REPUBLIC OF ZAMBIA

MINISTRY OF GREEN ECONOMY AND ENVIRONMENT

MWANJANGULU LOCAL FOREST: P 138 MANAGEMENT PLAN
2025-2035

APPROVAL PAGE

MWANJANGULU LOCAL FOREST No. 138 - FOREST MANAGEMENT PLAN

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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

Forest resources are important because they provide essential functions and services to local communities and the country at large, for conservation of biodiversity, and supporting social and livelihood wellbeing. Natural resources management trends in all the corners of the global are moving away from the predominantly earlier practiced protective 'plan and control' management approach to more collaborative and participatory management approaches. Zambia has adopted Participatory Forest Management (PFM), and Community Forest (CF) approaches to forest management allowing for co-management of forest resources between the Zambia Forestry Department (ZFD) as custodian of Zambia's forest resources and communities, partnering organizations and institutions. The change in forest management approach is driven by the need to promote sustainable use and management of forest resources in the country. The high demand for forest products and services has rendered the present use and management of forest resources unsustainable, this is because of increase in human population, and the ever-changing socio-economic and environmental conditions around the country. It is for this reason that the Mwanjangulu Local Forest Management Plan (MLFMP) has been formulated.

Signature:

Director of Forestry

Date:

ACKNOWLEDGEMENTS

EXECUTIVE SUMMARY

Forest Management Planning is a requirement for Sustainable Forest Management (SFM) and is provided under the provisions of the Forests Act No.4 of 2015. Forests, provide for the conservation and use of forests and trees for the sustainable management of forests ecosystems and biological diversity were woodlands and trees are among the nation's most important natural heritage resources. The vision of the National Forestry Policy, 2014 is to attain sustainable forest management at all types of forests to enhance forest products and services, that will contribute significantly to mitigation of climate change, poverty reduction, increased income generation, job creation and protection and maintenance of biodiversity. The Policy encourages participatory forest management anchored on the active participation of local communities, traditional institutions, private sector and other stakeholders in the management and utilisation of forest resources at all levels of decision making, implementation, monitoring and evaluation.

This Forest Management Plan has been prepared for Mwanjangulu Local Forest with the aim of equipping the management team and other interested stakeholders with a capable tool of directing the approach to be followed, guiding the process of partnerships with key stakeholders and addressing the challenges facing the management of the forest at present. These in the case of Mwanjangulu Local Forest are extreme and if not addressed immediately may result in the loss of the forest and the functions it was reserved to protect. Adjacent communities can play an important role in the rational utilisation of the existing forest through participation in decision making, active management, protection and benefit sharing. Thus; community collaboration is imperative to protect the remaining forest cover of Mwanjangulu Forest from degradation in order for it to fully contribute to local and national development as well as for the benefit of the future generations of Zambia.

Translating Policy into practice

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

Community based natural resource management is core to this Forest Management Plan. Through promoting community involvement in the management of Mwanjangulu Local Forest, rights to forest products and uses of the forest will be negotiated whilst agreeing obligations and other responsibilities for protection and management activities with local communities. This is intended to achieve the parallel goals of ending open access, promoting enhanced forest management, whilst unlocking the full potential of sustainable forest use for economic development in the local communities. Surrounding communities have both the most to lose from its destruction and most to gain from its good management. The Community Forestry approach followed in Zambia provides an incentive mechanism and capacity development process to make this a reality.

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

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

Forest resource & community well being assessment

During 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 Mwanjangulu local forest.

In view of the current condition of the forest, the inventory results indicate a total standing volume for all species in Mwanjangulu Local Forest estimated at ($13.61m^3$/ha), with a total bole volume estimated at $6.60m^3$/ha). Total Biomass for trees ≥5cm DBH is estimated 19.79 tonnes per hectare with an above ground carbon estimate of 9.89tons/ha. A basal area figure of $1.669m^2$ per hectare is a low figure for the type of forest by over a factor of 10. This confirms the status of Mwanjangulu Local Forest as a forest not achieving optimum growth potential.

Summary socio economic analysis

The livelihood survey conducted in 2021 indicated that Mwanjangulu Local Forest is surrounded by approximately 39 farming blocks and villages with a total population of 1,224. These households depend on farming as their main occupation, the principal crops grown are maize, sunflower and groundnuts from land holdings ranging between 0.25ha to 6ha. Almost all households use firewood as their energy for cooking. The survey revealed that 86 percent of all the households were willing if called upon to voluntarily support management of the forest reserve with Forestry Department. At the time of survey, there were serious encroachment in the reserve including schools and clinics within the forest.

Forest change & issues analysis

A consultation meeting of stakeholders for Mwanjangulu Local Forest was held on 14th December, 2023, at Jemita Lodge, in Chipata District. Participants were requested to review the uses and users of the forest, the issues that are contributing to forest loss and forest degradation, but importantly to propose local solutions to these issues. Utilising forest cover imagery, participants were able to relate to the areas of forest and forest loss through agriculture and settlement across the forest and surrounding areas. This was used to focus discussion on issues, identifying different zones of use and management, possible strategies and priorities for management as well as agreeing permitted and non-permitted activities within each of the identified zones.

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 MLF, 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 forest activities.

• Need to change the mindset 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 MLF and need to stiffen laws.

• 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 Mwanjangulu local forest.

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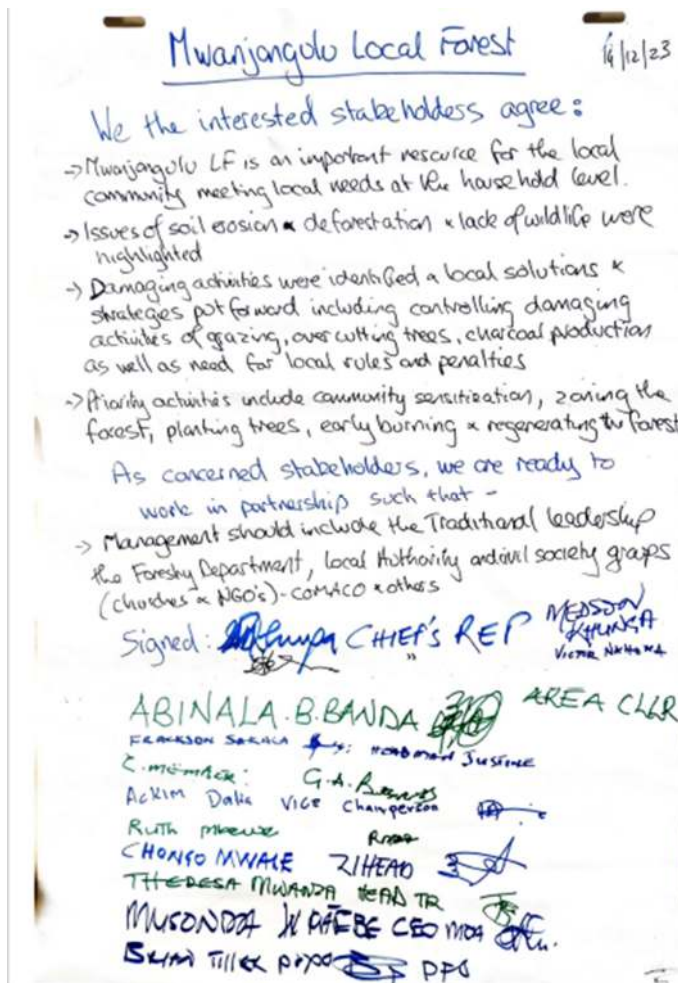
Objectives and management actions

Based on the policy and legal framework and the consultation process conducted, the General Objectives for the management of Mwanjangulu 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 Mwanjangulu 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 Mwanjangulu 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 Mwanjangulu 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 Mwanjangulu 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 forest.

2 Forest Protection, Restoration, Management and Conservation of Biodiversity

Mwanjangulu l 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 workplan and operational plans should include a process of social and environmental screening. These should be reviewed and updated in accordance with the type of activity being planned and general screening reviewed annually. A Grievance Redress Mechanism will be operational at the District and Provincial level to allow a mechanism for grievances to be raised, documented and addressed. Documentation and tracking is core to this issue. Women shall be integrated into all aspects of management of

Mwanjangulu local Forest and empowered through equal participation in decision making, governance and benefit sharing.

Contribution to Emissions Reduction in Eastern Province

Improved management of Mwanjangulu 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 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 Interviews
CFMG	Community Forest Management Groups
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	Green house gases
HFO	Honorary Forest Officers
MLFMP	Mwanjangulu Local Forest Management Plan
MLF	Mwanjangulu Local Forest
MGEE	Ministry of Green Economy and Environment
NGO	Non-Governmental Organization
PAPI	Paper Assisted Personal Interviews
PFM	Participatory Forest Management
REDD	Reducing emissions from deforestation and forest degradation
SFM	Sustainable forest management
ZAMSTATS	Zambia Statistics Agency
ZIFLP	Zambia Integrated Forest Landscape Project

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MWANJANGULU LOCAL FOREST MANAGEMENT PLAN

1   INTRODUCTION

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

1.1 Purpose of the forest management plan

The purpose of the forest management plan is to guide 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 Mwanjangulu Local Forest in a sustainable approach and manner.

The plan will serve as a legal document to guide the 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 the 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 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

Mwanjangulu Local Forest (Reserve No. 138) is one of the forest estates located in Eastern Province. It is situated in Chipangali District, approximately 19.2 km northwest of Chipata District. The reserve encompasses Mwanjangulu Hills and is positioned just east of the Chitandika–Undi road.
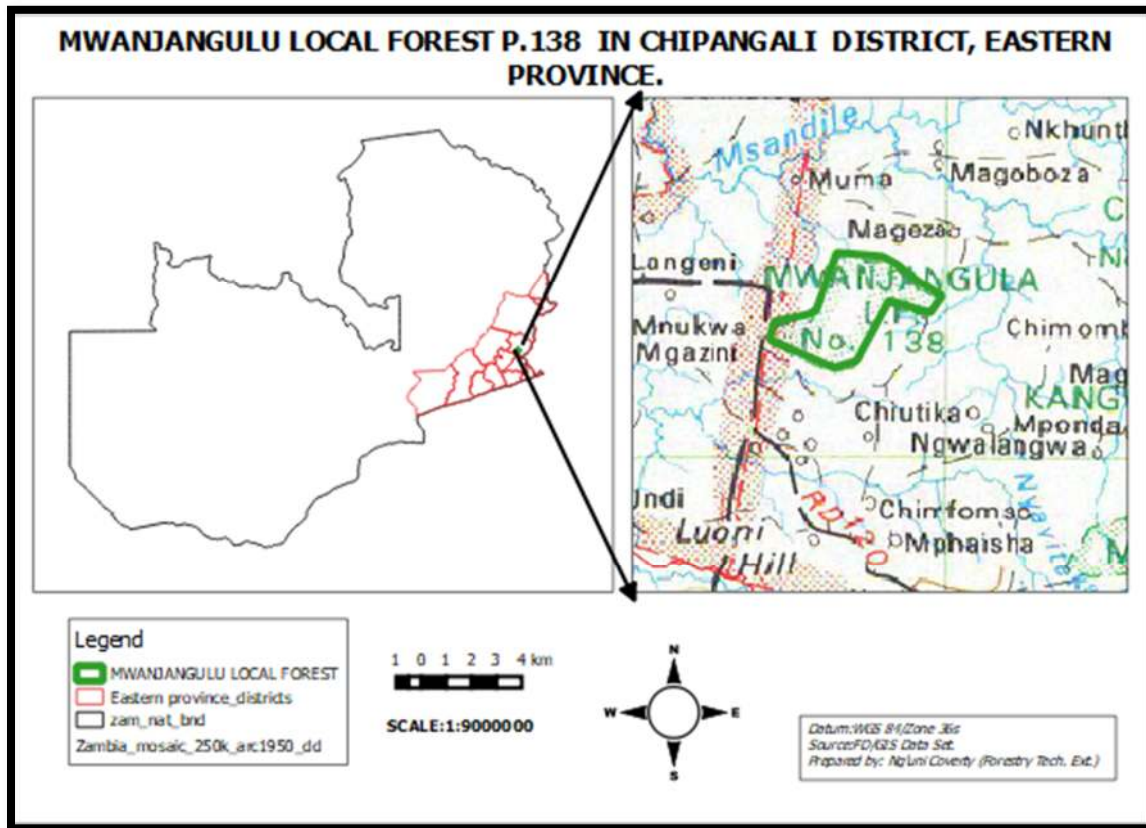
Figure 1 Location Map of Mwanjangulu Local Forest

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

2.2 Ownership and control

Mwanjangulu Local Forest No. 138, is in Chief Mnukwa's area. It was originally declared a forest reserve and gazetted under Statutory Instrument No. 66 of 1975 and deposited in the office of the Surveyor-General on Map No. F.R.201. It is a protected forest area with the designation of "Local Forest" covered by section 19 of the Forests Act, 2015. The Forestry Department is responsible for the protection and management of Mwanjangulu Local Forest.

2.3 Reasons for Reservation

The area formed part of the series of indigenous pole production forests from which purely local demands for poles will be met. It was intended that the proposal be handed over, under Section 10 of the Forests Ordinance, to the Ngoni Native Authority to manage on a simple early burning - cum – coppice system.

2.4 Physical and Biophysical Environment

Topography, Geology & Soils

The Forest lies on Mwanjangulu Hills which occupies about half the area. The soils are mainly dark coloured sandy loam with quarts' gravel and stones occurring in the top soil particularly on hill slopes.

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.
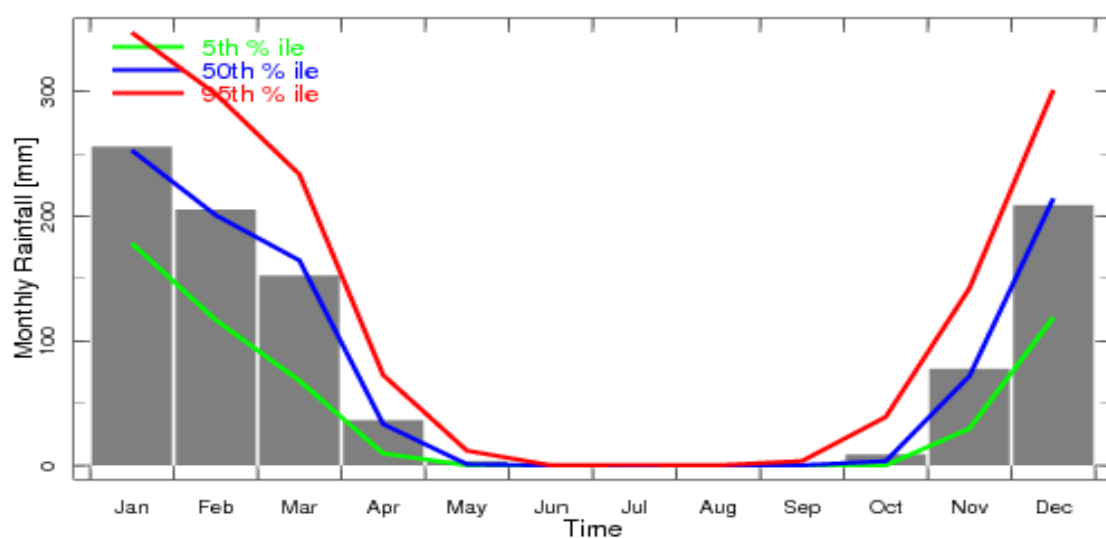
Figure 2 Monthly Rainfall-Eastern Province   Source: The Zambia Meteorological Department

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 21^0C and 23^0C during the cool dry season occurring especially between May and June.

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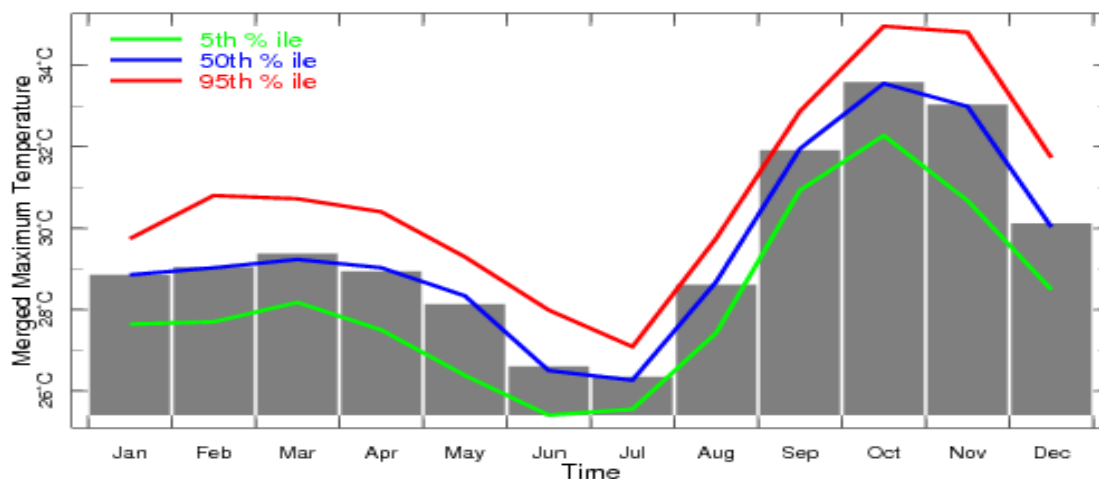
Figure 3 Monthly temperature- Eastern Province Source: The Zambia Meteorological Department

Vegetation Type

Mwanjangulu Local Forest is a Heterogeneous forest. The vegetation type is miombo woodland on the plateau with a diverse tree flora including *Julbernardia paniculata*, *Isoberlinia angolensis*, *Brachystegia boehimii*, *Brachystegia floribunda*, *Parinari curatellifolia* and many other species with *Brachystegia speciformis* being the dominant species.

Fauna

Although no major wildlife species were physically sighted during the reconnaissance survey and forest inventory, signs of their presence were evident through footprints, droppings, and reports from local community members. Species reported to inhabit the area include Vervet Monkeys, Guinea Fowls, and Common Duikers. Additionally, smaller species such as squirrels, various birds, snakes, and lizards were observed during the surveys.

3 PAST MANAGEMENT

The Mwanjangulu Local Forest was declared and gazetted in 1975. The management of the reserve has been guided by the objectives of reservation proposal as stated in the proposal at the time the forest was gazetted as a protected forest area under notice 264 of 1964 and subsequently under Statutory Instrument No.252 of 1965 and 66 of 1975. The reservation aimed at protecting stream catchment area, conservation biodiversity of indigenous tree species and securing the supply of forest and non-forest products for present and future generation in particular communities around the forest reserve.

The Public Service Reform Programme (PSRP) in 1997 and economic downturn, had an adverse impact on the management of the Local Forest. This combined with an increase in population, high poverty levels resulted in increase pressure on the forest compounded by a Department of reduced manpower. With the result, Mwanjangulu Local Forest has over the years been heavily encroached, with a lot of agricultural activities. Various initiatives have taken place to address including meetings with Chiefs, stakeholder meetings and in 2018 a programme of issuing notices to those illegally settled within the Reserve.

Maintenance works

In 2018, the forest boundary beacons were verified and new maps produced under the Forest Reserve Support Project funded by US Forest Service.

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

4   GROWING STOCK

Assessing the forest's growing stock is essential for achieving Sustainable Forest Management. Simply put, it ensures that the rate at which trees and other forest products are harvested does not surpass the rate at which they regenerate. This balance is fundamental to sustainable forestry—without it, the forest risks degradation and eventual depletion.

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 randomon sampling system was used to determine the location of the sample plots, measurement of trees and soils followed the Department's Guidelines and the software *forestcalc* (version 6.4.1) used to process the data to provide the summary information contained in this chapter. 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 Mwanjangulu local forest.

4.1   Tree species abundance

The inventory data reveals the presence of over 30 different tree species, including seedlings, within the forest. A summary of the forest inventory is presented in the table below and will be further detailed in the following sections.

Stratum values	0-4	5-9	10-14	15-19	20-29	30-39	40+	Total
Vol (m³)	0	0.39	0.77	0.46	4.20	3.36	4.44	13.61
Bole Vol (m³)	0	0.17	0.36	0.23	1.61	1.44	2.79	6.60
Density/SPH	0	41.57	14.14	3.76	8.96	4.33	1.44	60.06
Basal area (m²)	0	0.10	0.17	0.09	0.44	0.37	0.47	1.66
Biomass, Total (Tons)	0	0.57	1.13	0.63	6.13	4.81	6.53	19.79
Carbon, Total (Tons)	0	0.29	0.56	0.31	3.07	2.40	3.26	9.89
Vol (m³) Saw logs	0	0.00	0.00	0.00	0.44	1.41	1.07	2.93
Vol (m³) Poles	0	0.10	0.24	0.09	2.60	0.66	3.37	7.07
Vol (m³) Fruits	0	0.01	0.06	0.09	0.07	0.21	0.00	0.44
Vol (m³) Medicinal	0	0.13	0.21	0.13	0.07	0.39	0.00	0.93
Vol (m³) Firewood	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vol (m³) Other	0	0.13	0.26	0.16	1.01	0.69	0.00	2.24
Seedlings								2,601

Table 1 stratum total for all species

Top ten abundant species in the forest reserve

S/no.	Species	Local Names(Nyanja)	Species codes
1	*Bauhinia petersiana*	Mupondo	34
2	*Brachystegia boehmii*	Mufendaluzi	46
3	*Brachystegia bussei*	Mukongolo	47
4	*Brachystegia longifolia*	Bovu	49
5	*Bridelia cathartica*	Mkuviandola	57
6	*Combretum molle*	Kalama	86
7	*Combretum zeyheri*	Kalamafupa	89
8	*Diospyros mespiliformis*	Mchenja	112
9	*Diplorhynchus condylocarpon*	Mtowa	114
10	*Lannea discolor*	Shaumbu	194

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 graphic distribution
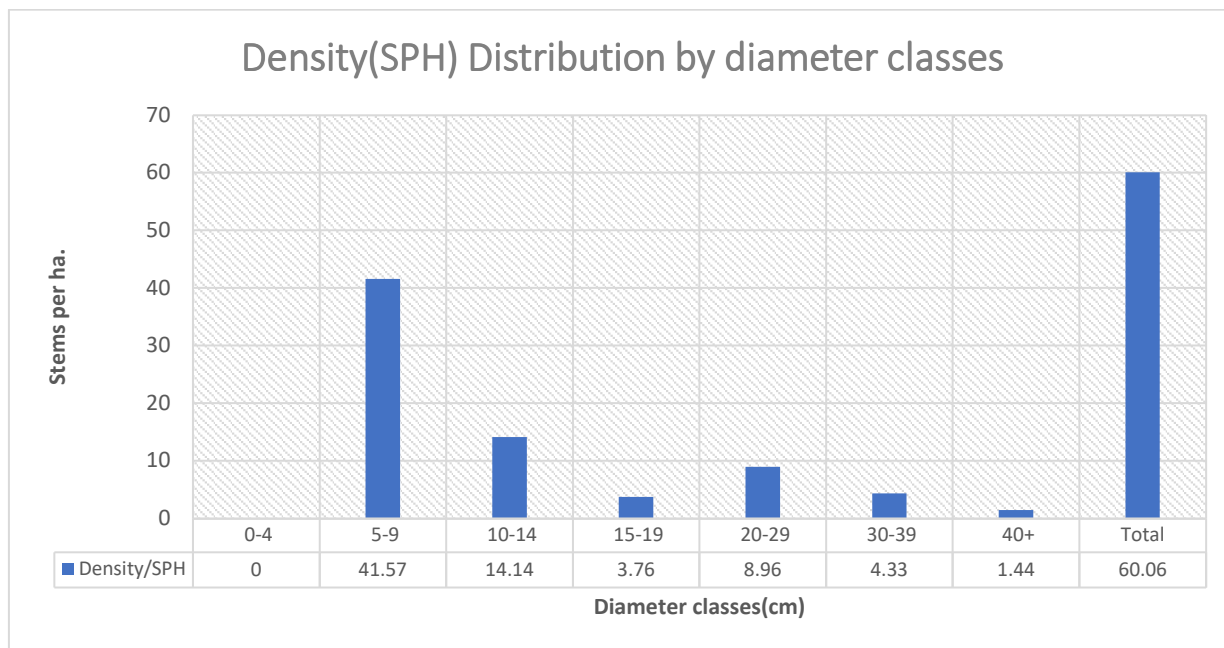
Figure 5 Density by diameter class/ha for all species

In Mwanjangulu Local Forest, a stocking density for trees ≥ 5 cm DBH was estimated as 60 stems per hectare with the higher in diameter 5-14 and less in 40+cm category. The outcome indicates that there is a lot of tree coppicing and regeneration.
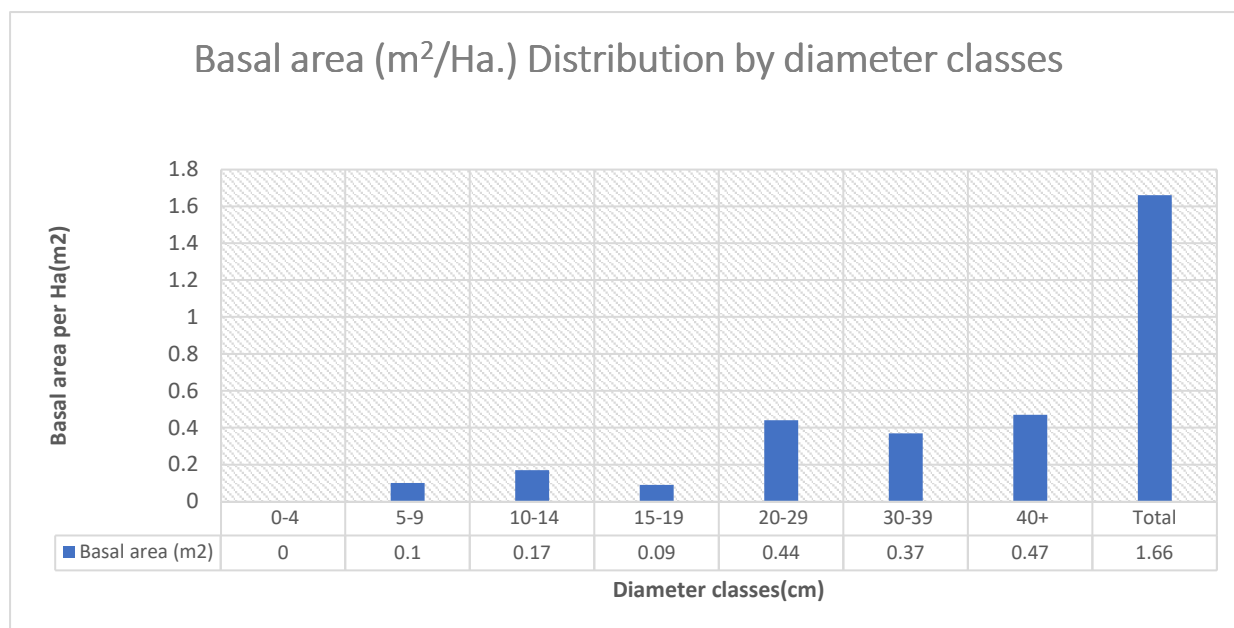
Figure 6 Basal area (m2) by diameter class/ha for all species

The stocking by diameter class basal area per hectare is more in 20 –40cm class. The data indicates that there has been relatively much tree harvesting in the lower hills than in upper hills, resulting in high coppicing and regeneration in lower areas. This indicates that the forest in terms of growth potential is in a relatively healthy condition allowing succession from one size class to the next higher one. The data also indicates this is a secondary forest. The species with the high density is *Brachystegia bohemii* with 12 stems per hectares, this is followed by *Brachystegia spiciformis and Brachystiegia globiflora.*

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

A figure of 1.6 m^2 per hectare is a low figure for basal area in a similar type of forest type by a factor of 10. This confirms the status of Mwanjangulu Local Forest as a forest of concern following past and most likely current high levels of selective exploitation of large sized trees and degradation from fires and grazing.

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.

The total standing volume per hectare for all species in Mwanjangulu Local Forest is estimated at 13.61m³/Ha., with a total bole volume estimated at 6.60m³/Ha. Total Biomass for trees ≥5cm DBH is estimated at 19.79 tonnes/ha and it has carbon estimated at 9.89 tonnes/ha. These are highlighted in more detail below.
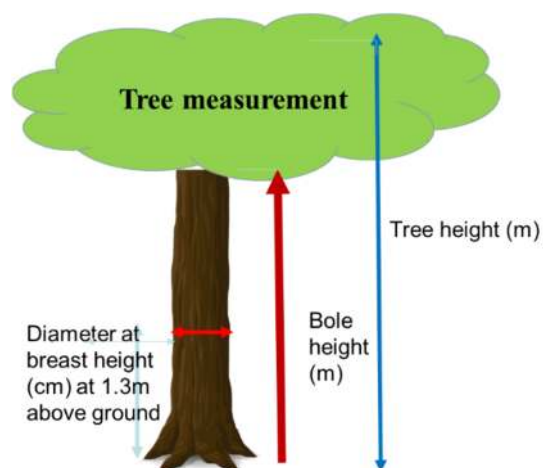
Figure 7 Tree measurement graphic
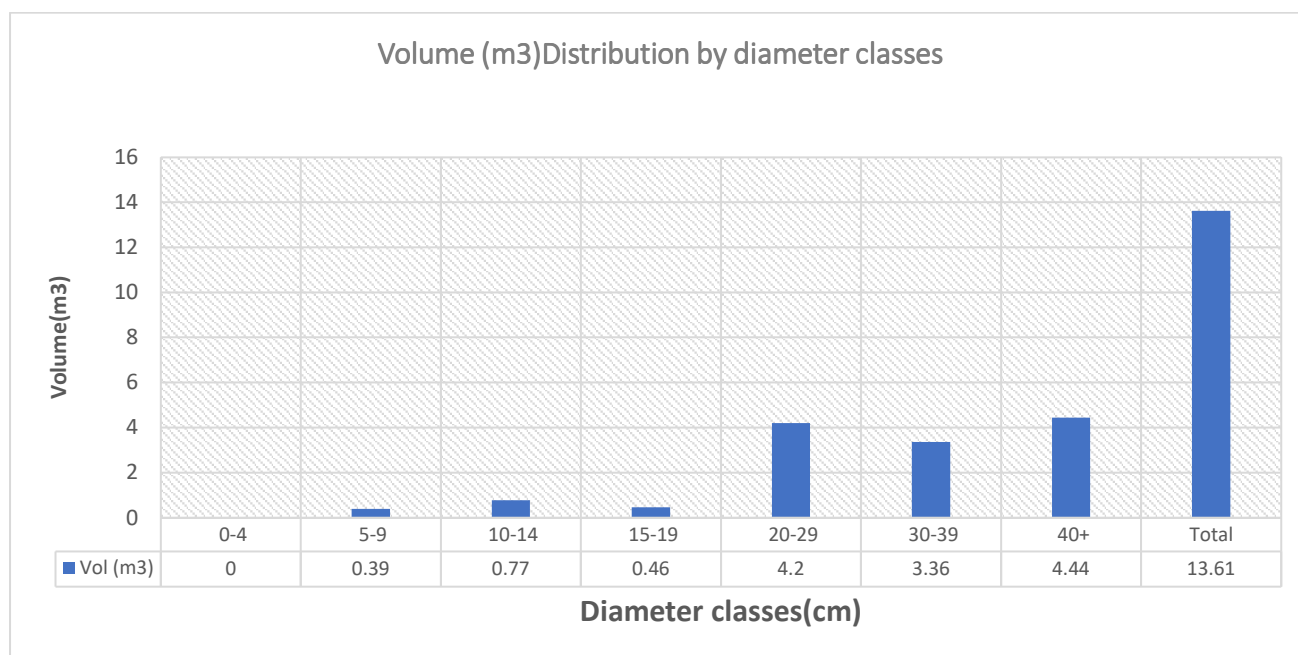
Figure 8 Volume (m³) by diameter class/ha for all species.

Technical characteristics

The volume of other technical characteristics or use are computed per hectare as follow: Saw-log 2.93m³, Pole 7.07m³, Fruit 0.44m³ and others 2.24m³. The poles are sparsely distributed mainly in diameter class 5 to 29. The saw log are minimal considering the size of the forest, less than 5 cubic meters per hectare. This indicates that the forest is unable to support selective harvesting on the hills.

	0-4	5-9	10-14	15-19	20-29	30-39	40+	Total
Vol (m3) Saw logs	0	0	0	0	0.44	1.41	1.07	2.93
Vol (m3) Poles	0	0.1	0.24	0.09	2.6	0.66	3.37	7.07
Vol (m3) Fruits	0	0.01	0.06	0.09	0.07	0.21	0	0.44
Vol (m3) Medicinal	0	0.13	0.21	0.13	0.07	0.39	0	0.93
Vol (m3) Firewood	0	0	0	0	0	0	0	0
Vol (m3) Other	0	0.13	0.26	0.16	1.01	0.69	0	2.24
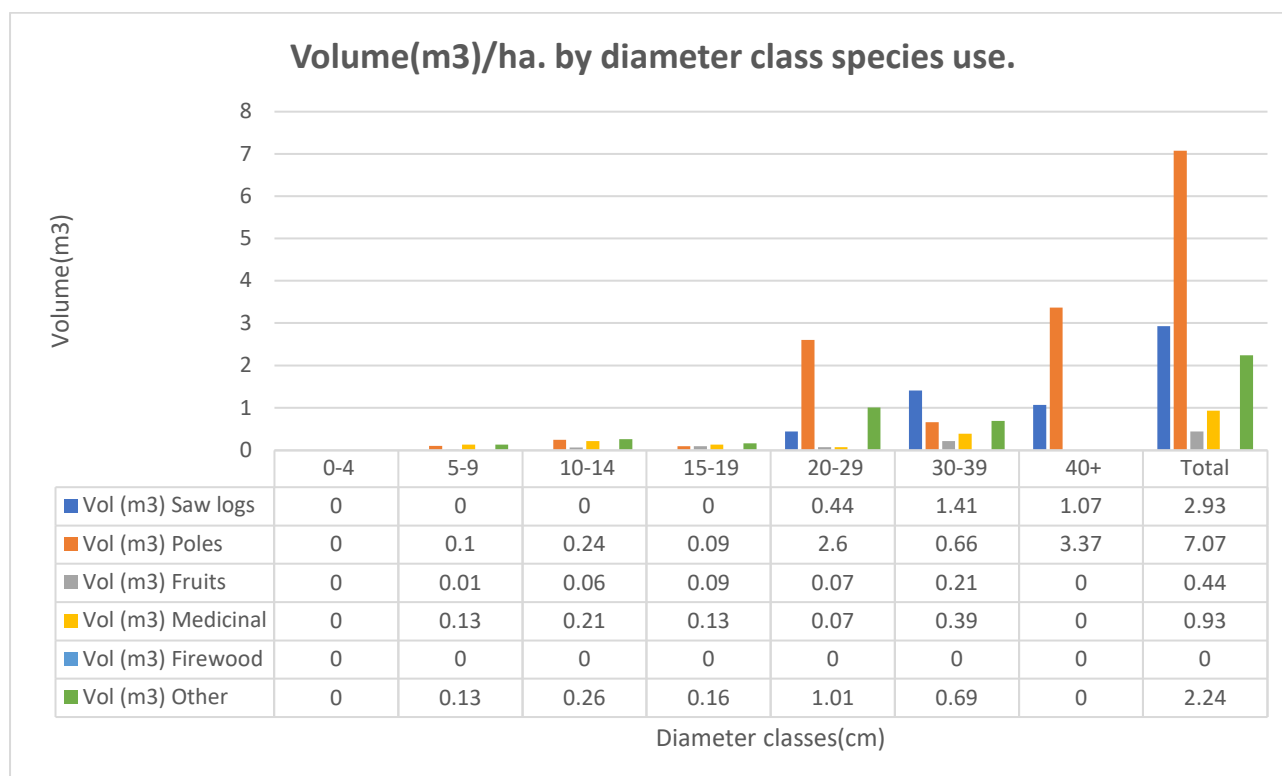
Figure 9 Volume (m³) by diameter class/ha for all species by use

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4.4 Bole volume total by diameter class/ha for all species

The total bole volume by diameter class per hectare is 6.60 cubic meters with higher in diameter class 20 – 40 and less from 20 and below. The assessment indicates that there is has been much harvesting of trees in the lower areas than on the hills.
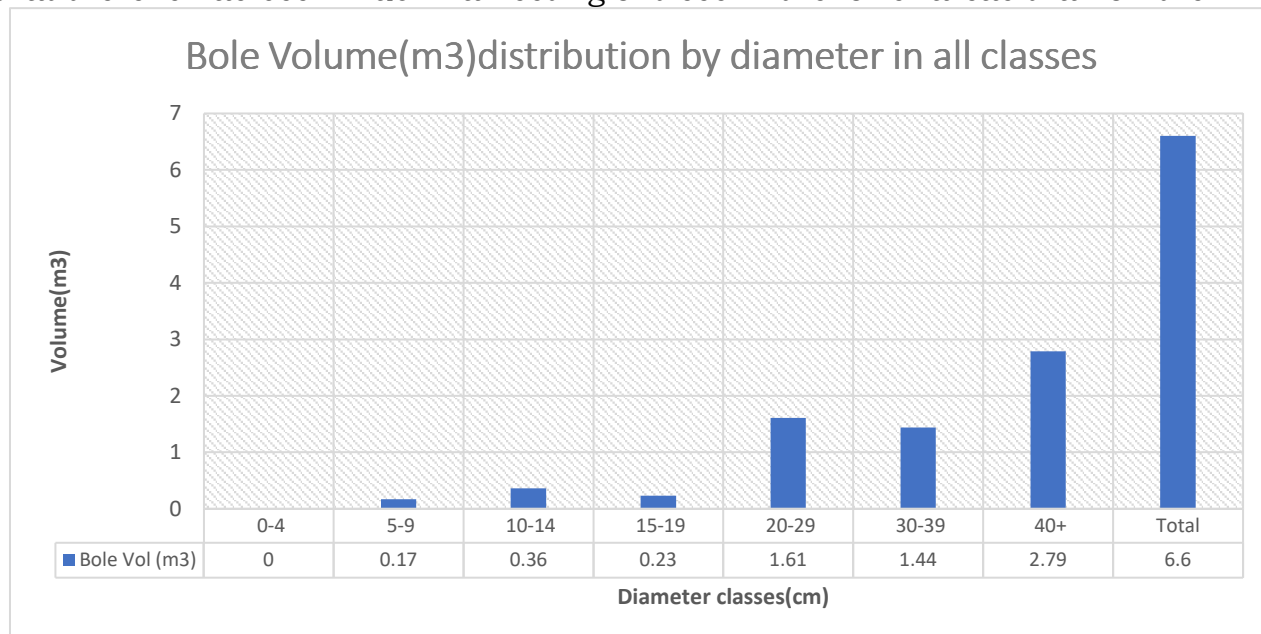
Figure 10 Bole volume (m³) by quality diameter class for all species

4.5 Presence of Commercial Tree Species

Based on the inventory data, species used for high valued saw logs such *Pterocarpus angolensis, Swartzia madagascariensis, Pterocarpus chrysothrix* and the medium valued are *Brachystegia speciformis* and *Julbenadia globiflora,* are not abundant in the forest.

Volume of all species by use

No	Description	Volume(m³/ha)	Explanation
1	Sawlogs	2.93	These are merchantable trees with the average diameter of 30cm dbh and above. This is a low figure.
2	Poles	7.07	These are tree species with relative straight bole length with the average diameter at breast height of 5cm to 29cm
3	Fruits	0.44	The tree species include all fruit bearing either edible or not edible
4	Medicinal	0.93	All medicinal plants
5	Firewood	0.00	These include all dead and or diseased trees which can be used for firewood
6	Others	2.24	These include all tree species which are not classified in any of the above categories

Table 3 Trees in Mwanjangulu local forest in terms of forest product categories.

The harvestable volume is low; therefore, Mwanjangulu Local Forest, in its current state, cannot support large-scale timber harvesting due to degradation, particularly in the lower areas.

Biomass and carbon above ground

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

Biomass and Carbon(Total (Tons)/Ha. Distribution in all diameter classes.

	0-4	5-9	10-14	15-19	20-29	30-39	40+	Total
Biomass, Total (Tons)	0	0.57	1.13	0.63	6.13	4.81	6.53	19.79
Carbon, Total (Tons)	0	0.29	0.56	0.31	3.07	2.4	3.26	9.89

Diameter classes(cm)
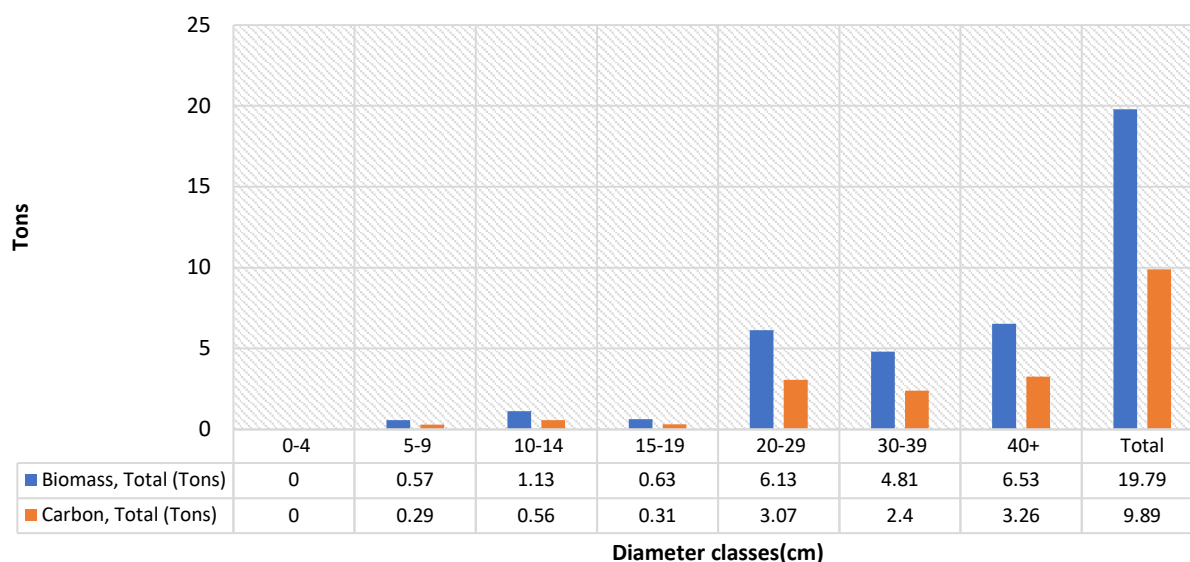
Figure 11 Biomass and Carbon above ground by diameter class/ha for all species

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

The total biomass and carbon stocks (tonnes per hectare) respectively of 19.79 and 9.89 estimates methodological framework applied is that 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 follows IPCC of half of biomass constitute carbon stock.

4.6 Forest condition and restoration assessment

In order to restore the ecological functions of the forest as well as the socio economic needs of the community, Forestry Department conducted forest land use assessment and restoration analysis with imagery covering 2024 and 2025. The following are the results:

Land cover category	Estimated area	Percentage
Forest	269.8	80.9
Cropland	60.2	18.1
Degraded forest (open)	3.0	0.9
Degraded (scrub)	0.3	0.1
Total	**333.3**	**100**

Table 4 Forest condition analysis 2025 by land cover

Landcover/option	Area[ha]	Percentage
Forest (Protection)	269.8	80.9
Cropland (Agroforestry)	60.2	18.1
Restoration (ANR)	3	0.94
Enrichment Planting	0.3	0.1
Total	333.35	100.0
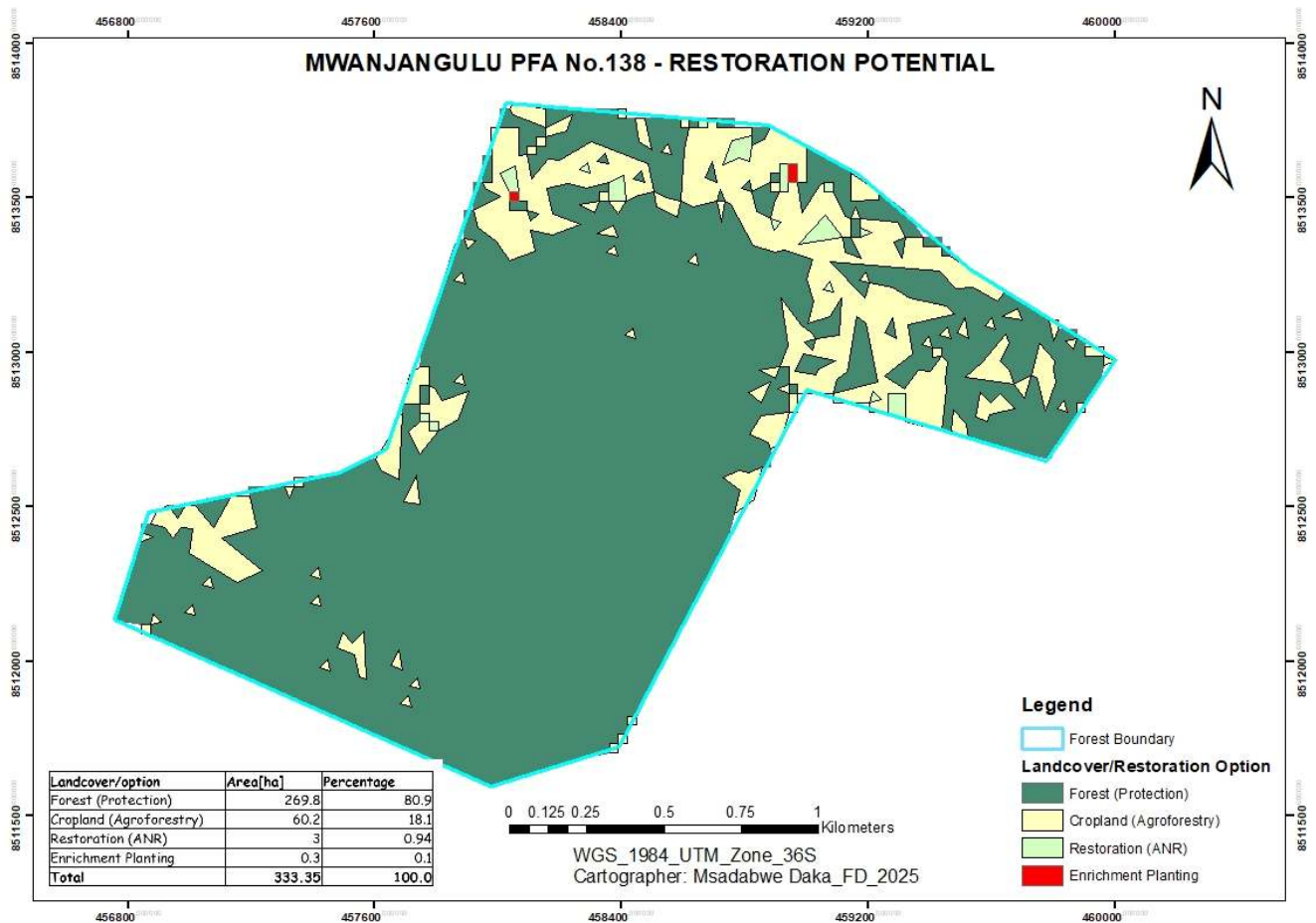
Figure 12 Restoration Potential Map for Mwanjangulu Local Forest

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 Normalised Difference Vegetation Index was calculated for: Forest Land, Cropland, Grassland, Wetlands, Settlements, and Other Land. Since forest shapefiles were utilised, 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.

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5 STAKEHOLDER DEMOGRAPHICS

5.1 Livelihood Data analysis

Forestry livelihood survey was conducted by the Zambia Statistics Agency (ZAMSTATS) Eastern Regional office, November 2021. The main objective of the Forestry Livelihood Survey is to measure the well-being of the communities dependent on Mwanjangulu 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 Mwanjangulu 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.

Household and Population dynamics

Mwanjangulu Local Forest reserve as at 2021 livelihood survey was surrounded by approximately 25 villages and farming blocks as indicated in Annex: III with a total population of 843. The main ethnic groups in the area are the Ngoni's. 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 Mwanjangulu 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 Mwanjangulu local Forest was found to be mainly primary level that contributed 60.0 **percent.** The rest being No formal education and secondary education indicating 5.0 **percent** and 35.0 **percent respectively**. As shown in the table below:

Education Level	Percent
No Education	5.0
Primary	60.0
Secondary	35.0
Total	100.0

Table 5 education levels attained.

Economic activity

The results showed that 78.3 percent of the household population surrounding the Local Forest had farming as their main occupation, while the rest of economic activities contributed 13.4 percent those in paid employment and 8.3 percent in small businesses.

Main Economic activity	Percent
Business	8.3
Employment	13.4
Farming	78.3
Total	100.0

Table 6 percentage distribution of main economic activity

5.2 Utilization of forestry resources

The survey also revealed that 100 percent of the population in Mwanjagulu utilize the forest. It shows how threatened the forest is as every household depends on the forest.

Types of energy used for cooking

Nearly all households in the areas surrounding Mwanjangulu Local Forest rely on firewood as their primary source of cooking energy. Findings from the livelihood survey indicate that approximately 97% use firewood, while the remaining 3% use charcoal. This high dependence on forest resources for cooking highlights the significant pressure being placed on the forest ecosystem.
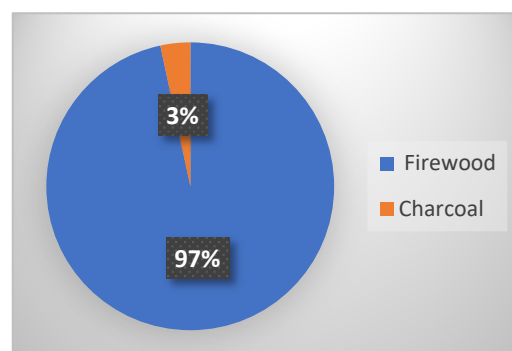
Figure 13 Types of energy used according to percentages

Main tree resources used for firewood.

The main tree resources used for firewood by households in the localities surrounding the Mwanjangulu local forest are as shown in the table below.

SPECIES NAME
Brachystegia boehmii
Brachystegia bussei
Brachystegia longifolia
Combretum molle
Combretum zeyheri
Diplorhynchus condylocarpon

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.

Table 7 shows the main tree resource used for firewood.

Non wood forest products

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

Non wood forest products
• Mushroom
• Caterpillars
• Fruits

Table 8 Non-Wood Forest Products used by households surrounding the Mwanjangulu

Willingness of community to participate in forest Management of the forest reserve

The livelihood survey found that 88 percent of the households interviewed expressed willingness to voluntarily support the management of the forest reserve in collaboration with the Forest Department and other community stakeholders. However, this level of willingness is lower compared to that observed around other forest reserves in the province.
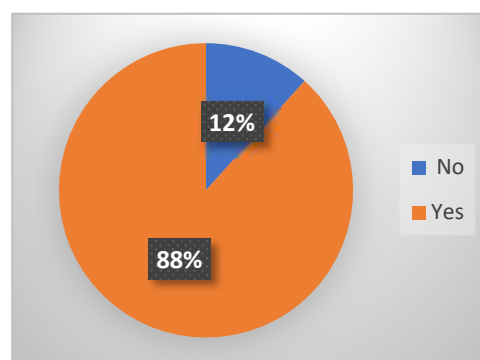
Figure 14 shows the distribution of willingness to participate when called upon to support FM

Land Occupation and Use

The livelihood survey conducted in communities around Mwanjangulu Local Forest showed that 87 percent of households own land, while 13 percent do not. The land owned by households is primarily used for agricultural purposes.
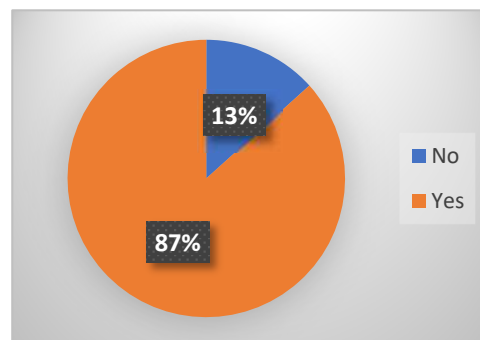
Figure 15 percentage of HH owning land

Willingness to plant trees on land owned.

The survey indicated that 82 percent of land-owning households expressed willingness to plant trees on their land, while 18 percent were not willing, as illustrated in the figure below.
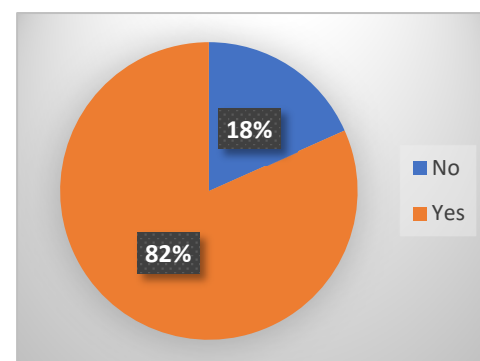
Figure 16 willingness to plant trees by percentage

5.3 Issues and solutions proposed by stakeholders

The consultative meeting for Mwanjangulu Local Forest, held on 14th December 2023, brought together stakeholders who identified both the uses of the forest reserve and its various users. The following were identified and reported in Annex V.

The uses where identified:	The Users of the forest:
1. Firewood 2. Charcoal 3. Fruits, Mushroom, Caterpillars 4. Medicine 5. Timber production.	1. The community surrounding Mwanjangulu local forest 2. Outside persons

ISSUES	Solutions/opportunities
Indiscriminate cutting of trees	-formation of local rules to stop cutting trees
Late fires	-Early burning
Illegal extraction of timber.	-Forest education
Mineral extraction illegally	-Involvement of traditional leaders
Poaching	-Sensitization
Soil erosion	Afforestation
Charcoal burning	Stiff punishment

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Permitted practices	Prohibited
- Water drawing	-Charcoal production
- Food collection	-No farming
- Animal grazing	-Late fires
- Mushroom collection.	-No settlements.
-Cutting of trees without permission.	-No cut of trees without permission

5.4 Enterprise opportunities

A healthy forest ecosystem forms a vital basis for generating income from forest products by preserving biodiversity, soil health, and water resources necessary for sustainable production. When forests are ecologically intact, they support the growth of valuable timber and non-timber forest products (NTFPs), which can be responsibly harvested and marketed by local communities and other stakeholders. Effective forest management ensures the ongoing availability of these resources, providing long-term economic.

Mwanjangulu Local Forest presents multiple income-generating and enterprise development opportunities, shaped by the current condition of the forest, the interests of local communities and other stakeholders, and most critically the commitment to sustainable forest management supported by established institutional arrangements. The success of community-based forest enterprises depends on several key factors, including the condition and availability of forest resources, access to markets, the presence of organized enterprise groups, and robust governance mechanisms to regulate forest access, use, and protection.

Drawing on insights from resource assessments and mapping, socio-economic surveys, stakeholder consultations, and the community forest management planning process, the following enterprise opportunities have been identified:

- Beekeeping
- Woodlot establishment

The development of the identified enterprise opportunities will require detailed value chain analysis and enterprise development assessments for specific forest products. This will help determine their viability and financial feasibility, ensuring that any forest-based enterprise promoted aligns with the Forestry Department's Forestry Enterprise Strategy for 2025–2030. The strategy aims to support sustainable forest management while enhancing value addition within forestry value chains, with a strong focus on empowering local communities.

5.5 Encroachment- illegal settlement and cropping

Mwanjangulu Local Forest currently is in a dynamic state due to external pressure factors. High poverty levels visa-vi Low household incomes, illegal harvesting of forest products (both wood and non-wood) and land demand and clearing for agriculture and settlement expansion are evident. Over the years, various initiatives have taken place to address including meetings with Chiefs, stakeholder meetings and a programme of issuing notices to those illegally settled within the Reserve. In addition, a number of settlements with permanent structures are located within the gazetted forest area.

The reserve has forest beacons constructed on its boundaries with the support from USAID under the project Forest Reserve Support Project (FRSP) between 2015 and 2018.

In 2018 a programme of issuing notices to those illegally settled within the Reserve was conducted following a nationwide instruction from the Minister of Lands and Natural Resources.

In 2023, during a stakeholder consultative meeting supported by Zambia Integrated Forest Landscape Project (ZIFLP), participants reached a consensus and expressed strong support and a shared commitment to all local communities and their traditional leaders for the protection and proper management of forests. This engagement sparked the interest of the local community and its leadership in Community Forest Management (CFM), guided by Zambia's legal framework for sustainable forest management, which includes the Forests Act, 2015, the National Forestry Policy, 2014, and SI #11 of 2018 related to Community Forestry Management. See Annex V.

6 PROPOSED MANAGEMENT ACTIONS

Given the ongoing deforestation and forest degradation affecting this Local Forest, the primary objective is to safeguard its ecological functions by actively involving local stakeholders and surrounding communities in developing new management and restoration strategies. This will be achieved through the community forestry approach, which promotes community-led control, use, and management of forest areas in collaboration with the Forestry Department. Insights gained from implementing this approach in this critical Local Forest will guide similar efforts in other protected forest areas within Eastern Province and across Zambia. All approaches will conform to the stated purpose of a Local Forest as described 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.

Figure 17 Purpose of a Local Forest Section 19, the Forests Act, 2015

The emphasis will be on Forest Landscape Restoration (FLR) as a process for regaining ecological functionality, increasing availability of resources and therefore enhancing values across deforested or degraded forest landscape of MLF. The approach will be 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. In order to achieve these impacts, the main management strategies identified focus on steps to protect, restore and replant, as follows:

The focus will be on Forest Landscape Restoration (FLR) as a strategy to restore ecological functions, increase resource availability, and enhance the overall value of the deforested and degraded forest landscapes within DLF. This approach aims to safeguard existing forested areas and restore those that have lost forest cover, with active participation from local communities. To achieve meaningful environmental, social, and economic outcomes, the core management strategies will revolve around three key actions: protection, restoration, and replanting, as follows:

- **Protection** - areas where the forest is intact with local stakeholder involvement;

- **Restoration -** the forest where it is degraded by promoting regeneration encouraging regrowth of local species or reafforestation with people's participation.

- **Replanting**-Enhancing forest cover will involve the integration of agroforestry species into actively cultivated fields to boost tree cover, improve soil fertility, provide fodder, and supply small-scale biomass for energy needs. In addition,

reforestation efforts will target abandoned fields, establishing woodlots with either indigenous or exotic species where feasible.

Opportunities for collaboration with partners and the mobilization of sustainable financing—including investments linked to climate change mitigation and emissions reduction trading—will be pursued. These efforts aim to attract the resources, incentives, and rewards necessary for promoting sustainable land management within forest areas. A key aspect will be ensuring that benefits from the anticipated Jurisdictional Sustainable Landscape Programme are shared equitably. This will help incentivize and recognize effective climate change mitigation practices while enabling local communities and other service providers to receive financial returns from government-facilitated carbon trading initiatives.

6.1 Zoning the forest for effective management

This management plan acknowledges the two primary zones identified during the stakeholder consultation held in December 2023. These zones reflect the forest's key uses, its main user groups, prevailing issues affecting Mwanjangulu Local Forest, proposed local solutions, and permitted activities. In addition, a third zone has been designated to cover the immediate surroundings of the forest. This buffer zone will serve as the focus area for community development initiatives and emissions reduction activities.
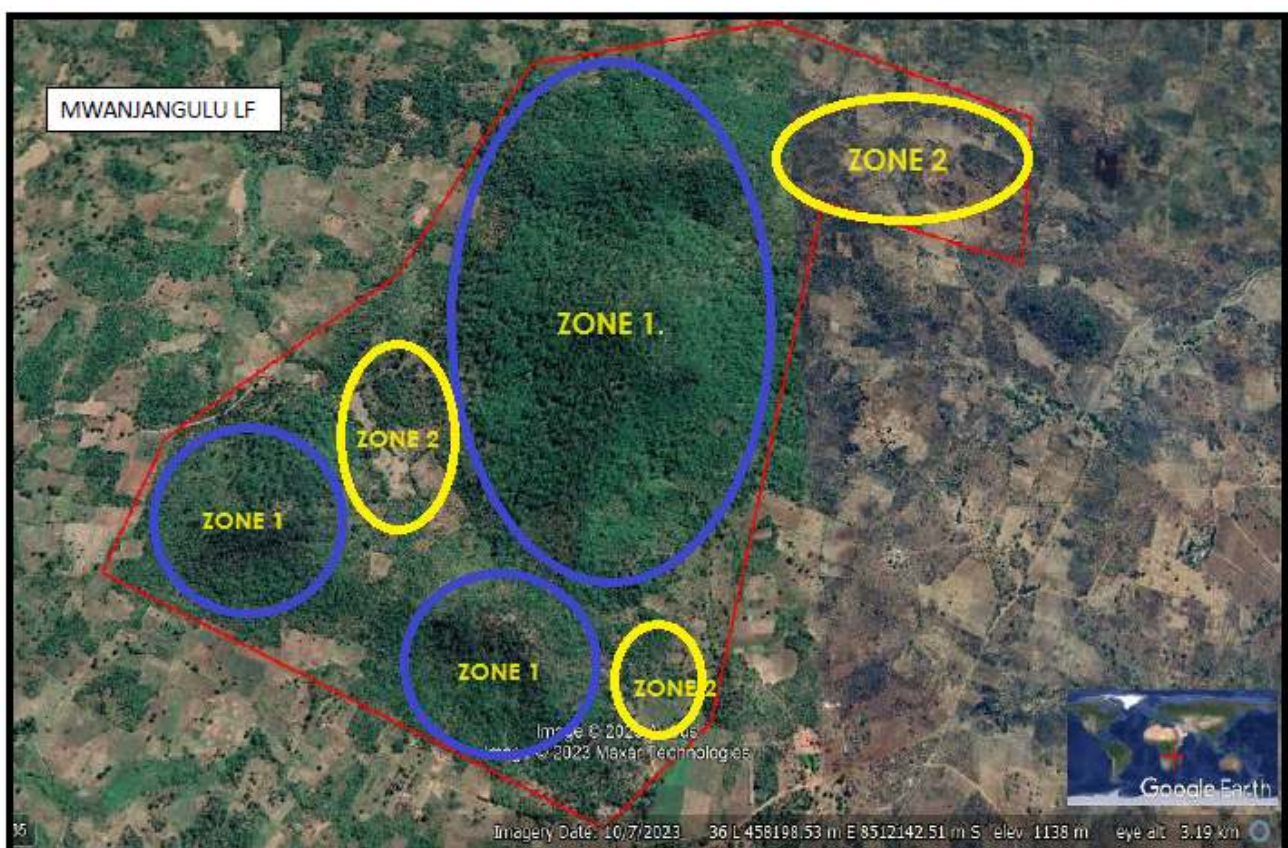
Figure 18 Zoning of Mwanjangulu local forest based on community consultation

Zone 1: Forest Protection, Management and Conservation of Biodiversity

The forest reserve provides an important function to safeguard downstream communities through rainwater interception and release. However, 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 stakeholders and communities, gaining their support, and working with them, rather than against them, forest protection and management goals and objectives will not be reached. Consequently, the strategy will be to work together with communities to develop joint protection systems in return for agreed levels of utilization within the capacity of the forest to meet subsistence needs whilst safeguarding the environmental aspects including conservation of biodiversity in this protection zone.

Zone 2: Forest restoration zone

This zone includes areas already affected by human activities such as seasonal and permanent farming, as well as settlement. The primary objective is to restore tree cover in alignment with the designated purpose of the Local Forest. This will be achieved through the promotion of forest restoration methods, the integration of agroforestry practices, and the implementation of targeted initiatives to address encroachment. Additionally, the cultivation of environmentally harmful crops like cotton and tobacco within the Local Forest should be critically reassessed."

Zone 3: Development buffer area

This area lies directly adjacent to the reserved forest and includes zones where farming and settlements are established. It will serve as the primary focus for forest extension efforts, including the establishment of community and household woodlots, promotion of energy-efficient stoves, agroforestry, and other climate-smart agricultural practices.

Zones 1 & 2: These zones will be managed collaboratively with the local community through the community forestry approach, in accordance with the Forests (Community Forest Management) Regulations of 2018 and the National Guidelines for Community Forestry (2018). Management will be formalized through a Community Forest Management Agreement, along with a management plan and locally developed resource use rules that define the rights and responsibilities for the control, protection, and stewardship of the designated forest area. To support sustainable management, the community will prepare annual work plans with technical support from the Forestry Department.

6.2 Forest landscape restoration guiding principles

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

- *Focus on the entire landscape.* Consideration and restoration across the entire landscape of LF as opposed to individual sites. This entails balancing a mosaic of land uses across the gazetted forest, such as securing intact forested areas, regenerating degraded forests, promoting agroforestry systems, climate smart agriculture, as well as identifying ecological corridors and riparian strips to protect watercourses and waterways.

- *Restoring ecological functions.* Restore the ecological functionality of the landscape, such as its richness as a habitat, its ability to contain erosion and floods, and its resilience to climate change and various disturbances. This can be done in many ways, one of which is to restore the landscape "back" to the "original" vegetation, but other strategies may also be used, ranging from natural regeneration to tree planting.

- *Allowing for multiple benefits.* Increasing tree cover across the landscape including existing cleared farmed areas, without necessarily forming a forest canopy, in order to enhance food production, reduce erosion, provide shade, and produce firewood. In other places, trees may be added to create a closed canopy forest capable of sequestering large amounts of carbon, protecting downstream water supplies, and providing rich wildlife habitat.

- *Promoting stakeholder's involvement.* Actively engaging local stakeholders in decisions regarding restoration goals, implementation methods, and trade-offs for sustainable land management practices which provides incentives and performance benefits.

- *Adaptively managing* the restoration strategy over time as environmental, social and economic conditions evolve supported through continuous monitoring and learning through the restoration process.

6.3 Core forest management actions

The identified management actions are described as follows:

Action 1: Forest Protection, Management & Conservation of Biodiversity

Mwanjangulu Local forest is an important forest ecosystem containing a number of different plant species and fauna. The forest is surrounded by an increasing population which is highly dependent on it for subsistence and increasingly economic needs like collection of mushroom, wild fruits, caterpillars, honey, firewood and poles. The level of unsustainable use is anticipated to intensify with increasing human populations resulting in higher levels of resource exploitation and degradation. Protection of this forest habitat is therefore essential to ensure the continued ecosystem services and local livelihood needs. However, the awareness of the importance of ecosystem services, conservation of biodiversity and climate change mitigation services of Mwanjangulu Local forest is low among the adjacent communities.

Forest protection is therefore key in the sustainable management of forest resources. Traditionally, patrolling has been relied upon as the main protection

activity but, despite these efforts and in view of the staffing levels, it has not been possible to control the level of unregulated use. Experience has shown that adequate levels of forest protection cannot be achieved through confrontation and conflict between the managers and forest-adjacent communities. In practice, both local people and the government have a mutual interest in conserving the forest, and utilizing forest products in a sustainable way. Without considering the needs of local communities, gaining their support, and working with them, rather than against them, forest protection and management goals and objectives will not be reached. Consequently, the strategy will be to work together with communities to develop joint protection systems in return for agreed levels of utilization within the capacity of the forest to meet subsistence needs whilst safeguarding the environmental aspects including conservation of biodiversity.

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 Mwanjangulu 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

No	Specific Objectives	Strategy	Actions	Responsible	Indicators
		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 MLFMP		

No	Specific Objectives	Strategy	Actions	Responsible	Indicators
	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
2	To secure the boundary and define the extent of the boundary and prevent possible encroachment	Involve forest adjacent communities in Forest protection and management.	-Carry out annual Boundary maintenance. -Beacon maintenance - Erection of sign post on roads entering the Forest	FD/ Community	Distance in km of forest perimeter cleared
3	To conserve and enhance the biodiversity of the forest reserve 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	
4	To ensure protection against pests and human damage	Frequent monitoring of forest resources	Inspections for diseases and pests and detection of possible illegalities.	FD/ Community	Hectarage of forest protected from pests and human damage
5	To significantly reduce levels of illegal forest product harvesting.	Involve the local communities in the management of forest resources in order to create a 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

No	Specific Objectives	Strategy	Actions	Responsible	Indicators
9	Improve local awareness of biodiversity and its value.	Seek greater participation of local communities in research and other biodiversity activities Such as eco-tourism, with the result that biodiversity values will become of more direct relevance to them.	1.Conduct research that documents and utilizes the indigenous knowledge of Forest-adjacent communities. 2.Promote local participation and benefits from eco-tourism as a means of creating better awareness of biodiversity	FD/Forestry Research	Levels of community participation in forest management activities is sustained over time.

Table 9 showing management action 1 activities

Action 2: Forest Restoration through Community Participation & Livelihood Development

Community empowerment is central to participatory forest management for the effective coordination and sustainable management of forest resources. This Plan recognizes that communities surrounding and within Mwanjangulu Local forest are key stakeholders in the conservation of this forest as well as beneficiaries from its sustainable management. This action aims to meeting the social, cultural and economic needs and thereby improving the livelihoods of the communities around and within Mwanjangulu Local Forest. Within this management action, the following interventions will be undertaken in Zone 2 of the Local forest as well as extension services and activities in Zone 3, the areas surrounding Mwanjangulu local forest;

- 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:

  o **Protect** - areas where the forest is intact with local stakeholder involvement;

  o **Restore -** the forest where it is degraded by promoting regeneration encouraging regrowth of local species or reafforestation with people's participation.

  o **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, reafforestation through planting of indigenous or exotic species in abandoned fields.

- Promote forest enterprise development (based on stakeholder consultations to be further developed through the CFM process). These may include:
  - Beekeeping using improved hives;
  - Mushroom collection and processing;

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 National 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	Hectarage of forest in the fringe areas increased year on year.
3. To reduce carbon emissions from agric soils and dependency on inorganic fertilizer	Promote CSA through Agroforestry	Partnership with MoA and others in training communities in CSA and agroforestry. Establishment of agroforestry tree nursery species in FD nurseries	FD/ Agric/ 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	FD/ DoE/ community	Volume of wood cut for energy reduced by 30% by mid term review

Specific Objectives	Strategy	Actions	Responsible	Indicator
		Permanent energy cook stoves. Provide incentives to people using the improved cook stoves.		
5. Reduce forest dependency by local communities.	Promoting diversification of activities, particularly on-farm activities such as agroforestry and establishment of wood-lots, to create alternative Sources for forest products.	Involve local communities in woodlot establishment.	FD/ Adjacent communities	Number of people dependent on the forests reserve reduced by half at mid term review
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.

Table 10 Management Actions 2 Activities

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	Woodlot establishment
Market/ demand	High, local & urban	Local poles & timber for construction
Product supply	Patches of flowering trees with suitable pollen fodder, water restricted to certain areas	Not currently available due to lack of established woodlots
Potential entrepreneurs	Individual beekeepers	Individuals
Opportunities	Buyers available such as COMACO and other offtakers	Creation of plantation crops in abandoned fields (where regeneration is not feasible). Practice taungya system in cropped areas. (example available in Masupe Local Forest)
Challenges	Investment in beehives and all processing equipment and tools, Need for a honey bulking centre and water reticulation system investment, technical & business skills training	Seedling availability, long term nature to revenue generation
Source of investment finance	Development projects & partners, Community Development Fund (CDF)	Development projects & partners, CDF

Table 11 Promoting potential forest based enterprises

The enterprise development process will be an integral part of community engagement and the strengthening of community forestry practices and partnerships within the reserve. This approach supports ongoing monitoring and mentoring, the formulation and review of annual work plans, and the periodic updating of Community Forest Management (CFM) plans. These activities will include tools such as a forest product importance, use and management matrix and targeted forest enterprise development actions. Once consensus is reached on an

enterprise concept, a detailed assessment of market conditions and value chain dynamics will be conducted to transform the idea into a viable, bankable business opportunity. Crucially, support for business development and investment will focus on the following four key areas aimed at building capacity for sustainable and community-driven forest enterprises:

- Enhancing technical skills in production, harvesting, processing;

- Building business capacity, including business planning, marketing, financial management, reinvestment and profit sharing:

- Strengthening governance arrangements and membership, conflict resolution mechanisms;

- Improving forest protection, management and monitoring arrangements upon which the business depends on.

With these foundations in place, detailed and bankable business and investment plans can be developed. These plans may then be supported through financing from development programs, private sector partnerships, and Community Development Funds administered by the local authority.

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 impacts, 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. Recognising 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 reaction 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, eg, honey collectors, charcoal burners, mice collectors, schoolchildren etc.

6.6 Law enforcement Strategy

This Law Enforcement Strategy aims to protect and sustainably manage Mwanjangulu Local Forest, through effective enforcement of legal provisions, regulations, and community participation. Ensuring compliance is essential to prevent illegal activities such as illegal timber harvesting, 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, timber harvesting, 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 shall ensure that the management of Mwanjangulu Local Forest is carried out in accordance with the Environmental and Social Standards (ESSs) in relation to national policies as well as international standards and agreements, both multilateral and bilateral as appropriate. Existing requirements are set out in the National Strategy to Reduce Deforestation and Forest Degradation, 2016 as well as new requirements that may come into force through the Eastern Province Jurisdictional Sustainable Landscapes Programme. In implementing the indicated management actions, these safeguards and other cross cutting issues will be mainstreamed in all aspects of forest management. In view of the participatory approaches applied in the development of the FMP and follow-up actions to promote community forestry it is expected that this FMP will have a positive impact upon local livelihoods and to provide support for the development of more sustainable or alternative livelihoods, where needed.

In brief, safeguards will ensure:

- o Gender equity and empowerment including addressing issues of gender based violence. Women shall be integrated into all aspects of management of Mwanjangulu 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 Mwanjangulu 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.
- o Environmental and social screening processes. Specific activities as well as the annual workplan and operational plans should include a process of social and environmental screening. These should be reviewed and updated in accordance with the type of activity being planned and general screening reviewed annually.

o 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

Table 12 Grievance redress mechanism

Infrastructure Development

In order to achieve the forest management objectives for Mwanjangulu local forest, maintenance of infrastructure is required. To date, the forest itself yields very little in terms of direct revenue, the maintenance of infrastructure is an ongoing problem for forest management, where funds are always scarce. Maintenance of the track road connecting Mwanjangulu local forest to the main road is a major challenge.

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

Table 13 Infrastructure maintenance table

6.8 Sources of revenue

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 well being. 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 Mwanjangulu Local Forest and based on the intact forest area of 80% may generate emissions reduction of 156 tonnes of carbon equivalent which may be monetised to generate around $469 or ZMW 11,730 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

Based on the proposed management actions described above, a budget has been developed covering the period of the plan. The summary table is provided below with the detailed cost breakdown in the Annex VII.

Forestry Programme	Cost in ZMW for 10 years
1 Forest Conservation through Community Participation and Livelihood Development	979,564
2 Forest Protection, Restoration, Management and Conservation of Biodiversity	1,245,468
3. Support the development of viable forest-based enterprises.	824,061
Summary costs total (ZMW)	**3,049,093**
Estimated Revenue (ZMW)	232,456
Net cost (ZMW)	**2,816,637**

Table 14 Summary Budget of Forest Management Plan Implementation

7 STAKEHOLDERS ROLES AND RESPONSIBILITIES

Effective implementation of the Mwanjangulu Local Forest Management Plan (MLFMP) 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.

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 Mwanjangulu Local Forest to prevent illegal activities such as unauthorized timber harvesting, 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 timber harvesting, 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

8 MONITORING AND EVALUATING IMPLEMENTATION

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

8.1 Monitoring

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

8.2 Evaluation

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

8.3 Monitoring Responsibilities

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

8.4 Strategic monitoring indicators

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

Programme	Indicator of Success	Means of Verification	Assumptions
Forest Protection	Reduced incidences of forest crimes Reported. Performance of the local communities and honorary forest officers.	Records and reports.	The Plan is successfully completed and implemented with Cooperation from community Members
Biodiversity Conservation	Increase in species biodiversity.	Surveys on biodiversity, records, photographs and reports.	The Plan is successfully implemented Good working relationship between stakeholders Availability of resources
Community Conservation and Livelihood development	-Number of people - trained and practicing sustainable forest enterprises. -No. of woodlots established -Number and types of IGAs. -Crop and livestock yields.	Records, reports and photographs. -Community Visits.	The Plan is successfully implemented Availability of funds
Environmental Education	Number of school conservation clubs formed. No. of awareness meetings and attendance. -No of trainings held/exposure visits	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 15 strategic monitoring indicators

9 ANNEXES

Annex 1:   Declaration, Maps, Beacons and Sample Plots

This Order may be cited as the **LOCAL FOREST NO. P138: MWANJANGULU** (Declaration) Order. *Government Notice* **264** *of* **1964** *Statutory Instruments* **252** *of* **1965, 66** *of* **1975**

Starting at a point 944.88 metres from Mwanjangulu Beacon on a true bearing of 342 degrees therefrom, the boundary proceeds on a true bearing of approximately 91 degrees for approximately 792.48 metres; thence on a true bearing of approximately 125 degrees for approximately 1,310.64 metres; thence on a true bearing of approximately 205 degrees for approximately 243.84 metres; thence on a true bearing of approximately 287 degrees for approximately 883.92metres; thence on a true bearing of approximately 204 degrees for approximately 1,463.04 metres; thence on a true bearing of approximately 257 degrees for approximately 259.08 metres; thence on a true bearing of approximately 296 degrees for approximately 1,176.53 metres; thence on a true bearing of approximately 9 degrees 30 minutes for approximately 411.48 metres; thence on a true bearing of approximately 76 degrees 31 minutes for approximately 243.84 metres; thence on a true bearing of approximately 98 degrees for approximately 320.04 metres; thence on a true bearing of approximately 18 degrees for approximately 1,249.68 metres to the point of starting.The area described above, in extent 276.41 hectares approximately, is shown bordered green upon Plan No, FR201 deposited in the office of the Surveyor-General, signed by him and dated 29th November, 1961.

1. Mwanjangulu local Forest in relation to Chiefdom boundaries (1958 map)
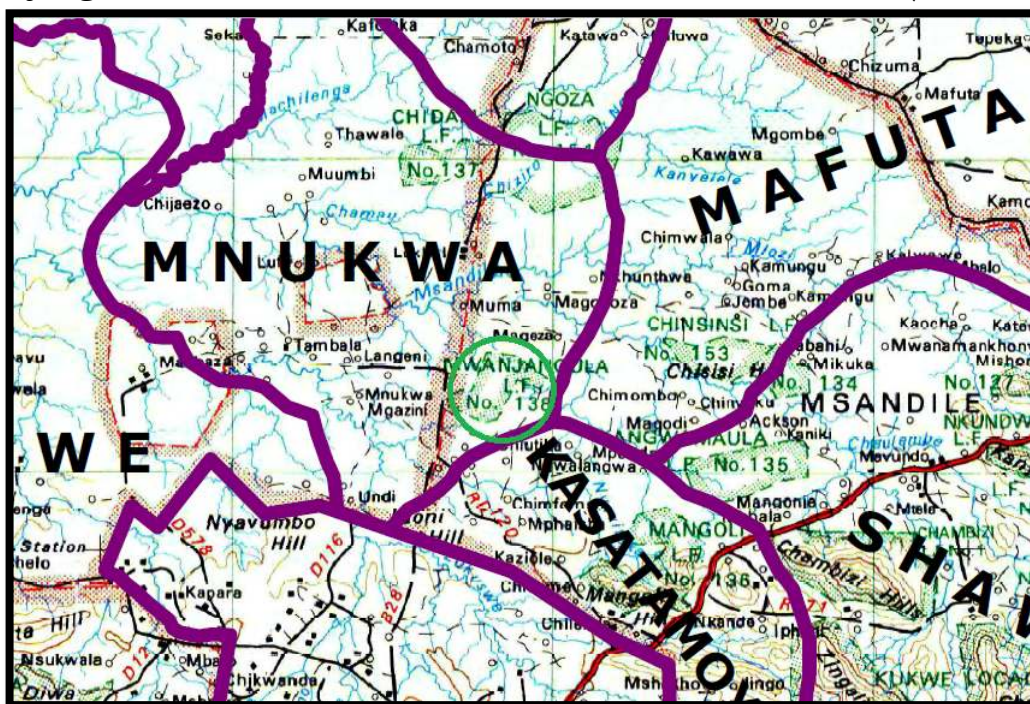
Mwanjangulu Local Forest
292 Ha.
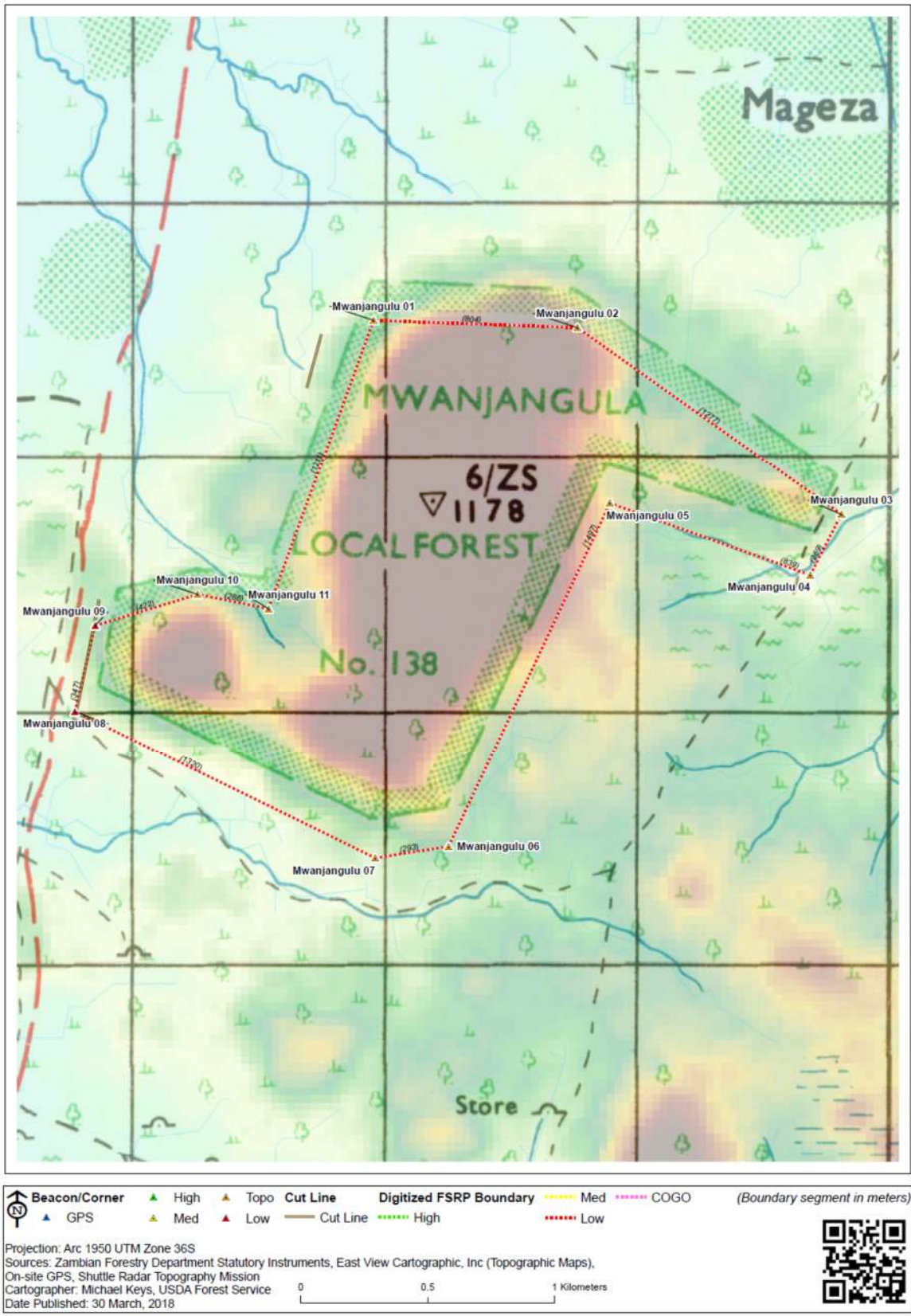
Boundary beacon points

CONFIDENCE	BEACON/POINT NAME	LATITUDE DD	LONGITUDE DD	UTM EASTING	UTM NORTHING
Topo	Mwanjangulu 05	-13.45512	32.62000	8512635	458868
Topo	Mwanjangulu 06	-13.46736	32.61411	8511280	458232
Topo	Mwanjangulu 07	-13.46777	32.61143	8511234	457942
Low	Mwanjangulu 08	-13.46250	32.60049	8511815	456757
Low	Mwanjangulu 09	-13.45944	32.60124	8512153	456837
Topo	Mwanjangulu 10	-13.45833	32.60497	8512276	457241
Topo	Mwanjangulu 11	-13.45885	32.60756	8512220	457521
Topo	Mwanjangulu 01	-13.44856	32.61140	8513358	457936
Topo	Mwanjangulu 02	-13.44883	32.61883	8513330	458740
Topo	Mwanjangulu 03	-13.45552	32.62844	8512591	459781
Topo	Mwanjangulu 04	-13.45768	32.62730	8512352	459658

3   Forest inventory sample points locations.

MWANJANGULU LOCAL FOREST SAMPLE POINTS

SCALE:1:20000

0   500   1,000 m

Mwanjangulu LF_Samples points
Mwanjangulu LF

45
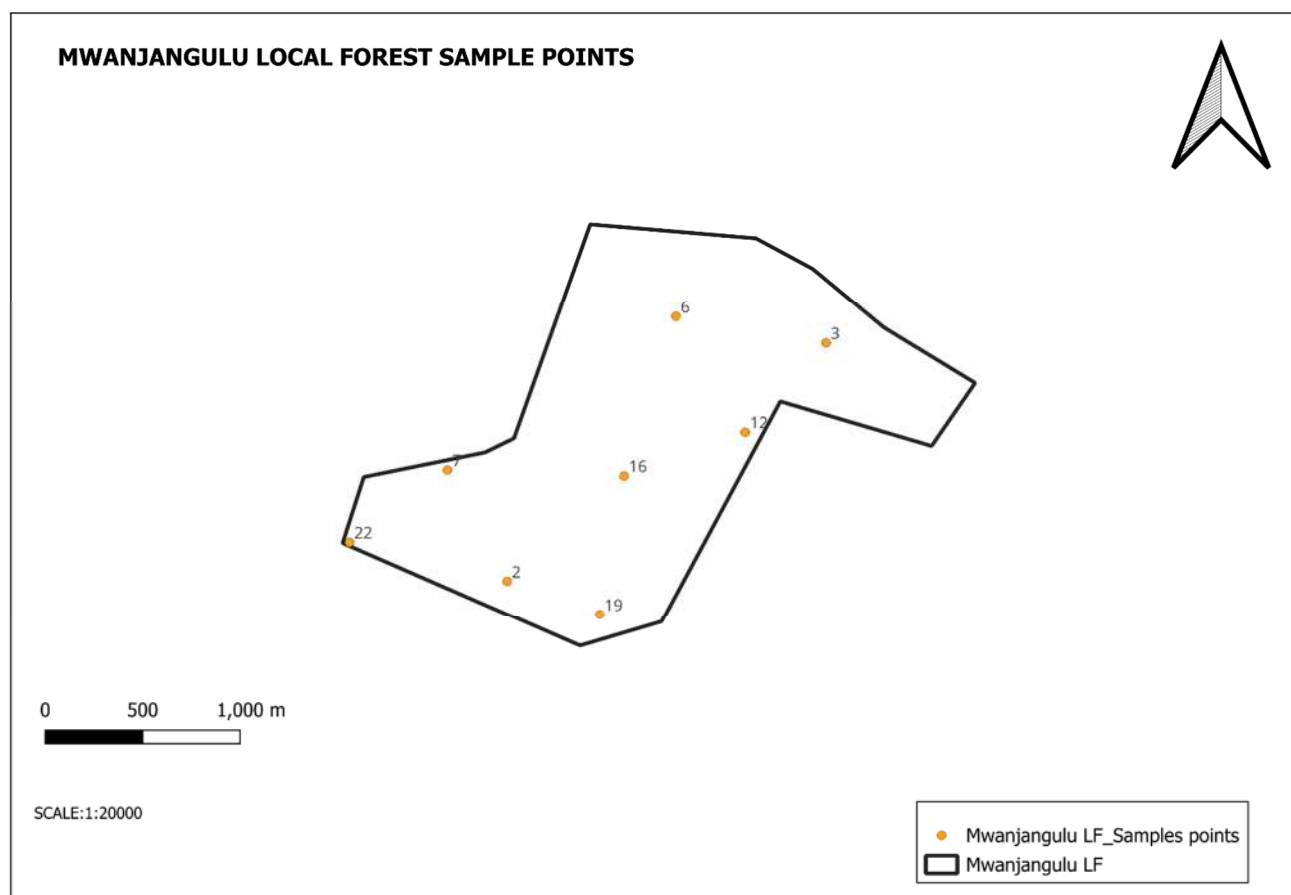
2 Map of forest zones relating to forest condition
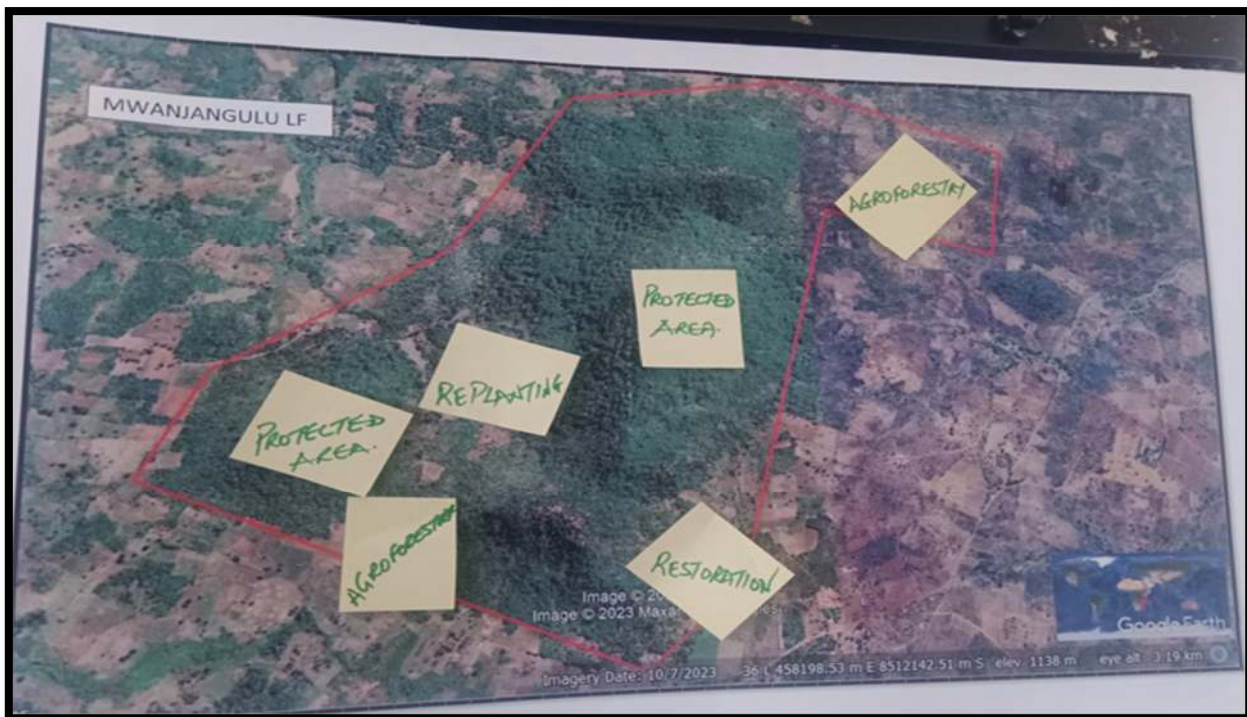
Annex II: Inventory Data Collection and Assessments

Species	Code	0-4	5-9	10-14	15-19	20-29	30-39	40+	Total
Density	Total	0.00	27.43	14.15	3.75	8.95	4.33	1.44	60.05
Acacia nigrescens	4	0.00	0.00	0.87	0.00	0.00	0.00	0.00	0.87
Afzelia quanzensis	13	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.29
Albizia adianthifolia	15	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.29
Albizia harveyi	19	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.29
Annona senegalensis	25	0.00	0.29	0.00	0.00	0.00	0.00	0.00	0.29
Bauhinia petersiana	34	0.00	4.91	2.89	0.29	0.58	0.00	0.29	8.95
Brachystegia boehmii	46	0.00	4.91	1.73	0.58	3.18	1.44	0.29	12.13
Brachystegia bussei	47	0.00	0.29	0.00	0.29	3.46	1.73	0.58	6.35
Brachystegia floribunda	48	0.00	0.29	0.00	0.00	0.00	0.00	0.00	0.29
Brachystegia longifolia	49	0.00	0.00	0.00	0.00	0.58	0.00	0.00	0.58
Brachystegia spiciformis	52	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.29
Bridelia cathartica	57	0.00	1.73	0.58	0.00	0.29	0.00	0.00	2.60
Bridelia duvigneaudi	58	0.00	0.00	0.58	0.00	0.00	0.00	0.00	0.58
Combretum molle	86	0.00	0.58	0.29	0.00	0.00	0.29	0.00	1.15
Combretum zeyheri	89	0.00	2.31	0.29	0.00	0.00	0.00	0.00	2.60
Cussonia arborea	98	0.00	0.29	0.00	0.00	0.00	0.00	0.00	0.29
Dalbergia nitidula	102	0.00	0.29	0.29	0.00	0.00	0.00	0.00	0.58
Dalbergiella nyasae	103	0.00	0.58	0.29	0.00	0.00	0.00	0.00	0.87
Diospyros kirkii	111	0.00	0.00	0.00	0.58	0.29	0.00	0.00	0.87
Diospyros mespiliformis	112	0.00	0.58	0.87	0.00	0.00	0.00	0.00	1.44
Diplorhynchus condylocarpon	114	0.00	8.08	2.89	0.58	0.00	0.00	0.00	11.55
Lannea discolor	194	0.00	0.58	0.58	0.29	0.00	0.00	0.00	1.44
Lannea stuhlmannii	199	0.00	0.00	0.29	0.00	0.00	0.00	0.00	0.29
Pericopsis angolensis	239	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.29
Pseudolachnostylis maprouneifolia	258	0.00	0.00	0.58	0.29	0.00	0.00	0.00	0.87
Pterocarpus angolensis	262	0.00	0.29	0.00	0.00	0.00	0.29	0.00	0.58
Pterocarpus chrysothrix	264	0.00	0.29	0.00	0.00	0.00	0.00	0.00	0.29
Pterocarpus rotundifolius	265	0.00	0.58	0.29	0.29	0.00	0.29	0.00	1.44
Strychnos cocculoides	288	0.00	0.00	0.58	0.00	0.00	0.00	0.00	0.58
Unknown	999	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.29
Zanha africana	336	0.00	0.58	0.29	0.00	0.00	0.00	0.00	0.87

Annex III: Demographics of major forest communities

Demographics of major forest fringe communities of Mwanjangulu local Forest

| village name | sex of household head | | Total | Population | | |
	female	male		males	females	total members
Akambachembe	0	6	6	11	14	25
Banda Richard	0	1	1	1	2	3
Beleyo	1	1	2	5	6	11
Benson	0	2	2	4	2	6
Bwenzi ukalima	0	1	1	5	1	6
Chikazesa farm	1	1	2	8	6	14
Chipepeso farm	0	3	3	7	5	12
Fusamutima farm	1	2	3	7	8	15
Godwin Daka farm	2	9	11	16	23	39
Kalimani farm	0	2	2	10	5	15
Kwapulani farm	2	4	6	12	18	30
Laida farm	0	2	2	5	4	9
Lole	2	5	7	11	13	24
Mabvuto farm	2	4	6	11	9	20
Matiya	3	1	4	6	8	14
Mbambo farm	0	7	7	18	9	27
Mtimbasonjo	2	9	11	14	23	37
Mudelanji farm	0	1	1	3	4	7
Muma	9	40	49	108	126	234
Muma Baptist Church	0	1	1	4	2	6
Mwatelo farm	3	6	9	12	24	36
Pauseni	2	16	18	60	45	105
Shupeni	3	25	28	62	66	128
Zanimuone farm	0	3	3	9	9	18
Zuana farm	0	1	1	1	1	2
Total	33	153	186	410	433	843

Table 16 Population Distribution of major forest fringe localities of the Reserve by sex

Annex IV: Stakeholder consultations

The Forestry Department in Eastern Province initiated a process to prepare forest management plans for 12 forest reserves with support from Zambia Integrated Forest Landscape Project (ZIFLP). In accordance with section 41 of the Forests Act, 2015, a process of engagement with traditional leaders was conducted in order to gain support from the Chiefs in the preparation of the Forest Management plans before the proposed data collection activities and later local validation meetings. It was planned to meet their Royal Highnesses to gain consent and have an input in these Forest Management Plans.

Therefore, the Chiefs under which Local Forest reserves fall were targeted with the following objectives.

- To provide a platform of getting the views of the concerned Chiefs, in relation to the respective developed forest management plans for forest reserves in their Chiefdoms.

- To collect and incorporate the agreed views from the Chiefs in the message pack for the local validation meeting.

Visitations

1. Paramount Chief - Mpezeni

Prior to meeting Ngoni Sub Chiefs, the first visit was to pay courtesy call to the Paramount Chief Mpezeni of the Ngoni speaking people, as Mwanjangulu local forest falls in Chief Mnukwa,

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

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

2. Meeting Chief Mnukwa of Chipangali District

At HRH's Chief Mnukwa's Palace the team briefed the HRH's about the upcoming validation meeting for FMP which included Mwanjangulu local forest and solicited for his input in the FMP. HRH's made their position very clear on Mwanjangulu local forest, they submitted that their desire was to practice community forest Management (CFM) in this forest reserve.

Annex V: Stakeholder validation meeting

REPORT FOR THE MANAGEMENT PLAN STAKEHOLDERS' VALIDATION MEETING HELD AT JEMITA LODGE IN CHIPATA ON 14TH DECEMBER 2023

Introduction:

The Forestry Department in 2021 undertook a forest inventory exercise to take stock of the forest resources in Mwanjangulu Local Forest (MLF) among others with the view of collecting data to inform the preparation of Forest Management Plans (FMPs). The FMPs are prepared to guide the community-government partnership in the management of protected forest areas (FPAs) in the Eastern Province. Following the forest inventory exercise, draft FMPs were prepared for all the FPAs in Eastern Province. The Stakeholders Validation Meeting for MLF was organized to validate the FMP for the MLF which was developed by the Forestry Department.

The meeting brought together 30 participants: (4 females and 26 males) drawn from government departments, Civic leaders, CSOs, private sector, community groups and traditional leaders.

Official Opening

The District Commissioner Chipangali officially opened the Mwanjangulu Local Forest FMP validation meeting

Meeting Objectives

The District Commissioner highlighted the main objectives of the meeting in his speech as:

- To raise awareness on Policy and legal framework relating protected forest areas such as Local and National and the need for the preparation of management plan for Mwanjangulu Local Forest.

- To further consult the local authority, local community, their chiefs as well as other stakeholders including those with rights, titles or interest in the forest area.

- To share findings from the forest resource and social assessments and discuss the issues affecting specific forest area with the aim to determine local solutions and opportunities for collaboration over protection, sustainable use and management of protected forest area

Structure of Meeting

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

Session 1: Why need for FMP

In the first session, Community was mainly invited to provide their input which would help in protecting and managing MLF, 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,

Importance of forests

- Soil conservation
- Co2 sequestration
- Habitat protection
- Water cycle

Local forests were declared for:

- Securing 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 Forests Act, National Policy and SI 11 of 2018 for Community Forestry Management. MLF 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 2: 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 the conducting the inventory was to inform the formulation of the FMP for MLF. To determine actual stocking, distribution of tree species carbon stocks and regeneration potential.

Findings

Majority of trees in the forest were between 5-14cm diameter class. 30 tree species were found in MLF and that MLF 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.

Session 3: Livelihood Survey Overview presentation (ZAMSTATS)

Below are the statistics:

- 186HHs with a population 843(410 males and 433 females).
- Economic activities 78.3% of HH engaged in agriculture, 8.3% business and 13.4 employed
- Land ownership: 13% didn't own any while 87% owned land.
- Willingness to plant trees: 87% expressed willingness while 13% declined
- HHs that use the forest resources: said they use the forest resources
- Source of energy for cooking: 97% used firewood and 3% charcoal.
- Willingness to participate in forest management: 88% were willing while the rest were not.

Session 4: 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.

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 Mwanjangulu Local Forest.

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

Figure 19 Stakeholders consultation meeting in progress

GROUP WORK
Identify in Mwanjangulu Local Forest

What- Uses of the forest
- Firewood
- Charcoal
- Caterpillar
- Timber
- Mushroom
- Medicine
- Wildlife
- Bamboos
- Grass
- Water
- Fibre
- Poles
- Animal grazing

Who- Uses the forest?
- Local people
- People from outside

ISSUES	Solutions/opportunities
Indiscriminate cutting of trees	-formation of local rules to stop cutting trees
Late fires	-Early burning
Illegal extraction of timber.	-Forest education

Mineral extraction illegally	-Involvement of traditional leaders
Poaching	-Sensitization
Soil erosion	Afforestation
Charcoal burning	Stiff punishment

Table 17 Issues and solutions

Permitted practices
- Water drawing
-Food
- Animal grazing
- Mushroom collection.
-Cutting of trees without permission.

Prohibited
-Charcoal production
-No farming
-Late fires
-No settlements.
-No cut of trees without permission

3.0 Zoning of forest
List permitted practices/prohibited practices in each zone identified.
List Suggestions/strategies to improve productivity/management of the forest.

What should be the priority?

- Afforestation
- Formation of committee
- Forest education

Who should be involved?
-Tradition leaders
-The community
-Govt._civic leaders
- Forestry dept.

- **How do we work together?**

-Cooperation in the community and make rules and regulations to manage the forest
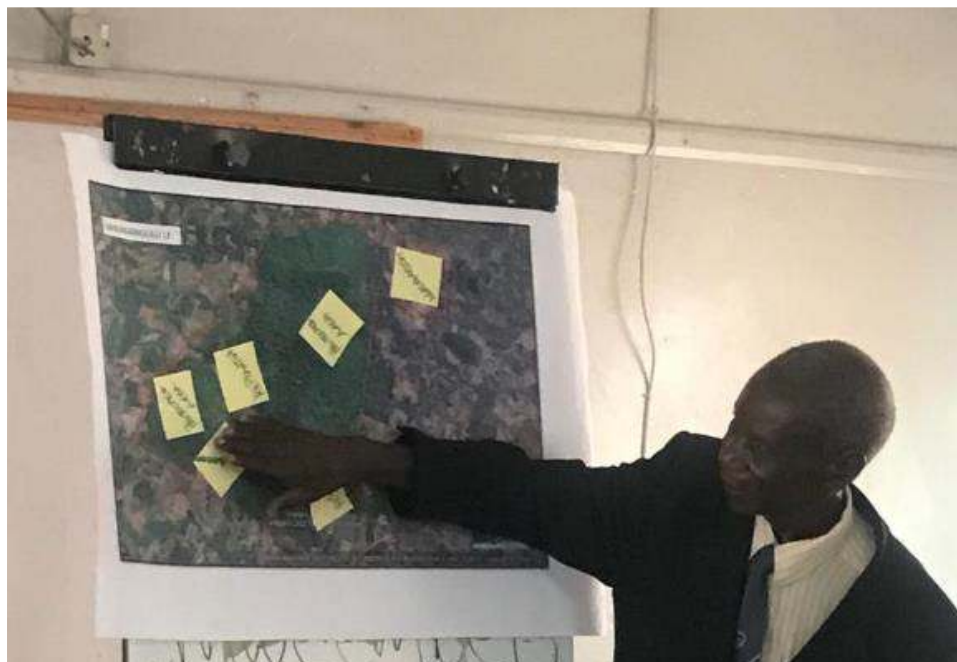
Declaration

The stakeholders meeting for Mwanjangulu Local Forest that was held on 14th December, 2023 at Jemita Lodge, in Chipangali district. The stakeholders signed a joint declaration pledging to collaborate in the sustainable management of Mwanjangulu Local Forest.

Mwanjangulu Local Forest
14/12/23

We the interested stakeholders agree:

→ Mwanjangulu LF is an important resource for the local community meeting local needs at the household level.

→ Issues of soil erosion & deforestation & lack of wildlife were highlighted

→ Damaging activities were identified & local solutions & strategies put forward including controlling damaging activities of grazing, over cutting trees, charcoal production as well as need for local rules and penalties

→ Priority activities include community sensitization, zoning the forest, planting trees, early burning & regenerating the forest

As concerned stakeholders, we are ready to work in partnership such that —

→ Management should include the Traditional leadership the Forestry Department, local Authority and civil society groups (churches & NGO's) - COMACO & others

Signed: _____ CHIEF'S REP   MEDSON KHUNGA
                                 Victor Nakhama

ABINALA. B. BANDA _____ AREA CLLR
FRACKSON SERACA _____ Headman Justine
C. member: _____ G.A. Banda
ACKIM Dalia VICE Chairperson _____
RUTH mbewe _____
CHONGO MWALE ZIHEAD _____
THERESA MWANDA HEAD TR _____
MUSONDA W. PHIRI CEO MOA _____
BLIM TILLER PIXO _____ PFO

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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

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- Hollingworth, L.T D. Johnson, G. Sikaundi, S. Siame, (2015) Fire Management Assessment of Eastern Province, Zambia. Washington. DC: USDA Forest Service.

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    The Food and Agriculture Organization of the United Nations and the Forestry Department, Ministry of Lands and Natural resources, Lusaka, Zambia

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    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: Forest Management Plan Indicative Budget

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	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	2,000	8,000								-	-	8,000
	3. Forming community level institutions to coordinate, manage and control local resource use in partnership with the Forestry Department.	Community meetings	4	3	1,500	18,000										18,000
To develop a shared management approach to forest protection, management and utilisation.	4. Developing forest product and issues based operational management plans for areas of interest.	Community meetings	4	2	1,500	12,000		-	-	13,200				-	-	25,200
	5. Agreeing roles, rights, responsibilities and obligations for shared management.	Community meetings	4	1	1,500	6,000		-	-	-	-		-	-	-	6,000
	6 Conduct training in control functions: Permits, rules, financial management, law enforcement	Community meetings	4	1	1,500	6,000		-	-	6,600	-	-	-	-	-	12,600
	7. Conducting joint monitoring and evaluation of management and benefit sharing measures to ensure a sustainable partnership.	Community meetings	4	1	1,500	6,000	6,600	7,260	7,986	8,785	9,663	10,629	11,692	12,862	14,148	95,625
2 To protect the Forest from late fires	Practice early burning within and outside the forest by involving local communities.	276ha	1	1	3000	3,000	3,300	3,630	3,993	4,392	4,832	5,315	5,846	6,431	7,074	47,812
To secure the boundary and define the extent of the boundary and prevent possible encroachment / 3	1 Carry out annual Boundary maintenance.	8.9km	1	1	20,000	20,000		22,000		24,200		26,620		29,282		122,102
	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.	6	1	300	1,800		-	-	-	1,800		-			3,600
To conserve and enhance the biodiversity of the forest reserve through environmental awareness and education. / 4	Enhance understanding of the forest ecosystem and its function and benefits to community groups and schools.	School visits	3	1	1,000	3,000		3,300		3,630		3,993		4,392		18,315
To significantly reduce levels of illegal forest product harvesting & other damage. / 5	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		979,564

Action 2: Forest Restoration through Community Participation & Livelihood Development

Objective	Activity	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
1. Enter into partnership with clear roles and responsibilities with surrounding communities	Promote community forestry approach / restoration planning	Community meetings	3	3	1,000	9,000	9,900	10,890	-	-	-	-	-	-	-	29,790
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	1,000	9,000	9,900	10,890	11,979	13,177	14,495	15,944	17,538	19,292	21,222	143,437
3. To reduce carbon emissions from agric soils and dependency on inorganic fertilizer	Promote CSA through Agroforestry	CSA ha	8	1	500	4,000	4,400	4,840	5,324	5,856	6,442	7,086	7,795	8,574	9,432	63,750
4. To significantly reduce levels of tree cutting for wood energy.	Promotion of energy efficient Cook stoves	Training	1	2	2,000	4,000	4,400	4,840	5,324	5,856	6,442	7,086	7,795	8,574	9,432	63,750
	Roll out programme	stoves woodlot	150	2	100	30,000	33,000	36,300	39,930	43,923	48,315	53,147	58,462	64,308	70,738	478,123
5. Reduce forest dependency by local communities.	Sources for forest products/ woodlots/ plantations	establishment	5	1	3,000	15,000	16,500	18,150	19,965	21,962	24,158	26,573	29,231	32,154	35,369	239,061
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	1,200	3,600	3,960	4,356	4,792	5,271	5,798	6,378	7,015	7,717	8,489	57,375
		Equipment	3	1	10,000	30,000	33,000	36,300	-	-	-	-	-	-	-	99,300
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	1,000	3,000	3,300	3,630	3,993	4,392	-	-	-	-	-	18,315
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	1,000	3,000	3,300	3,630	3,993	4,392	-	-	-	-	-	18,315
	2 Identify training needs.	Community meetings	3	1	1,000	3,000	3,300	3,630	3,993	4,392	-	-	-	-	-	18,315
	3 Monitoring safeguards & Grievances	Community meetings	1	1	1,000	1,000	1,100	1,210	1,331	1,464	1,611	1,772	1,949	2,144	2,358	15,937
9. To maintain the infrastructure necessary to achieve the multiple objectives of forest management.						-	-	-	-	-	-	-	-	-	-	-
															Action 2 Sub total	**1,245,468**

	Activity	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
10. Support the development of viable forest based enterprises	1. Beekeeping	Equipment	650	1	900	585,000										585,000
	2. 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
	3. 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
		Supply seedlings														-
		Monitoring	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
															Enterprise Sub total	**824,061**
															Grand total costs for the period of the Plan (ZMW)	**3,049,093**

Revenue

	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
														Ha	
1 Carbon trading benefit share EP-JSLP- Forest land	Carbon t/ha/yr inc 10% per yr	Hectare	224	0.7	75	11,760	12,936	14,230	15,653	17,218	18,940	20,834	22,917	25,209	27,729	187,424
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	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
4 Natural regeneration	Assume 1tC/ha inc to 2 t/ha yr 10	Hectare	3	0.7	75	158	173.3	190.6	209.6	230.6	253.7	279.0	306.9	337.6	371.4	2,510
															Revenue sub total	**232,456**
														Net cost	**ZMW**	**- 2,816,637**

Table 18 Cost tables

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.