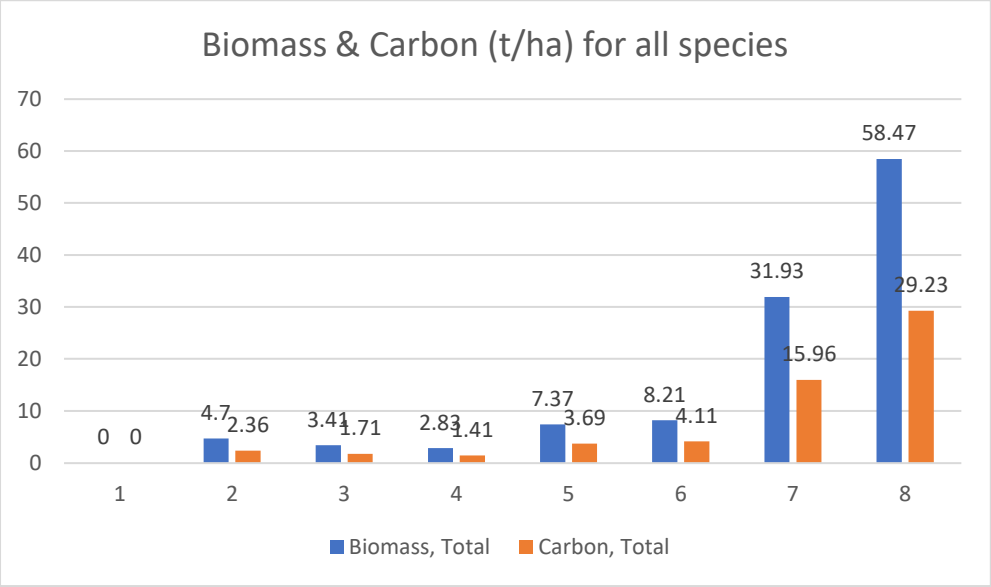


Figure 7 Biomass and Carbon above ground by diameter class/ha for all species

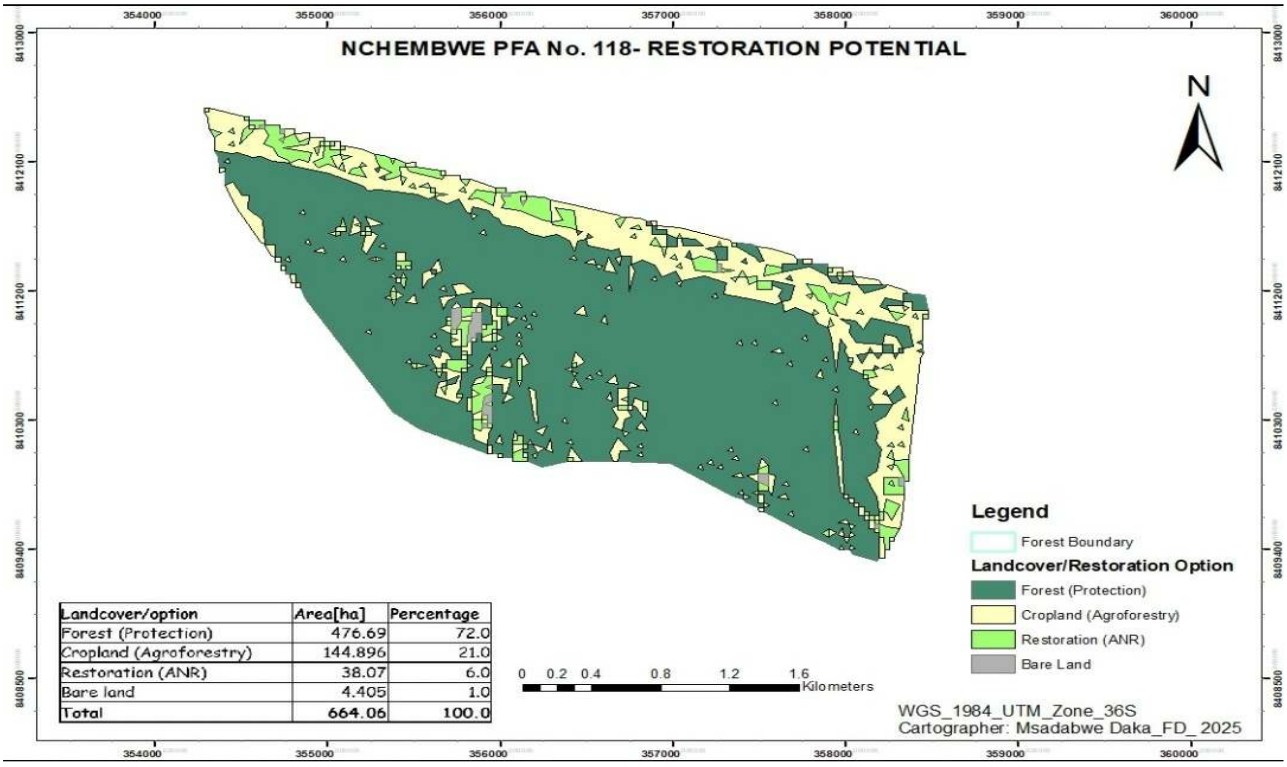
The carbon figure is estimated according to the methodological framework developed by the IPCC, documented in the 2006 guidelines for national greenhouse inventories volume 4, chapter 2 and 4. The correlation of total biomass and carbon both above and underground, half of biomass constitute carbon stock.

4.5 Forest condition and restoration assessment

Nchembwe Local Forest is an important ecological zone that provides critical forest resources, supports biodiversity, and sustains local livelihoods. However, like many forests in the region, Nchembwe faces increasing pressures from human activities and environmental challenges that threaten its health and sustainability. The forest cover within Nchembwe has experienced notable degradation over recent years. Deforestation primarily driven by subsistence farming, illegal logging, charcoal production, and bushfires has resulted in reduced forest density and fragmentation. To supplement the forest inventory data, a land cover assessment was conducted using Sentinel-2 2025 images (date filtered: 2024-01-01 - 2025-07-01) at a resolution of 30 meters. The area of different land classes was calculated using Compute Geometry in ArcMap. The results indicated the following:

Land cover category	Estimated area	Percentage
Forest	476.9	72
Cropland	144.9	21
Degraded forest (open)	38.1	6
Degraded (scrub)	4.4	1
Total	**664.3**	**100**

Table 4 Forest condition analysis 2025 by land cover



Landcover/option	Area[ha]	Percentage
Forest (Protection)	476.69	72.0
Cropland (Agroforestry)	144.896	21.0
Restoration (ANR)	38.07	6.0
Bare land	4.405	1.0
Total	664.06	100.0

Figure 8 Nchembwe PFA No.P118 Restoration Map

Restoration map narration

The projected restoration potential map was developed using Sentinel-2 2025 images (date filtered: 2024-01-01 - 2025-07-01) at a resolution of 30 meters. Land use land cover (LULC) classification was performed using a supervised classification method for accurate IPCC classes, with all computations performed in Google Earth Engine. The Normalized Difference Vegetation Index was calculated for: Forest Land, Cropland, Grassland, Wetlands, Settlements, and Other Land. Since forest shapefiles were utilized, the area of different land classes was calculated using Compute Geometry in ArcMap. Therefore, the combined area may not necessarily be the same as the original gazetted forest area.

While the current levels of forest loss and degradation is relatively low, the pressure on the forest is expected to increase and risk of further loss and degradation will expand. The management approach for Nchembwe Local Forest is to secure areas with forest cover and restore areas of lost forest cover with people's participation in order to improve environmental, social and economic impacts. The land cover analysis allows for identification of restoration strategies. These are outlined in the chapter on proposed management options.

5 SOCIO ECONOMIC CONDITIONS

5.1 Livelihood Data analysis

Forestry livelihood survey was conducted by the Zambia Statistics Agency (ZAMSTATS) Eastern Regional office in November 2021. The main objective of the Forestry livelihood Survey is to measure the well-being of the communities dependent on Nchembwe Local Forest and to measure the utilization and management of trees resources. Also, to determine the benefits the surrounding communities derive from 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 Nchembwe Local Forest can be translated as having an average size of the household membership of about 5 per household.

Methodology

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 2021 forest livelihood survey was collected using Computer Assisted Personal interview (CAPI), using Tablets android Ver9. The CAPI system allows quality check of the data at the server (HQ) as it is collected. It also minimizes data entry errors after data collection, the data were subjected to extensive checks on their validity and consistency as it was synched to the server. Analysis was done using statistical package SPSS version 24.

5.2 Household and Population dynamics

Nchembwe Local Forest reserve as at 2021 livelihood survey was surrounded by approximately 13 villages and farming blocks as indicated in Annex: III with a total population of 1,161. The main ethnic groups in the area are 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, Soya beans and groundnuts. The land tenure of the population surrounding the Nchembwe Local Forest is mostly under customary land tenure system. Those households within have formal no title deeds or letter of allotment.

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 Nchembwe Local Forest was found to be mainly primary level that contributed 50 percent, while tertially contributed about 1.7 percent. The rest being No formal education and secondary education indicating 40 percent and 1.7 percent respectively. As shown in the figure.

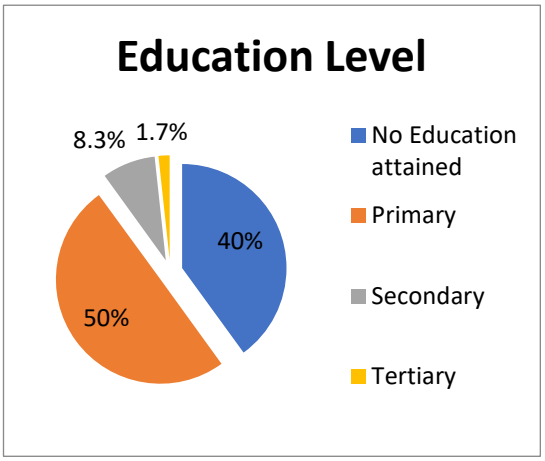


Figure 9: education levels attained.

Economic activity

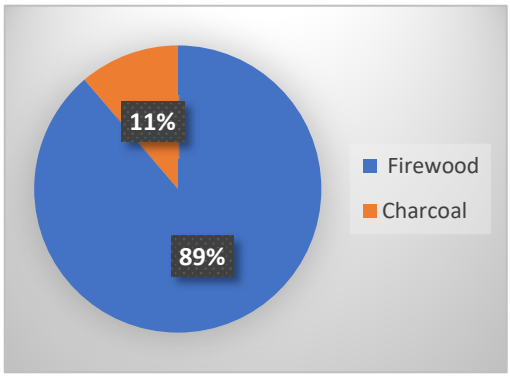
The results showed that 98.3 percent of the household population surrounding the Local Forest had farming as their main occupation, while the rest of economic activities contributed 1.7 percent in small businesses.

Main Economic activity	Percent
Business	1.7
Farming	98.3
Total	100.0

Figure 11: percentage distribution of main economic activity

Types of energy used for cooking

Almost all households in the localities surrounding Nchembwe Local Forest use firewood as their energy for cooking. The livelihood survey revealed a percentage of about 89.0 percent using firewood as energy for cooking while 11.0 percent use charcoal as energy for cooking. It shows how threatened the forest is as every household depends on the forest for cooking energy.



Main tree resources used for firewood.

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

Tree species used for firewood
Brachystegia boehmii
Brachystegia floribunda
Brachystegia longifolia
Brachystegia spiciformis
Combretum molle

Table 4 shows the main tree resource used for firewood.

Note: These species are therefore under serious threat for wood energy as the statistics can show and mitigation measures are required in the management plan.

Non wood Forest products

The main Non wood forest products used by households surrounding the Nchembwe Local are as shown in the table below.

Non wood Forest products
• Mushroom • Caterpillars • Fruits

Table 5: Non-Wood Forest Products used by households surrounding the Nchembwe Local Forest

Willingness of community to participate in Management of the forest reserve

The livelihood survey revealed that 77 percent of all the households interviewed were willing if called upon to voluntarily support management of the forest reserve with the Forest Department and other stake holders in the community. This is a lower percentage than found around other Forest Reserves in the Province.

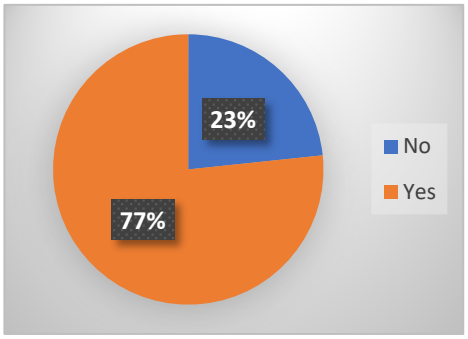


Figure 9 Distribution of willingness to participate when called upon to support FM

Land Occupation

The livelihood survey for the communities surrounding the Nchembwe Local Forest revealed that most of the land is occupied by households under customary arrangements (80 percent) compared to those who don't at 20 percent. All land occupied by households is mainly used for agriculture purpose.

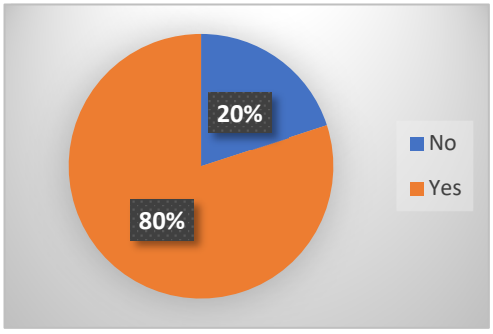


Figure 10 Land occupation

Willingness to plant trees on land owned

The survey revealed the willingness to planting trees by the households occupying land. Those willing to plant trees on their land contributed 68 percent, while those not willing to plant trees had 32 percent contribution as shown in the figure below.

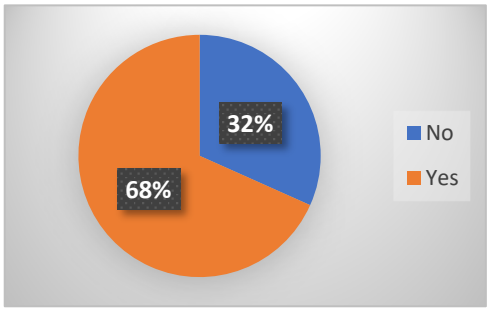


Figure 11 Distribution of willingness to plant trees

5.3 Utilization of forestry resources, issues & solutions

Nchembwe Local Forest consultative meeting held on 20th December 2023, the stakeholders identified the uses and users of the forest reserve. These include:

Uses of the forest

- Firewood
- Charcoal
- Caterpillar
- Timber & Poles
- Mushroom
- Medicine (Herbs)
- Wildlife
- Bamboos
- Grass
- Water
- Fibre

Users of the forest

- Local people
- People from outside the forest surroundings

Issues	Solutions/opportunities
- Indiscriminate cutting of trees	-formation of local rules
- Late fires	- Early burning/fire break
- Illegal extraction of timber.	-Forest education, Afforestation
- Mineral extraction illegally	-Involvement of traditional leaders

5.4 Enterprise Opportunities

A healthy forest ecosystem provides a robust foundation for generating income through forest products by preserving biodiversity, soil health, and water resources, all of which are vital for their sustainable use. When forests are in good ecological condition, they promote the growth of high-value timber and Non-Timber Forest Products (NTFPs), which local communities and other stakeholders can sustainably harvest and commercialize within regulated frameworks. Effective forest management ensures a continuous supply of these resources without depletion, securing long-term economic benefits.

Nchembwe Local Forest offers several potential income-generation and enterprise opportunities based on its current ecological state, the interests of local communities and stakeholders, and a strong commitment to sustainable forest management as outlined in existing institutional arrangements. Building community-based forest enterprises can leverage factors such as resource conditions, available forest products, market access, the presence of an enterprise group, and essential governance structures to regulate access, utilization, and conservation of the forest. These enterprise opportunities have been identified through comprehensive resource assessment and mapping, combined with socio-economic surveys and stakeholder consultations.

Potential Forest product enterprises:

- Beekeeping
- Wood biomass energy production
- Wild fruit and mushroom harvesting

The development of these identified opportunities will require conducting specific forest product value chain analyses and enterprise development assessments to ensure that the proposed forest-based enterprises are viable and financially sustainable. This approach aligns with the Forestry Department's Forestry Enterprise Strategy for 2025-2030, which aims to promote sustainable forest management while increasing value addition within forestry value chains by empowering local communities.

5.5 Encroachment – Illegal settlement and cropping

There are no settlements within the forest boundaries, however, cropping activities along the forest edges are a common practice by local farmers. Farmers near Nchembwe Forest primarily engage in subsistence farming, cultivating crops on land adjacent to the forest boundary. These activities are generally conducted with the intention of increasing food production and improving household livelihoods. The cropping occurs mainly at the edges of the forest, as farmers seek fertile soils and easier access, which results in encroachment into forested zones.

Initiatives to address and reverse the situation with a view to restore more of the ecological function of the Local Forest as well as meeting the social, cultural and economic needs of the local community are set out in the following chapter.

6 PROPOSED MANAGEMENT ACTIONS

Given the current rates of deforestation and forest degradation observed across this Local Forest, the primary goal is to protect its ecological functions by actively engaging local stakeholders and surrounding communities. This involves establishing new management and restoration strategies for the forest, including the application of the community forestry approach, which promotes community control, use, and management of the forest in partnership with the Forestry Department. Lessons learned from implementing this approach in this significant Local Forest will serve as a model for similar processes in other protected forest areas in the Eastern Province and throughout Zambia. All activities will align with the purpose of a Local Forest as outlined in Section 19 of the Forests Act, 2015.

> **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— Purpose of Local Forest
>
> *(a)* the security of forest resources;
>
> *(b)* the protection of ecosystems, particularly the protection of land and water supplies of local strategic importance;
>
> *(c)* the utilisation of forest resources at the local level; and
>
> *(d)* meeting the social, cultural and economic needs of the local community.

The focus will be on Forest Landscape Restoration (FLR) as a strategy to restore ecological functions, boost resource availability, and enhance the overall value of the deforested or degraded forest landscape of Nchembwe Local Forest. The approach will involve safeguarding existing forest areas and actively restoring areas where forest cover has been lost, with the participation of local communities. This aims to improve environmental, social, and economic outcomes. To achieve these goals, the primary management strategies will concentrate on protecting, restoring, and replanting, as outlined below:

- **Protect** - areas where the forest is intact with local stakeholder involvement;
- **Restore -** the forest where it is degraded by promoting regeneration encouraging regrowth of local species or reforestation with people's participation.
- **Replant** - increase forest cover through planting agroforestry species in fields where cropping is taking place. The objectives include enhancing tree cover, improving soil fertility, and providing fodder and small biomass for energy requirements. Additionally, reforestation will be promoted through planting indigenous or exotic species in abandoned fields within a plantation setting where feasible.

Opportunities for collaboration with partners will be actively sought, along with efforts to secure investment and sustainable financing through climate change mitigation and emissions reduction trading. This approach aims to incentivize and

reward sustainable land management practices in the forest. Central to this process is sharing benefits from the anticipated Jurisdictional Sustainable Landscape Programme, which will serve as a mechanism to motivate good practices in climate change mitigation. It will also enable monetary benefits to flow to local communities and other service providers through carbon trading initiatives facilitated by the government.

6.1 Zoning the forest for effective management

This management plan acknowledges the two primary zones identified during the stakeholder consultation of August 2023, which highlighted the various uses of the forest, key users, issues impacting Nchembwe Local Forest, local solutions, and activities permitted within the forest. Additionally, a third zone has been designated to encompass the immediate surroundings of the Local Forest, serving as a buffer area. This buffer zone will be the focus for development initiatives and activities aimed at emissions reductions.

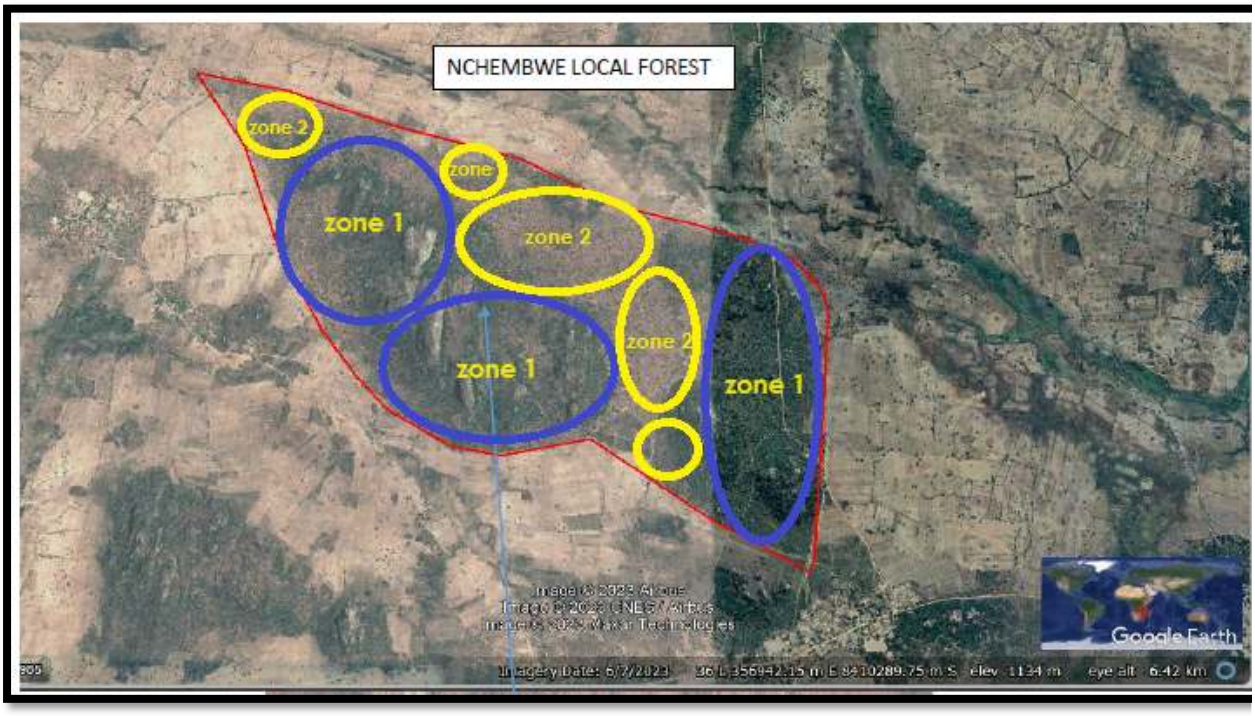


Figure 12 Zoning of Nchembwe Local Forest based on community consultation

Zone 1: Forest Protection, Management and Conservation of Biodiversity

Nchembwe Local Forest is a vital ecological zone home to diverse plant species and fauna. However, the threat of unsustainable use is expected to grow as human populations increase, leading to higher resource exploitation and ecological degradation. Therefore, protecting this forest habitat is crucial to maintain its ecosystem services and support the livelihood needs of local communities. Achieving effective forest protection and management will require working collaboratively with local stakeholders and communities—supporting their needs and involving them in decision-making—rather than opposing them. The strategy will focus on developing

joint protection systems with communities, enabling controlled use of resources within the forest's capacity to meet subsistence needs, while also conserving biodiversity and safeguarding environmental health in this designated protection zone.

Zone 2: Forest restoration zone

This zone encompasses areas already affected by human activities such as seasonal and permanent farming, settlements, and other land uses. The primary objective within this zone is to restore tree cover in line with the purpose of the Local Forest. This will involve promoting forest restoration techniques, implementing agroforestry practices, and addressing the root causes of encroachment through a range of initiatives.

Zone 3: Development buffer area

This area surrounds the reserved forest where farming activities and settlements are present. It will be the focus for forest expansion initiatives, including the development of community and household woodlots, the promotion of energy-efficient stoves, agroforestry, and other climate-smart agricultural practices.

Zones 1 & 2: These zones will be managed collaboratively with the local communities, using the community forestry approach outlined in the Forests (Community Forest Management) Regulations, 2018, and the National Guidelines for Community Forestry, 2018. Management will be formalized through a Community Forest Management Agreement, a management plan, and local resource use rules that define both the rights and responsibilities for the control, protection, and sustainable use of these forest areas. The communities will develop annual work plans with technical support and guidance from the Forestry Department to ensure the sustainable management of these zones.

6.2 Forest landscape restoration guiding principles

Successful forest landscape restoration (FLR) integrates a number of guiding principles, including:

- *Focus on the entire landscape*: The approach emphasizes a holistic consideration and restoration of the entire Nchembwe Local Forest landscape, rather than focusing on individual sites. This involves balancing a mosaic of land uses within the gazetted forest area, including conserving intact forest patches, restoring degraded forests, promoting agroforestry systems and climate-smart agriculture, establishing well-managed plantations where suitable, and identifying ecological corridors and riparian strips to safeguard watercourses and waterways.
- *Restoring ecological functions:* The goal is to restore the ecological functionality of the landscape, enhancing its capacity as a habitat, reducing erosion and flood risks, and increasing resilience to climate change and other disturbances. This can be achieved through various approaches, including restoring the landscape to its original vegetation, as well as employing

strategies such as natural regeneration, reforestation, and tree planting. By using a combination of these methods, a more resilient and ecologically balanced landscape can be restored.

- *Allowing for multiple benefits:* Enhancing tree cover across the landscape, including in existing cleared and farmed areas, does not necessarily mean establishing a full forest canopy. The aim is to improve food production, mitigate erosion, provide shade, and supply firewood. In other areas, trees can be introduced to develop a closed canopy forest that sequesters significant amounts of carbon, safeguards downstream water sources, and offers vital habitat for wildlife. This approach allows for a flexible strategy tailored to different ecological and land-use contexts within the landscape.
- *Promoting stakeholder's involvement:* Actively involving local stakeholders in decision-making processes related to restoration goals, implementation strategies, and trade-offs for sustainable land management is essential. This participatory approach helps to provide meaningful incentives and performance benefits, encouraging their ongoing engagement and commitment.
- *Adaptively managing:* The restoration strategy should be adaptable over time, evolving in response to changing environmental, social, and economic conditions. This approach needs to be supported by ongoing monitoring and learning throughout the restoration process to ensure its effectiveness and sustainability.

Despite these challenges, Nchembwe Forest still harbors a variety of native flora and fauna, including important medicinal plants and timber species. The continued presence of these species highlights the ecological value of the forest.

6.3 Core forest management actions

The identified management actions are described as follows:

Action 1: Forest Protection, Management & Conservation of Biodiversity

Nchembwe Local Forest is a vital ecosystem rich in diverse plant species and fauna. It is surrounded by a growing population that relies heavily on the forest for subsistence and increasingly for economic activities such as collecting mushrooms, wild fruits, caterpillars, honey, firewood, and poles. As the human population continues to grow, the demand for these resources is expected to rise, leading to heightened levels of resource exploitation and environmental degradation. Protecting this forest habitat is thus crucial to maintaining the ecosystem services it provides and supporting local livelihoods. However, awareness among neighbouring communities of the importance of ecosystem services, biodiversity conservation, and climate change mitigation offered by Nchembwe Local Forest remains low.

Forest protection is essential for the sustainable management of forest resources. Traditionally, patrolling has been the primary method of protection; however, despite these efforts and staffing limitations, it has proven difficult to curb unregulated use effectively. Experience has demonstrated that achieving adequate forest protection cannot be accomplished through confrontation and conflict with neighbouring communities. In reality, both local communities and the government share a common interest in conserving the forest and using its resources sustainably. Without considering the needs of local communities, gaining their support, and collaborating with them rather than opposing them, forest protection and management goals are unlikely to be realized. Therefore, the strategy will focus on working jointly with communities to establish shared protection systems, allowing for sustainable utilization of forest products that meet subsistence needs while maintaining environmental integrity and conserving biodiversity.

Therefore the following are the 7 steps that the stakeholder communities have to be taken through in order to develop a full partnership for shared management:

1. Stakeholder engagement, community awareness raising and mobilisation;
2. Stakeholder mapping including forest use, users and geographic interest.
3. Forming community level institutions to coordinate, manage and control local resource use in partnership with the Forestry Department.
4. Developing forest product and issues based operational management plans for areas of interest.
5. Agreeing roles, rights, responsibilities and obligations for shared management.
6. Implementing practical forest protection and management interventions that bring value and other environmental and social benefits.
7. Conducting joint monitoring and evaluation of management and benefit sharing measures to ensure a sustainable partnership.

These 7 steps to establishing shared management responsibilities and benefit sharing directly mirrors the 7 steps of the National Guidelines for Community Forestry in Zambia. Therefore tangible steps will be taken to incentivise and reward local stakeholder communities in the protection and management of Nchembwe Local Forest through following the community forestry development steps and processes.

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

No	Specific Objectives	Strategy	Actions	Responsible	Indicators
1	To develop a shared management approach to forest protection, management and utilisation.	1. Stakeholder engagement, community awareness raising and mobilisation;	Conduct awareness meetings with traditional leadership & communities	FD	Meetings conducted
		2 Stakeholder mapping including forest use, users and geographic interest.	Conduct meetings to determine effective span of management control across LNF	FD	FPIC Meetings conducted
		3. Forming community level institutions to coordinate, manage and control local resource use in partnership with the Forestry Department.	Through participatory processes, form local committee responsible to coordinate and assist management of the LNF	Community groups & FD	
		4. Developing forest product and issues based operational management plans for areas of interest.	For each Zone and area of shared management, development management plans and resource use rules		
		5. Agreeing roles, rights, responsibilities and obligations for shared management.			Signed CFM agreements. Annual work plan reports
		6. Conducting joint monitoring and evaluation of management and benefit sharing measures to ensure a sustainable partnership.	See monitoring section of LNFMP		
2	To protect the Forest from late fires	Practice early burning within and outside the forest by involving local communities.	-Conduct prescribed and early burning. -Training the local communities on fire management techniques -Sensitizing the local community on the importance of early burning.	FD/ Adjacent communities	Area in hectares of controlled burning

3	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
4	To conserve and enhance the biodiversity of the forest reserve through environmental awareness and education.	Enhance understanding of the forest ecosystem and its function and benefits to community groups and schools.	-Awareness on biodiversity with regard to indigenous knowledge. -Promote local participation and ownership through meetings.	FD/NGOs	
5	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	Hectare of forest protected from pests and human damage
6	To significantly reduce levels of illegal forest product harvesting.	Involve the local communities in the management of forest resources in order to create a sense of ownership. Engage honorary forest Officers/guards	-Conduct sensitization meetings. -Conduct forest patrols.	FD/ community and other security wings	Number of illegal harvesters/ activities reduced
7	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.

Action 2: Forest Restoration through Community Participation & Livelihood Development

Community empowerment is fundamental to participatory forest management, ensuring effective coordination and the sustainable use of forest resources. This Plan recognizes that the communities surrounding and within Nchembwe Local Forest are crucial stakeholders—not only in conserving the forest but also as beneficiaries of its sustainable management. The objective is to address their social, cultural, and economic needs, ultimately improving their livelihoods. As part of this management approach, specific interventions will be implemented in Zone 2 of the Local Forest, along with extension services and activities in Zone 3—areas surrounding Nchembwe Local Forest—to support these goals:

- Promotion of community forestry and the establishment of a community forest management group;
- Promote interventions with community groups to protect, restore and replant, as follows:
    - **Protect** - areas where the forest is intact with local stakeholder involvement;
    - **Restore -** the forest where it is degraded by promoting regeneration encouraging regrowth of local species or reforestation with people's participation.
    - **Replant** - increase forest cover through planting agroforestry species in fields where cropping is taking place. This aims to increase tree cover, soil fertility, provide fodder and small biomass for energy needs. Further, reforestation through planting of indigenous or exotic species in abandoned fields in a plantation environment where practical.
- Promote forest enterprise development (based on stakeholder consultations to be further developed through the CFM process). These may include:
    - Beekeeping using improved hives;
    - Wild fruit and mushroom collection and processing;
    - Wood energy biomass production.

    See section 6.4 Promoting forest based enterprises for details.

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 protect, restore and replant forest cover in the fragmented forest areas of the Local Forest	To Provide Forest extension services.	Training the communities in assisted natural regeneration Promotion of agroforestry and Woodlot establishment for communities surrounding the forest.	FD	Hectares of forest in the fringe areas increased year on year.
3. To reduce carbon emissions from agriculture 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 LF nursery.	FD/ Agriculture/ CSO's/ community	Tonnage of GHG emissions in the forest reserve reduced by 15% by mid-year review.
4. 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
5 Reduce forest dependency by local communities.	Promoting diversification of activities, particularly on-farm activities such as	Involve local communities in woodlot establishment.	FD/ Adjacent communities	Number of people dependent on the forests reserve

Specific Objectives	Strategy	Actions	Responsible	Indicator
	agroforestry and establishment of wood-lots, to create alternative Sources for forest products.			reduced by half at mid-term review
6. To contribute towards meeting social, cultural and economic needs and improving the livelihoods of forest-adjacent communities.	Forest resource condition is improved through management actions emphasizing the use of best practices.	Training forest-adjacent communities in sustainable forest enterprises, such as beekeeping, and other non- wood forest enterprises	FD/ NGOs	Forest enterprise activities developed and producing income.
7. 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.

6.4 Promoting Forest Based Enterprises

Based on the current condition of the forest including its plant species composition as well as insights from the socio-economic assessment and stakeholder consultations, some enterprise opportunities have been identified and outlined earlier. Accordingly, through the proposed management actions and where appropriate within designated zones, forest-based enterprises will be promoted in alignment with the purpose of Local Forests as defined in the Forests Act of 2015. This purpose emphasizes the sustainable utilization of forest resources at the local level to address the social, cultural, and economic needs of surrounding communities, while safeguarding vital ecosystems, particularly land and water sources of local strategic importance. These efforts underscore the core principles of sustainable forest management. In this context, the following enterprise initiatives are recommended for promotion through active involvement of local stakeholders:

Forest product/ enterprise	Beekeeping	Wood biomass energy production	Wild fruit harvesting
Market/ demand	High, local & urban (Sinda, Katete and Petauke)	Medium local, potential supply Chipata & tobacco farmers	Local area and wider towns
Product supply	Patches of flowering trees with suitable pollen fodder, water restricted to certain areas	Through agroforestry & forest restoration activities	Within forest area
Potential entrepreneurs	CFMG plus individual beekeepers	CFMG plus individual households	Individual households
Opportunities	Buyers available such as COMACO and other offtakers	Planned forest restoration works including agroforestry in cropped areas, potential Trading opportunity in Sinda	Existing livelihood activity conducted by local people
Challenges	Investment in sufficient hives, processing facilities, technical & business skills training	Seedlings, marketing	Seasonal activity, drying, processing and packaging facilities
Source of investment finance	Development projects & partners, Community Development Fund (CDF)	Development projects & partners, CDF	Development projects & partners, CDF

6.5 Fire management strategy

Fire has a critical impact on the forest environment, the condition of the forest and the services that it provides. While fire is frequently naturally occurring in the dryland forests of Eastern Province, it has been used as a management tool technically by foresters as well as by communities for different socio-economic and cultural needs. However, fire that occurs late in the year when the forest is dry causes the greatest harm to the health of the forest as well as the succession process influencing the future productivity, abundance of forest products and therefore its economic contribution locally and nationally. Further, forest fire is a key source of emissions of greenhouse gases (GHGs) in Eastern Province, that affects weather patterns, locally, regionally and globally. Therefore if managed correctly as a management tool, prescribed fire can reduce these emissions and impact, safeguarding the forest resources, biodiversity while providing enhanced opportunities for local economic development.

Therefore a fire management strategy and plan is essential for the proper management of the forest incorporating elements of fire protection and fire suppression. Recognizing the important role the forest plays in support to surrounding communities, the fire management strategy for the Local Forest will be developed through stakeholder consultation and implementation participation with

clear roles and responsibilities. The fire protection strategy should indicate: priority areas for protection – valuable and fire sensitive species, newly planted areas, enrichment planting, areas of fire sensitive natural regeneration, as well as high risk areas based on access, use and past frequency of fires. Based on the participatory assessment, protection measures such as: firebreaks – both internal and boundary should be planned, areas for prescribed (early) burning identified as appropriate. An action/activity plan with roles, responsibilities and timings should be discussed and agreed with stakeholders.

The **Fire suppression strategy** details the response should a wild-fire start which threatens the forest area. This will detail the pre-planned procedures along with roles and responsibilities. It will include the following:

- **A fire detection system:** The process and procedures to report the incidence of fire to promote prompt action and therefore protection.

- **Procedures in response to a fire alert:** How to alert stakeholders and local community members to assist with fire suppression including the availability and location of equipment to fight the fire.

- **Fire fighting strategy:** This will include details of various approaches to tackling fires using the materials and equipment that are available locally.

- **Methods to fight fires:** This will cover different fire suppression methods depending on the nature of the fire (Frontal attack, Flank attack, Indirect attack – back burning). These will have been explained and key personnel trained in each of the approaches. This will also include risk assessment methods and requirements for personal protective equipment.

A **Fire Education Strategy** will be developed at the start of the implementation of the FMP: This aims to raise awareness of the community on the impact of fire and the need to protect the forest from fire. Groups which represent a higher risk should be targeted for education, e.g., honey collectors, charcoal burners, mice collectors, schoolchildren etc.

6.6 Law enforcement Strategy

This Law Enforcement Strategy aims to protect and sustainably manage Nchembwe Local Forest; 118, through effective enforcement of legal provisions, regulations, and community participation. Ensuring compliance is essential to prevent illegal activities such as illegal logging, poaching, and forest encroachment.

Objectives
To prevent illegal exploitation of forest resources.
To promote community participation in enforcement.
To ensure timely and fair response to violations.

Key Enforcement Strategies

Regulation of Forest Activities

- Designating legal zones for access, logging, and charcoal production.
- Issuing permits and licenses for activities like harvesting, collection, and tourism.
- Enforcing restrictions on cutting, hunting, or collecting forest products outside authorized zones.

Monitoring and Surveillance

- Regular patrols by forest rangers and enforcement officers.
- Using technology such as drones, and GPS tracking.
- Engaging Honorary Forest Officers in reporting illegal activities.

Community Involvement in Law Enforcement

- Strengthening community forest groups' role in patrols and reporting.
- Providing incentives for communities that actively participate in enforcement.
- Publicizing penalties to serve as deterrents.

Collaboration with Stakeholders

- Coordinating with police, community groups, NGOs, and traditional leaders.
- Promoting joint patrols and awareness campaigns.

6.7 Environmental and social safeguards and other crosscutting issues

The Forestry Department will ensure that the management of Nchembwe Local Forest aligns with Environmental and Social Standards (ESSs), taking into account both national policies and relevant international standards and agreements, including multilateral and bilateral commitments. Existing requirements are outlined in the 2016 National Strategy to Reduce Deforestation and Forest Degradation, along with any new regulations that may be introduced through the Eastern Province Jurisdictional Sustainable Landscapes Programme. Throughout the implementation of management actions, these safeguards and other cross-cutting issues will be integrated into all aspects of forest management. Given the participatory approach used in developing this Forest Management Plan (FMP) and ongoing efforts to promote community forestry, it is anticipated that this FMP will positively impact local livelihoods and support the development of sustainable or alternative livelihoods where needed.

In brief, the safeguards will ensure:

- Gender equity and empowerment including addressing issues of gender based violence. Women shall be integrated into all aspects of management of Nchembwe 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 Nchembwe 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 work plan 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 of forest management for social equity wellbeing and empowerment through sustainable development	Ensure that all environmental and social impacts, risks and liabilities are identified and mitigated. Identify training needs. Promote ownership and access to forest products and services.	Awareness raising Short courses Exchange visits Refresher courses	FD/NGOs	All crosscutting issues mainstreamed in all forest management aspects. Zero grievances raised. Grievances addressed and closed within 3 months

Infrastructure Development

To effectively attain the forest management objectives for Nchembwe Local Forest, maintaining and upgrading infrastructure is crucial. At present, the forest generates limited direct revenue, which poses ongoing challenges for infrastructure maintenance due to constrained funding. A key issue is the upkeep of the track road that connects Nchembwe Local Forest to the main highway, a critical route that remains problematic and hinders access, operational activities, and community benefits.

No	Specific Objectives	Strategy	Actions	Responsibility	Indicators
1	To maintain the infrastructure necessary to achieve objectives of management.	Maintain the existing infrastructure	1. Maintain the road network.	FD/Maintenance/ Infrastructure	All infrastructure maintained to optimum standards

6.8 Sources of revenue

Sources of revenue in Nchembwe Local Forest typically is from the forest's resources, outlined below;

Licenses and Permits

- Issued by forest authorities (e.g., Forestry Department unless transferred under a CFM Agreement) for:
    - Timber / fuelwood harvesting
    - NTFP collection
    - Carbon trading projects (REDD+)
    - Others as provided by the Forests Act, 2015 or relevant regulations.

Climate change emissions reduction trading

The Government of the Republic of Zambia has identified climate financing as a potential source of revenue to support climate change mitigation and adaptation activities to safeguard the natural environment and importantly the ecosystem services that society as a whole and specifically rural communities depend on for their livelihoods and wellbeing. In the Eastern Province, the Ministry of Green Economy and Environment is implementing the Jurisdictional Sustainable Landscape Programme (EP-JSLP). The Programme Development Objective (PDO) is "to promote greenhouse gas (GHG) emissions reduction or removals in the Eastern Province, while simultaneously improving rural livelihoods including forest and wildlife conservation and management. These emissions reductions are being measured, verified, traded and revenue distributed according to an agreed Benefit Sharing Plan. An estimate has been made of the potential revenue that might be generated through the GRZ emissions reduction trading under the JSLP benefit sharing mechanism. The GHG baseline inventory indicated that the major emissions in the Province are coming from forest land through degradation from forest fires. Implementing improved forest management, conducting fire management and protecting the integrity of the forest areas including from forest loss, degradation and encroachment can be measured and monetised.

In the case of Nchembwe Local Forest and based on the intact forest area of 84% may generate emissions reduction of over **320** tonnes of carbon equivalent which may be monetised to generate around **$960 or ZMW 24,000** annually. This may increase as prescriptions of forest restoration may result in increased carbon sequestration that can be measured and monetised.

6.9 Summary Budget of Forest Management Plan Implementation

Forestry Programme	Cost in ZMW for 10 years
1 Forest Conservation through Community Participation and Livelihood Development	1,992,164
2 Forest Protection, Restoration, Management and Conservation of Biodiversity	2,394,340
3. Support the development of viable forest-based enterprises.	589,061
Summary costs total (ZMW)	**4,975,565**
Estimated Revenue (ZMW)	**458,110**
Net cost (ZMW)	**4,517,456**

Table 5 Summary Cost of Forest Management Plan Implementation

Cost breakdown is provided in Annex VII

7 STAKEHOLDERS ROLES AND RESPONSIBILITIES

Effective implementation of the Nchembwe Local Forest Management Plan (FMP) requires active participation and collaboration among all key stakeholders. Each stakeholder has specific roles and responsibilities to promote sustainable forest management, conservation, and community development.

District Forest Office (DFO)

The District Forest Office plays a pivotal role in on-the-ground forest management, enforcement, and community engagement. Its specific responsibilities include:

- **Conduct Regular Patrols:** Carrying out routine patrols within the Nchembwe Local Forest to prevent illegal activities such as unauthorized logging, poaching, and encroachment.
- **Maintain Boundaries and Beacons:** Ensuring all forest boundaries and beacons are clearly marked, visible, and maintained to prevent boundary disputes and illegal incursions.
- **Monitor Forest Recovery and Growth:** Tracking forest regeneration, health, and overall ecological status to inform management decisions and detect signs of degradation.
- **Develop and Implement Forest Fire Management Plans:** Establishing proactive fire prevention, detection, and suppression strategies, including community-based fire management initiatives.
- **Conduct Environmental Education (EE) Campaigns:** Raising awareness among local communities and stakeholders about sustainable forest use, conservation practices, and the importance of forest resources.
- **Train Communities in Sustainable Forest Management (SFM):** Providing capacity-building programs, workshops, and technical assistance to community members and forest management groups.
- **Report and Document Activities:** Preparing and submitting comprehensive reports on forest conditions, patrol outcomes, enforcement actions, and community engagement efforts to relevant authorities for oversight and planning.

Provincial Forest Office (PFO)

The Provincial Forest Office provides strategic oversight, governance, and support to ensure effective implementation of the Forest Management Plan. Its primary responsibilities include:

- **Monitoring and Evaluation:** Regularly assessing the implementation of the FMP at district and community levels using predefined performance indicators to measure progress and identify gaps.
- **Disbursement of Funds:** Managing financial resources allocated for forest management activities, community support programs, capacity-building, and infrastructure development.
- **Facilitation of Audits:** Overseeing and supporting the auditing process of District Forest Offices and community initiatives to ensure transparency, accountability, and proper use of resources.

- **Coordination and Support:** Offering technical guidance, resources, and capacity-building support to District Forest Offices, community groups, and other stakeholders involved in forest management.
- **Policy and legal framework:** Ensuring that the FMP aligns with national forestry policies and legal frameworks, particularly the Forests Act, 2015.
- **Stakeholder Engagement:** Facilitating communication and collaboration among government agencies, communities, NGOs, private sector partners, and other relevant entities.

Role of the Local Authorities

Local authorities are vital for integrating sustainable forest management into broader development initiatives at the district and community levels. Their responsibilities include:

- Incorporating the FMP into local development plans, ensuring that forest management considerations are mainstreamed into land use, infrastructure, and ecosystem planning.
- Facilitating alignment between forest management activities and other sectors such as agriculture, water, and health.
- Supporting the enforcement of forest laws and regulations within their jurisdictions.
- Promoting rural development projects that leverage forest resources to enhance community livelihoods and economic resilience.

Role of Traditional Authorities

Traditional leaders play an influential role based on customary authority, community trust, and cultural management systems. Their roles encompass:

- Providing mentorship and guidance to community members on sustainable resource use.
- Helping resolve conflicts related to forest access, use, and rights according to customary laws.
- Providing formal consent for community-based forest management processes, including recognition and signing of community forest management agreements with the Director of Forestry.
- Supervising the community forest management groups, ensuring their activities conform to customary norms and legal provisions.
- Overseeing access control, management of natural resources, and the conduct of community elections for forest management committees.
- Ensuring that enforcement of rules and resolutions reflects community values and customary laws.

Role of Communities

Communities are the primary custodians of the forest and hold the rights to sustainably manage and benefit from forest resources. Their responsibilities include:

- Controlling access to forest resources to prevent illegal activities and overexploitation.
- Actively participating in decision-making processes related to forest management.
- Implementing community-based sustainable forest practices as outlined in the management plan.
- Protecting the forest from illegal activities such as logging, poaching, and encroachment.
- Ensuring equitable sharing of benefits derived from forest resources, including income, employment, and social services.
- Reporting violations and participating in community-led enforcement efforts.
- Maintaining the community forest management groups and ensuring transparency and accountability in their operations.

Role of Honorary Forest Officers (HFOs)

Honorary Forest Officers are community members appointed based on peer nominations and official approval by the Minister. Their roles include:

- Facilitating community compliance with forest laws, bylaws, and resolutions.
- Supporting enforcement of sustainable harvesting and access regulations.
- Acting as mediators in conflict resolution within the community regarding forest use.
- Reporting infractions and assisting in investigations related to illegal activities.
- Collaborating with District Forest Officials to ensure harmonized enforcement efforts.

Role of Private Sector and Civil Society Organizations (CSOs)

Private sector entities and civil society organizations are crucial for fostering economic development and social empowerment through forests. Their roles include:

- Providing technical and financial services to support community enterprises, such as training, capacity building, and infrastructure development.
- Developing market linkages for forest-based products, ensuring fair trade and sustainable value chains.
- Promoting innovative approaches and investments that enhance forest conservation while generating income.
- Supporting additional services such as environmental education, capacity building, and advocacy for policy reforms.
- Facilitating the development of non-timber forest products (NTFP) enterprises, eco-tourism, and other sustainable livelihood opportunities.
- Monitoring social and environmental impacts of forest-based activities to ensure compliance with sustainability standards.

8 MONITORING AND EVALUATING IMPLEMENTATION

Monitoring and evaluation (M&E) are crucial components of the management plan, serving as tools to observe progress, make adjustments, and enhance the effectiveness of targeted activities. The Forest Management Plan will be executed by the Forestry Department, with active participation from local communities surrounding the forest reserve. The Department will also facilitate a forum for dialogue, consensus-building, setting priorities, and balancing various interests involved. The M&E process will draw upon annual work plans specifically prepared for Nchembwe Local Forest, which will operationalize the management actions outlined in Chapter 6.

8.1 Monitoring

To ensure that the management plan is being implemented effectively, the Forestry Department will oversee ongoing monitoring of activities and programs in collaboration with partners, stakeholders, and community representatives within the KLF. This will include assessing the impact of the Forest Management Plan (FMP) on the well-being of communities living along the forest fringes. Implementation will be tracked through a set of specific indicators described in Chapter 6's management actions and will be subject to regular reviews throughout the plan's duration. Continuous monitoring will be maintained through the preparation and submission of monthly, quarterly, and annual progress reports.

8.2 Evaluation

The implementation and impact of the Nchembwe Local Forest will be evaluated at two key points: mid-term (after 5 years) and at the end of the plan's 10-year period. These evaluations will nalyze both the activities carried out and the outcomes achieved, providing vital evidence on the sustainable management of the forest and the well-being of adjacent communities. The evaluation findings will inform future planning and implementation, highlighting successes and areas needing adjustment. The resulting evaluation reports will be instrumental in guiding revisions to the management plan.

8.3 Monitoring Responsibilities

The Provincial Forestry Office will be responsible for overseeing and conducting the overall monitoring and evaluation of the plan's implementation. Meanwhile, the District Forestry Office will be tasked with submitting annual operational plans, along with monthly, quarterly, and annual progress reports to the Provincial Forestry Office, ensuring consistent oversight and data flow.

8.4 Strategic Monitoring Indicators

Strategic monitoring indicators are designed to measure progress toward achieving the set targets outlined in the management actions chapter. These indicators will help determine whether the implementation is advancing as planned. The Forestry Department, as the lead implementing agency, will carry out the monitoring and evaluation activities to ensure that progress is tracked effectively and that objectives are being met progressively.

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 Nchembwe local Forest which will operationalise the management actions described in Chapter 6.

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 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 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 awareness meetings and attendance. -No of trainings	Records, monitoring & Evaluation reports and photographs.	The plan is successfully implemented with funds made available.
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

9 ANNEXES

Annex 1: Declaration Order, Topo Maps & Beacons

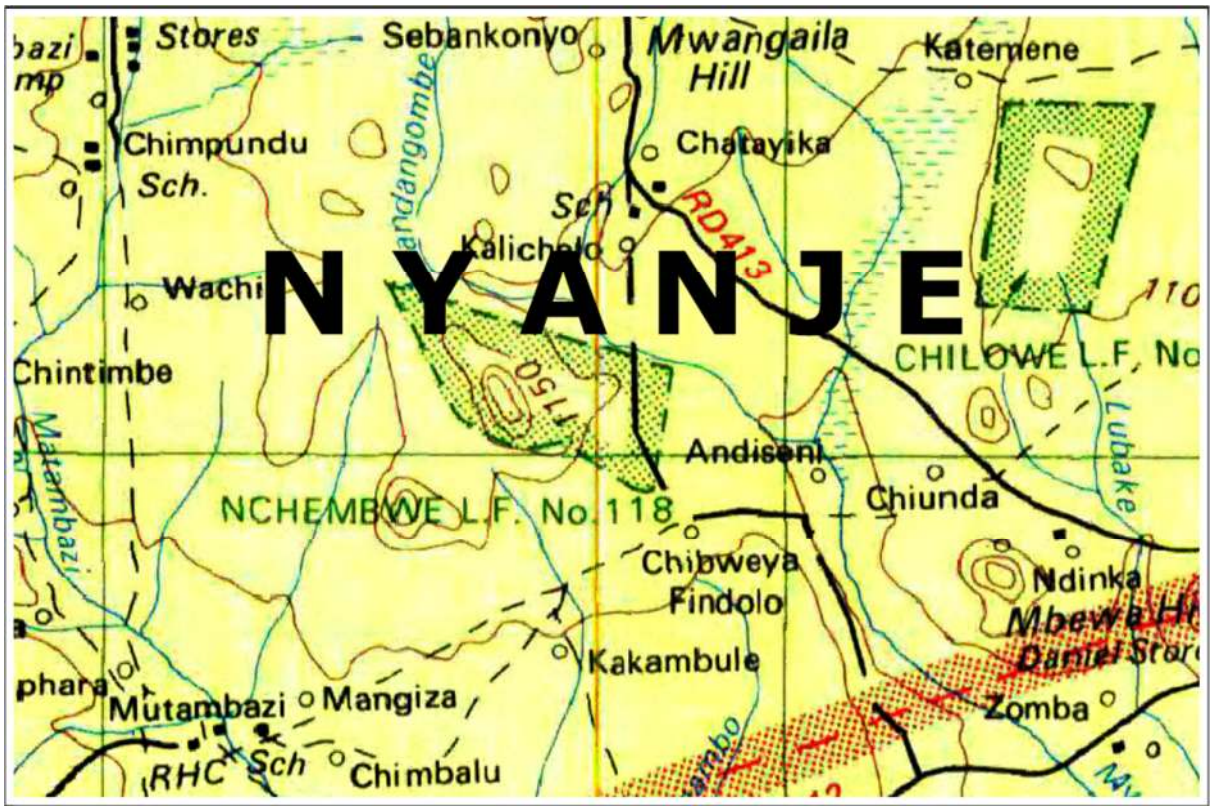
NCHEMBWE LOCAL FOREST (DECLARATION) ORDER

Order by the Minister

1. This Order may be cited as the Forest No.118 Nchembwe Local Forest (Declaration) Order. Notice 24 of 1964, Statutory Instruments: **264 of 1964**

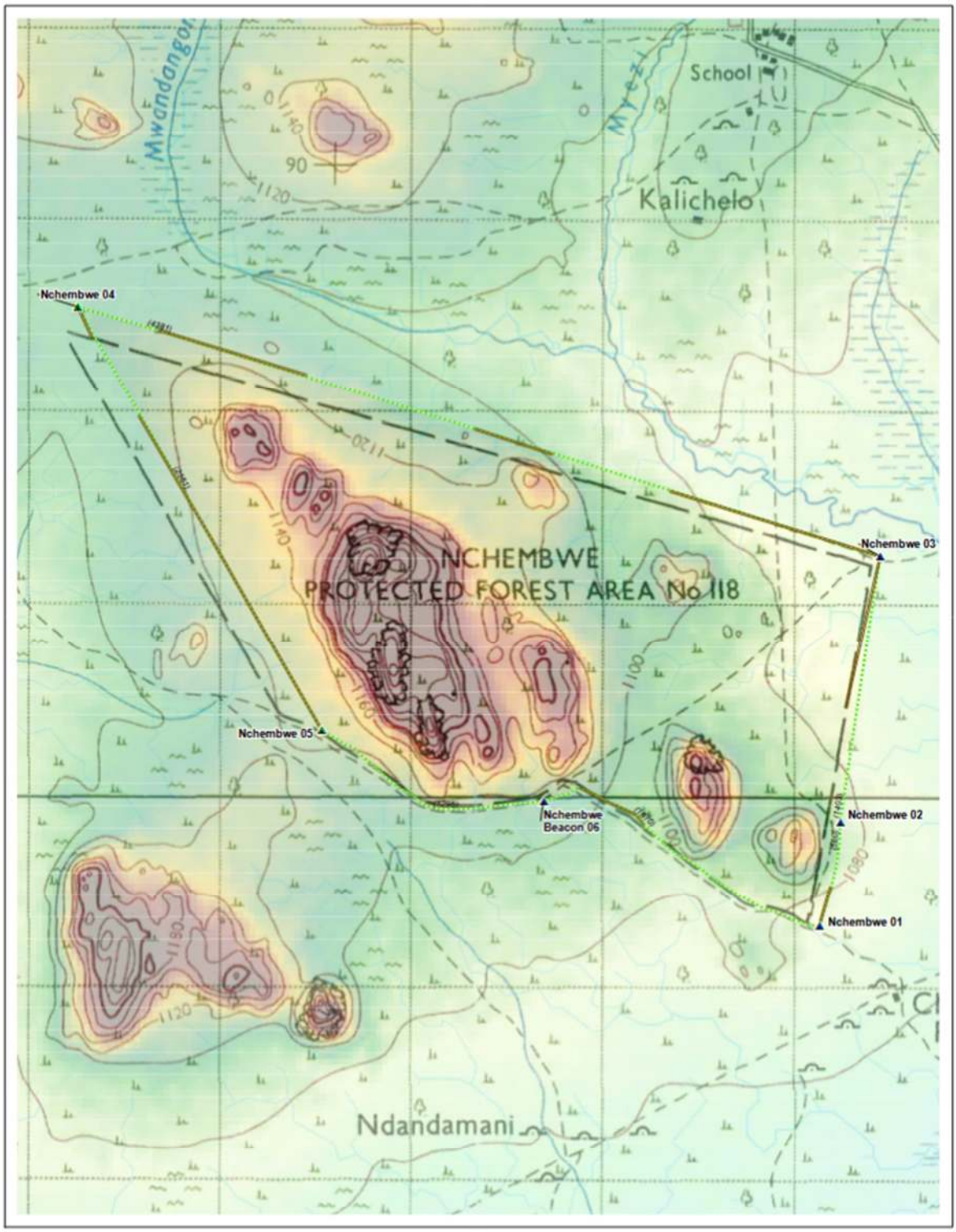
Starting at a point on the Chibweya-Chataika road approximately 487.7 metres north-west of Chibweya Findolo Village, the boundary proceeds northwards along this road for a distance of 548.64 metres; thence on a true bearing of 11 degrees 30 minutes for a distance of 1,368.5 metres; thence on a true bearing of approximately 286 degrees 30 minutes for a distance of approximately 4,419.6 metres; thence on a true bearing of approximately 150 degrees for a distance of 2,627.4 metres to a point on the Kakonge-Sifunga footpath; thence south-eastwards along this footpath to a point on the Chibweya-Chataika road approximately 487.7 metres north-west of Chibweya Findolo Village, the point of starting. The area described above, in extent 653.59 hectares approximately, is shown bordered red on Plan No. FR181, deposited in the office of the Surveyor-General, signed by him and dated 4th August, 1961.

1. Map of Nchembwe Local Forest in relation to Chiefdom boundaries (1958 map)



Nchembwe Local Forest

646 Ha.



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

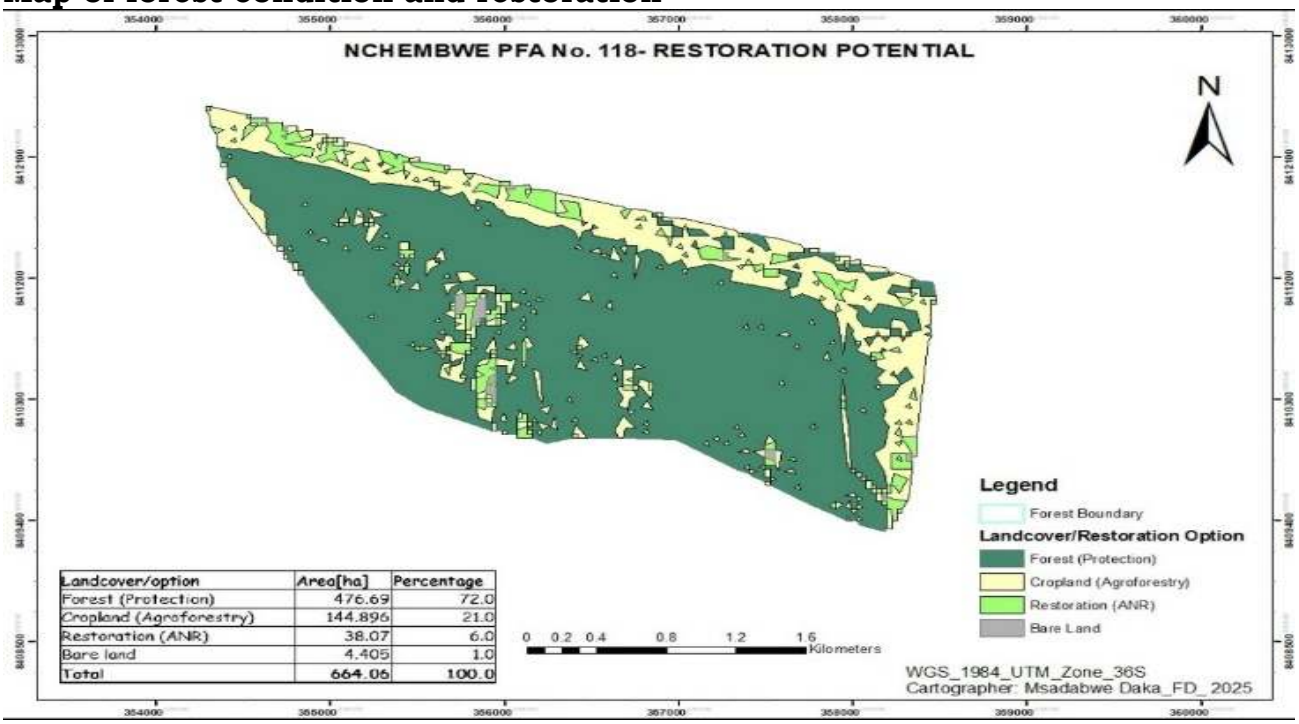
Projection: Arc 1950 UTM Zone 36S
Sources: Zambian Forestry Department Statutory Instruments, East View Cartographic, Inc (Topographic Maps), On-site GPS, Shuttle Radar Topography Mission
Cartographer: Michael Keys, USDA Forest Service
Date Published: 30 March, 2018

0 0.5 1 2 Kilometers

Beacon coordinates

CONFIDENCE	BEACON/POINT NAME	LATITUDE DD	LONGITUDE DD	UTM EASTING	UTM NORTHING
GPS	Nchembwe 03	-14.37019	31.68684	8411071	358406
GPS	Nchembwe 02	-14.38272	31.68484	8409683	358199
GPS	Nchembwe 01	-14.38766	31.68380	8409136	358090
GPS	Nchembwe Beacon 06	-14.38166	31.67051	8409791	356653
High	Nchembwe 04	-14.35819	31.64812	8412374	354223
High	Nchembwe 05	-14.37824	31.65979	8410163	355495

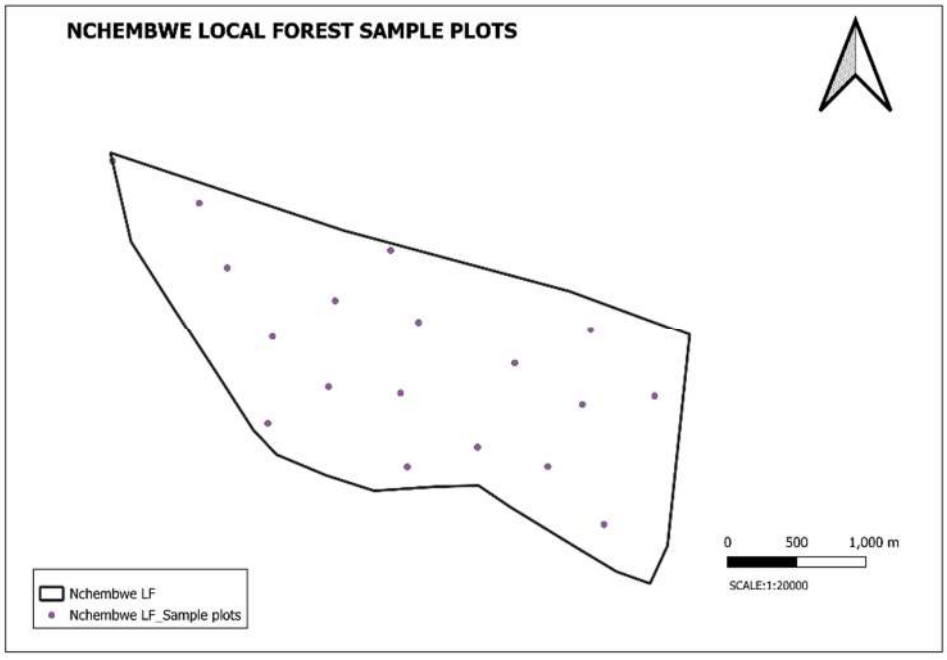
Map of forest condition and restoration



Annex II: Inventory Data

Species	0-4	5-9	10-14	15-19	20-29	30-39	40+	Total
Volume	0.00	3.26	2.34	1.94	5.01	5.37	21.81	39.74
Bole Volume	0.00	1.69	1.23	0.86	2.63	2.46	8.87	17.73
Density	2.14	270.70	53.50	17.11	20.33	7.49	11.77	383.04
Basal area	0.00	0.97	0.57	0.39	0.96	0.70	2.34	5.93
Biomass, Total	0.00	4.70	3.41	2.83	7.37	8.21	31.93	58.47
Carbon, Total	0.00	2.36	1.71	1.41	3.69	4.11	15.96	29.23
Vol Sawlogs	0.00	0.50	0.27	0.14	0.20	4.41	16.26	21.79
Pole Volume	0.00	0.74	0.60	0.84	0.80	0.00	0.64	3.66
Volume Fruits	0.00	0.44	0.47	0.11	0.96	0.00	0.00	1.97
Volume Medicinal	0.00	0.70	0.56	0.23	1.29	0.96	0.00	3.73
Volume Firewood	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01
Volume Other	0.00	0.79	0.40	0.47	1.33	0.00	0.00	2.97
Seedlings								2,726.20

2 Map indicating location of squares for the forest inventory sample points



Annex III: Demographics of major forest fringe communities

Demographics of major forest fringe communities of Nchembwe Local Forest Forest

	Sex of household head		Total	Population		
Village name	**Female**	**Male**		**Total members**	**Males**	**Females**
Andiseni	7	16	23	101	45	56
Astone farm	1	2	3	18	10	8
Chatimbwa	2	10	12	64	30	34
Kaila	4	19	23	112	49	62
Kalichelo	26	80	106	499	258	244
Kamasula	3	9	12	52	23	35
Kaseu village	0	4	4	26	12	14
Katanda Farm	2	1	3	9	4	5
Lumelo village	5	14	19	83	42	41
Mnchembwe school	0	1	1	8	3	5
Ndamani	4	12	16	71	34	37
Ndandamani school	1	1	2	6	4	2
Simoko	4	12	16	70	35	35
Vindolo village	0	7	7	42	21	22
Total	59	188	247	1161	570	600

Table 7: Population Distribution of major forest fringe localities of the Reserve by sex

Annex V: Stakeholder validation meeting

REPORT FOR THE NCHEMBWE LOCAL FOREST MANAGEMENT PLAN STAKEHOLDERS' VALIDATION MEETING HELD AT CHOCHI LODGE, SINDA DISTRICT ON 20th DECEMBER 2023

1.0 Introduction:

In 2021/2022, the Forestry Department conducted a forest inventory to assess the resources within Nchembwe Local Forest (NLF) and other areas. The purpose of this exercise was to gather data to support the development of Forest Management Plans (FMPs), which serve to guide community-government collaboration in managing protected forest areas (FPAs) in the Eastern Province. Following the inventory, draft FMPs were prepared for all FPAs included in the 2021/2022 forest inventory for the Eastern Province.

A Stakeholders Validation Meeting was organized for the District Forest Reserve (DLF). The purpose of this meeting was to review and validate the drafted FMP for the DLF, which was developed by the Forestry Department. The validation meeting held in Sinda brought together a diverse group of participants, including community members, government departments, local authorities, and traditional leaders, to ensure broad support and input into the management plan.

2.0 Official Opening

The District Commissioner Sinda officially opened the Nchembwe Local Forest FMP validation meeting

3.0 Meeting's Expectations

The first session was facilitated on teasing the meeting's expectations. Below is what the stakeholders brought out as the four main expectations as:

i) Learn how to manage their local forests

ii) What will be agreed in the consultation will help protect DLF

iii) Come up with strategies to restore DLF.

iv) Share the findings of the forest inventory conducted in DLF.

Why need for FMP

In the Second session, Community was mainly invited to provide their input which would help in protecting and managing DLF, the importance of forests, why local forests were declared etc

- On-going forest degradation
- Rapid deforestation
- Unsustainable livelihood activities
- Inadequate community participation in forest and wildlife management, land use planning
- Increase in adverse effects of climate change
- Poor yield,

Local forests were declared for:

- Safety of forest resources
- Protection of the ecosystem

- Forest resources use by the locals
- To meet the socio-economic and cultural needs of the community

Way forward requirements
Need for: Consensus, active support & collective action
Government desire is to empower local communities and the traditional leaders to protect and manage forests. Legal framework supporting sustainable forest management exist in Zambia which is the Forest Act, National Policy and SI 11 of 2011 for Community Forestry Management. DLF was designated in 1964 as LF for extraction of poles by the local community. LF are therefore designated as such to meet local needs similarly, the solutions for resolving the issues related to the local forests should be proposed by the local communities

Session for Questions:
Below are some of the questions that were brought out:

- What do you do with people who have settled in the protected areas? - - Answer: Options were given on either evicting them or coming out with local rules that will deter further extensions on where they have settled.

Session three: Forest Inventory (Forest condition assessment)
This session gave out results from the inventory exercise that was conducted in 2021.Forests must be sustainably managed through sustainable harvesting that avoids depletion. The Objective of conducting the inventory was to inform the formulation of the FMP for NLF, determine actual stocking, distribution of tree species Carbon stocks as well as regeneration potential.

Findings
Majority of trees in the forest were between 5-9cm diameter class. 36 tree species were found in NLF and that NLF not growing at its full capacity

- Over harvesting of tree species
- Human disturbances through over cutting, fires and grazing
- If No intervention forest degradation and depletion will be intensified.

Questions/concerns
It was true that there are human disturbance in NLF as some people have settled there, farming there, and tree cutting. Since NLF is the property of the government how can it then be managed?

- Community said they can manage to protect and manage the NLF

It would be good to hear how and which areas are degraded NLF

Session four: Livelihood Survey Overview presentation (ZAMSTATS)
Below are the statistics:

- Economic activities 98.7% of HH engaged in agriculture and 1.3% business
- Land ownership: 80% didn't own any while 20% owned land.
- Willingness to plant trees: 68% expressed willingness while 32% declined
- HHs that use the forest resources: 99.6 said they use the forest resources

Questions/Concerns

Trainings in the construction of energy serving cook stoves to be intensified to ensure sustainability of forestry resources. There is need to sensitize the communities before conducting surveys so that people give correct information when asked.

Session five: What should be in the proposed FMP

Development objectives of FMP as stipulated in the National Forestry Policy were shared as being:

(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 utilization 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.

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The expected management actions were also discussed as:

- Forest Protection, Restoration, Management and Conservation of Biodiversity. This is triggered by:
  - The forest is surrounded by an increasing population
  - The level of unsustainable use is anticipated to intensify 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. **Hence** 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 local needs.
- Forest Restoration through Community Participation and Livelihood Development. Community empowerment is central to sustainable management of forest resources
  - This will be achieved through promotion of community forestry and the establishment of a community forest management group to partner over the management of the forest
  - The Plan proposes interventions with community groups to protect, restore and replant, as part of the restoration planning for Nchembwe Local Forest.

Question

How long does it take to form a CFMG so that communities are empowered to manage their forests? **Answer**: Not very long only that the community has to be taken through seven (7) steps as per the guidelines of community forests.

Later, the session on identifying uses, users, issues, threats and solutions and opportunities was done as group work. Below are the findings:

GROUP WORK- Nchembwe Local Forest

Concerns from the stakeholders surrounding the forest.

- Needs general meeting with the community.

- There about 33 villages inside the forest.
- The stakeholders needs to do know how best we can manage the forest.

What- Uses of the forest	**Who uses/harvests**
- Firewood - Charcoal - Caterpillar - Timber & Poles - Mushroom - Medicine (Herbs) - Wildlife - Bamboos - Grass - Water - Fibre	- Local people - People from outside the forest surroundings

2.

ISSUES	**Solutions/opportunities**
Indiscriminate cutting of trees	-formation of local rules
Late fires	-Afforestation
Illegal extraction of timber.	-Forest education
Mineral extraction illegally	-Involvement of traditional leaders

Permitted practices were also discussed:	**Prohibited practices were also discussed**
- Mushroom collection. -Herbal medicine collection without uprooting the tree - Collection of fruits - Rotational animal grazing	-Charcoal and timber production - No farm land extensions - No grazing of animals any how

3.0 Zoning of forest

A Map was used to identify specific areas were intervention need to take place. The members highlighted degraded areas and those that are intact

List Suggestions/strategies to improve productivity/management of the forest.	**Who should be involved?**
- Sensitizations and Formation of committee - Afforestation (Promotion of agroforestry trees and tree planting) - Promoting Assisted Natural regeneration.	- Local communities - Traditional leaders: Chief and headmen - Forestry Department - Agriculture - - Church - Local Authority - All NGOs and CSOs

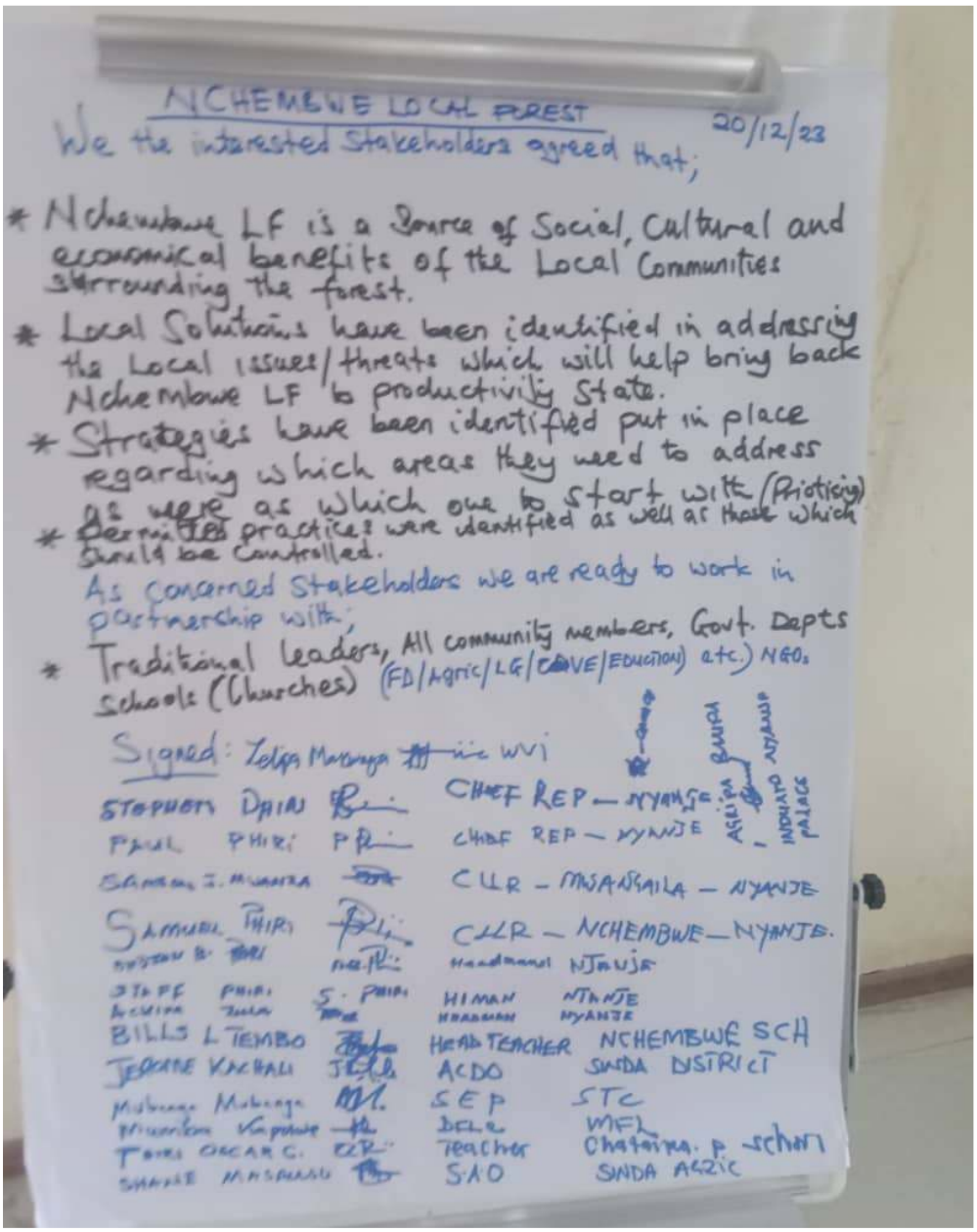
What should be the priority?

- Afforestation and formation of management committees

How do we work together?

Through Cooperation and coordination in the community

Lastly a **Declaration** was done were all stakeholders pledged to work together in managing Nchembwe Local Forest.



Next Steps

i. Development of FMP

ii. Submission of draft FMP to Forestry Department HQ

iii. After review by HQ will be sent back to the community with comments for their review of comments

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
- Government of Zambia, (2018) The National Guidelines for Community Forestry in Zambia, Forestry Department, Lusaka, Zambia. https://ziflp.org.zm/cfm/
- 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: Budget estimate of implementing management actions

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

	Action 1: Forest Protection, Management & Conservation of Biodiversity		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	Total cost
1	**To develop a shared management approach to forest protection, management and utilisation.**	1. Stakeholder engagement, community awareness raising and mobilisation;	Community meetings	3	3	1,500	13,500					-	-	-	-	-	13,500
		2 Stakeholder mapping including forest use, users and geographic interest.	Community meetings	4	1	5,000	20,000									-	20,000
		3. Forming community level institutions to coordinate, manage and control local resource use in partnership with the Forestry Department.	Community meetings	4	3	4,500	54,000										54,000
		4. Developing forest product and issues based operational management plans for areas of interest.	Community meetings	4	2	4,500	36,000		-	-	39,600		-	-	-	-	75,600
		5. Agreeing roles, rights, responsibilities and obligations for shared management.	Community meetings	4	1	4,500	18,000		-	-	-	-	-	-	-	-	18,000
		6 Conduct training in control functions: Permits, rules, financial management, law enforcement	Community meetings	4	1	4,500	18,000		-	-	19,800		-	-	-	-	37,800
		7. Conducting joint monitoring and evaluation of management and benefit sharing measures to ensure a sustainable partnership.	Community meetings	4	1	4,500	18,000	19,800	21,780	23,958	26,354	28,989	31,888	35,077	38,585	42,443	286,874
2	**To protect the Forest from late fires**	Practice early burning within and outside the forest by involving local communities.	10,000Ha	1	1	25000	25,000	27,500	30,250	33,275	36,603	40,263	44,289	48,718	53,590	58,949	398,436
3	**To secure the boundary and define the extent of the boundary and prevent possible encroachment**	1 Carry out annual Boundary maintenance.	10Km	1	1	70,000	70,000		77,000		84,700		93,170		102,487		427,357
		2 Beacon maintenance	No.	20	1	650	13,000	14,300	15,730	17,303	19,033	20,937	23,030	25,333	27,867	30,653	207,187
		3 Erection of sign posts	No.	10	1	300	3,000		-	-	-	3,000		-	-	-	6,000
4	**To conserve and enhance the biodiversity of the forest reserve through environmental awareness and education.**	Enhance understanding of the forest ecosystem and its function and benefits to community groups and schools.	School visits	3	1	2,500	7,500		8,250		9,075		9,983		10,981		45,788
5	**To significantly reduce levels of illegal forest product harvesting & other damage.**	Engage honorary forest Officers/guards	coord meetings	1	4	1,500	6,000	6,600	7,260	7,986	8,785	9,663	10,629	11,692	12,862	14,148	95,625
		Conduct patrols	No	2	12	800	19,200	21,120	23,232	25,555	28,111	30,922	34,014	37,415	41,157	45,273	305,999
															Action 1 Sub total		**1,992,164**

Action 2: Forest Restoration through Community Participation & Livelihood Development																	
1. Enter into partnership with clear roles and responsibilities with surrounding communities	Promote community forestry approach / restoration planning	Community meetings	3	3	2,500	22,500		24,750		-	-	27,225		-	-	74,475
2. To protect, restore and replant forest cover in the fragmented forest areas of the National Forest	Support forest restoration activities	Community meetings	3	3	2,500	22,500	24,750	27,225	29,948	32,942	36,236	39,860	43,846	48,231	53,054	358,592
3. To reduce carbon emissions from agric soils and dependency on inorganic fertilizer	Promote CSA through Agroforestry	CSA ha	20	1	500	10,000	11,000	12,100	13,310	14,641	16,105	17,716	19,487	21,436	23,579	159,374
4. To significantly reduce levels of tree cutting for wood energy.	Promotion of energy efficient Cook stoves	Training	1	2	5,000	10,000	11,000	12,100	13,310	14,641	16,105	17,716	19,487	21,436	23,579	159,374
	Roll out programme	stoves	200	2	100	40,000	44,000	48,400	53,240	58,564	64,420	70,862	77,949	85,744	94,318	637,497
5 Reduce forest dependency by local communities.	Sources for forest products/ woodlots/ plantations	woodlot establishment	5	1	5,000	25,000	27,500	30,250	33,275	36,603	40,263	44,289	48,718	53,590	58,949	398,436
6. To contribute towards meeting social, cultural and economic needs and improving the livelihoods of forest-adjacent communities.	Forest enterprises promoted & supported	Enterprise groups formed & trained	3	1	2,750	8,250	9,075	9,983	10,981	12,079	13,287	14,615	16,077	17,685	19,453	131,484
		Equipment	3	1	30,000	90,000		99,000				108,900		-	-	297,900
7. To reduce carbon emissions from deforestation and forest degradation by ensuring community benefit from carbon credits.	Access to an incentive benefit sharing mechanism through the carbon trading scheme to be established by Government in Eastern province	Community meetings	3	1	2,500	7,500		8,250		9,075		9,983		10,981		45,788
8. To ensure cross cutting issues are mainstreamed in all aspects of forest management for social equity wellbeing and empowerment through sustainable development	1 Ensure that all environmental and social impacts, risks and liabilities are identified and mitigated.	Community meetings	3	1	2,500	7,500		8,250		9,075		9,983		10,981		45,788
	2 Identify training needs.	Community meetings	3	1	2,500	7,500		8,250		9,075		9,983		10,981		45,788
	3 Monitoring safeguards & Grievances	Community meetings	1	1	2,500	2,500	2,750	3,025	3,328	3,660	4,026	4,429	4,872	5,359	5,895	39,844
9. To maintain the infrastructure necessary to achieve the multiple objectives of forest management.	Maintain the existing infrastructure	Site specific				-	-	-	-	-	-	-	-	-	-	-
														Action 2 Sub total		**2,394,340**
10. Support the development of viable forest based enterprises	1. Beekeeping	Equipment	500	1	700	350,000										350,000
		Training	1	4	2,500	10,000	11,000	12,100	13,310	14,641	16,105	17,716	19,487	21,436	23,579	159,374
	2. Wood biomass energy production	Training	1	2	2,500	5,000	5,500	6,050	6,655	7,321	8,053	8,858	9,744	10,718	11,790	79,687
	3. Wild fruit harvesting	Training	1	2	2,500	5,000	5,500	6,050	6,655	7,321	8,053	8,858	9,744	10,718	11,790	79,687
														Enterprise Sub total		**589,061**
												Grand total costs for the period of the Plan (ZMW)				**4,975,566**
		Unit of Measure	**Quantity**	**Frequency**	**Unit revenue**	**Total Revenue Year 1**	**Total Revenue Year 2**	**Total Revenue Year 3**	**Total Revenue Year 4**	**Total Revenue Year 5**	**Total Revenue Year 6**	**Total Revenue Year 7**	**Total Revenue Year 8**	**Total Revenue Year 9**	**Total Revenue Year 10**	**Total Revenue**
Revenue			Ha													
1 Carbon trading benefit share EP-JSLP- Forest land	Carbon t/ha/yr inc 10% per yr	Hectare	476.69	0.7	75	25,026	27,529	30,282	33,310	36,641	40,305	44,335	48,769	53,646	59,011	398,854
2 Small woodlots	Carbon t/ha	Hectare	5	0.7	75	263	288.8	346.5	450.5	630.6	945.9	1,418.9	2,270.3	3,859.5	6,947.0	17,420
3 Agroforestry	Assume 1tC/ha inc to 2 t/ha yr 10	Hectare	20	0.7	75	1,050	1,155.0	1,270.5	1,397.6	1,537.3	1,691.0	1,860.1	2,046.2	2,250.8	2,475.8	16,734
4 Natural regeneration	Assume 1tC/ha inc to 2 t/ha yr 10	Hectare	30	0.7	75	1,575	1,732.5	1,905.8	2,096.3	2,306.0	2,536.6	2,790.2	3,069.2	3,376.2	3,713.8	25,101
														Revenue sub total		**458,110**
														Net cost (surplus)		**4,517,456**

REPUBLIC OF ZAMBIA

Ministry of Green Economy & Environment

The Zambia Integrated Forest Landscape Project (ZIFLP) 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 ZIFLP and EP-JSLP are a cooperation between the Government of Zambia, the World Bank & partners.

Forestry Department

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