

Publication Draft



REPUBLIC OF ZAMBIA

**MINISTRY OF GREEN ECONOMY AND
ENVIRONMENT**



LUNDAZI DAM LOCAL FOREST: P179

MANAGEMENT PLAN

2024-2034

APPROVAL PAGE

LUNDAZI DAM LOCAL FOREST No. P179 - FOREST MANAGEMENT PLAN

Notice of completion

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

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

Director of Forestry

Date: _____

Registration of the Forest Management Plan

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

Minister for Green Economy and Environment

Date: _____



FORESTRY DEPARTMENT

FOREWORD

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

Signature:

Director of Forestry

Date:

ACKNOWLEDGEMENTS

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

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

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

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

EXECUTIVE SUMMARY

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

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

Translating Policy into practice

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

Community based natural resource management is core to this Forest Management Plan. Through promoting community involvement in the management of Lundazi Dam 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 (ZIFLPO a Zambian Government initiative in the Ministry of Green Economy and Environment.

Forest resource & community well being assessment

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

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

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

on the forest can be seen in the species abundance and size distribution in the areas assessed. These as well as the current Policies and development priorities can guide the short, medium and long term management of Lundazi Dam Local Forest.

The inventory results indicate a total standing volume for all species in Lundazi Dam estimated at 1.3m³ per hectare, with a basal area figure of 0.2m² per hectare. These low figures for the type of forest confirms the status of Lundazi Dam Local Forest as a seriously degraded forest following past and most likely current high levels of exploitation of all sizes of trees. This confirms urgent need to bring the forest under sound management in the short and medium term.

Summary socio economic analysis

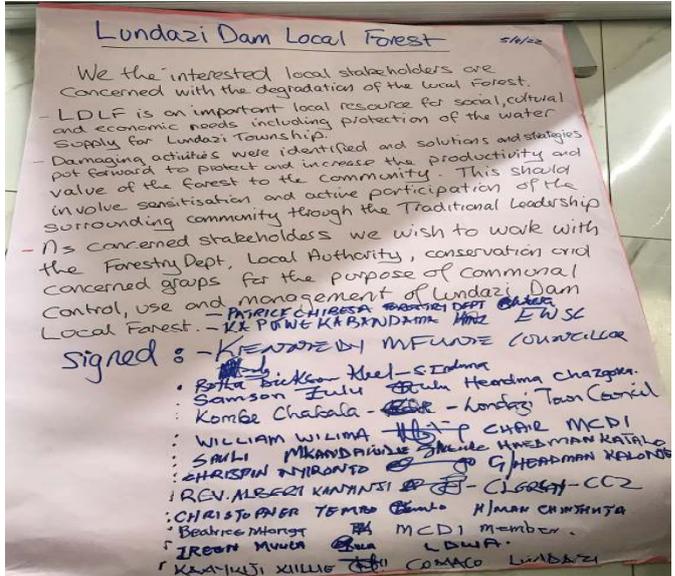
The livelihood survey conducted in 2019 indicated that Lundazi Dam Local Forest is surrounded by approximately 15 villages and the urban area of Lundazi municipality with a total population of 3,412. The results showed that 40 percent of the household population surrounding Lundazi dam LF reserve are in business as their main occupation, while the rest of economic activities contributed 25 percent those in farming and 21 percent in paid employment. The survey revealed about 63 percent use firewood as energy for cooking, while 2 percent using electricity (national grid) while 35 percent use charcoal as cooking energy. This shows that the forest is under pressure from the surrounding community. 90 percent of all the households interviewed were willing if called upon to voluntarily support management of the forest reserve with Forestry Department.

Forest change & issues analysis

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

Making a commitment to work together for change

As a statement of concern, but interest to work together with the Forestry Department, the Local Authority and Traditional leaders, stakeholders agreed the 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 Lundazi Dam Local Forest.



The declaration confirmed that Lundazi

Dam 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 Lundazi Dam 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.

Proposed management actions

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

1 Forest Conservation through Community Participation and Livelihood Development

Community empowerment is central to participatory forest management for the effective coordination and sustainable management of forest resources. This Plan recognizes that communities surrounding Lundazi Dam Forest Reserve 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 Lundazi Dam Local Forest. This will be achieved through promotion of community forestry and the establishment of a community forest management group to partner over the management of Zones 2 and 3 of the Local Forest, as well as a development zone (4) in the immediate surrounding area to promote greenhouse gas emission reduction interventions;

2 Forest Protection, Restoration, Management and Conservation of Biodiversity

Lundazi Dam 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 Lundazi Dam Local Forest and empowered through equal participation in decision making, governance and benefit sharing.

Contribution to Emissions Reduction in Eastern Province

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

Delivering sustained results

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

Definition of Terms

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

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

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

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

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

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

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

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

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

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

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

ACRONYMS

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

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

Forestry Programme	Cost in ZMW for 10 years
1 Forest Conservation through Community Participation and Livelihood Development	659,317
2 Forest Protection, Restoration, Management and Conservation of Biodiversity	2,436,464
Grand Total (ZMW)	3,095,781

Cost breakdown is provided in Annex VII

LUNDAZI DAM LOCAL FOREST MANAGEMENT PLAN

1 INTRODUCTION

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

1.1 Purpose of the forest management plan

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

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

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

1.2 Duration of forest management plan

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

1.3 Developmental Objectives

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

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

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

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

1.4 General Objectives

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

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

2 GENERAL DESCRIPTION

2.1. Location Details

Lundazi Dam Local Forest (Reserve No.P179) forms part of the forest estates in Eastern Province, covers a land area of approximately 324 hectares in extent with total perimeter of 7Km, and is situated approximately immediately south of the administrative centre of Lundazi District.

MAP SHOWING LUNDAZI DAM LOCAL FOREST NO 179 MARKED GREEN IN LUNDAZI DISTRICT.

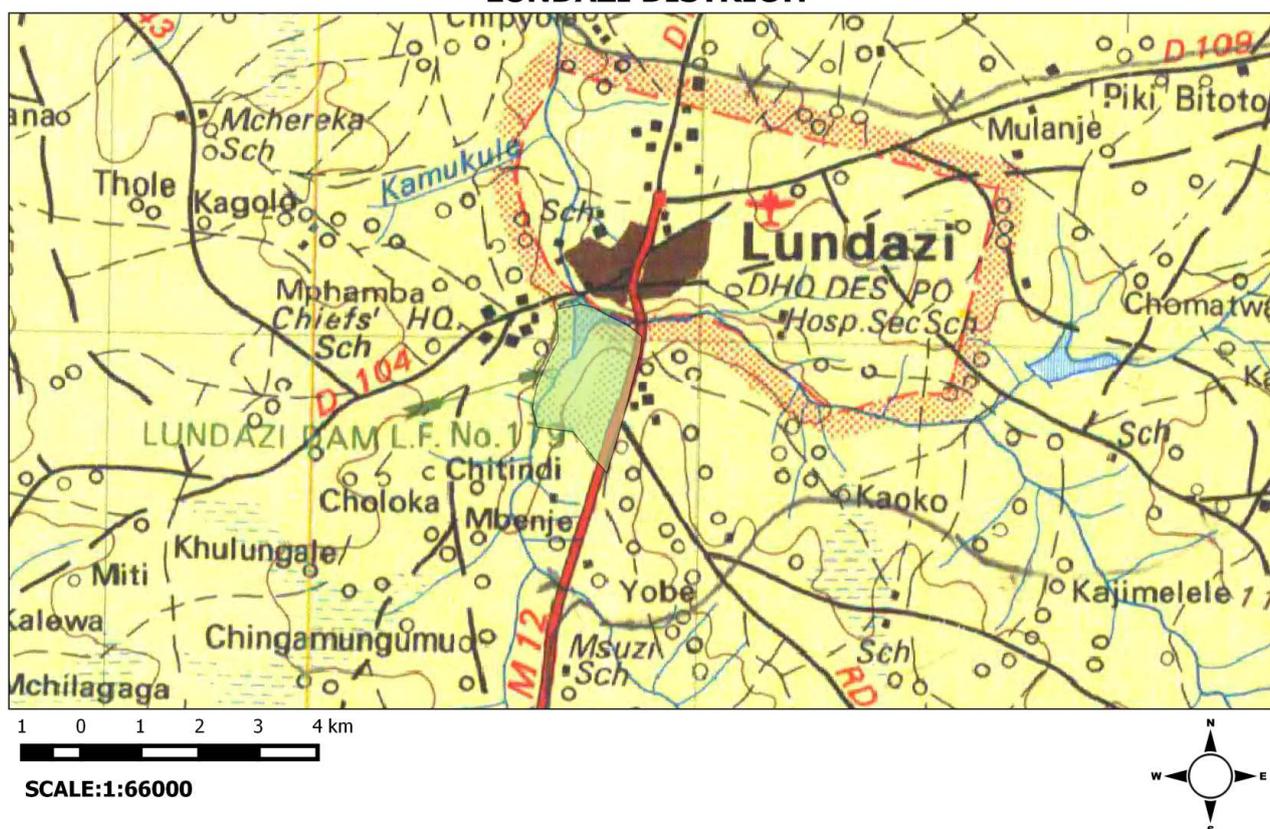


Figure 1: Map of Lundazi Dam Local Forest

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

2.2. Ownership and control

Lundazi Dam Local Forest No. P179, was originally declared a forest reserve and gazetted under Statutory Instrument No. 264 of 1966. It is a protected forest area with the designation of “Local Forest” covered by section 19 of the Forests Act, 2015. The area is under the jurisdiction of the Forestry Department, Ministry of Green Economy and Environment through powers bestowed under the Forests Act No. 4 of 2015 of the Laws of Zambia.

2.3. Physical Environment

2.3.1 Topography, Geology & Soils

The Lundazi Dam Local Forest is relative flat with few rock outcrop and geologically the area seems to be located on Precambrian metamorphic rocks characterized by gneiss with igneous intrusion of syenite. The Forest geologically has few rock outcrop and geologically the area seems to be located on Precambrian metamorphic rocks characterized by gneiss with igneous intrusion of syenite. The Forest is relative flat with few rock outcrop and geologically the area seems to be located on Precambrian metamorphic rocks characterized by gneiss with igneous intrusion of syenite.

2.3.2 Rainfall & Temperature

The rainfall usually last 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. The temperature usually is in the range from 27 to 34 during dry months between August and December. The hottest month is October.

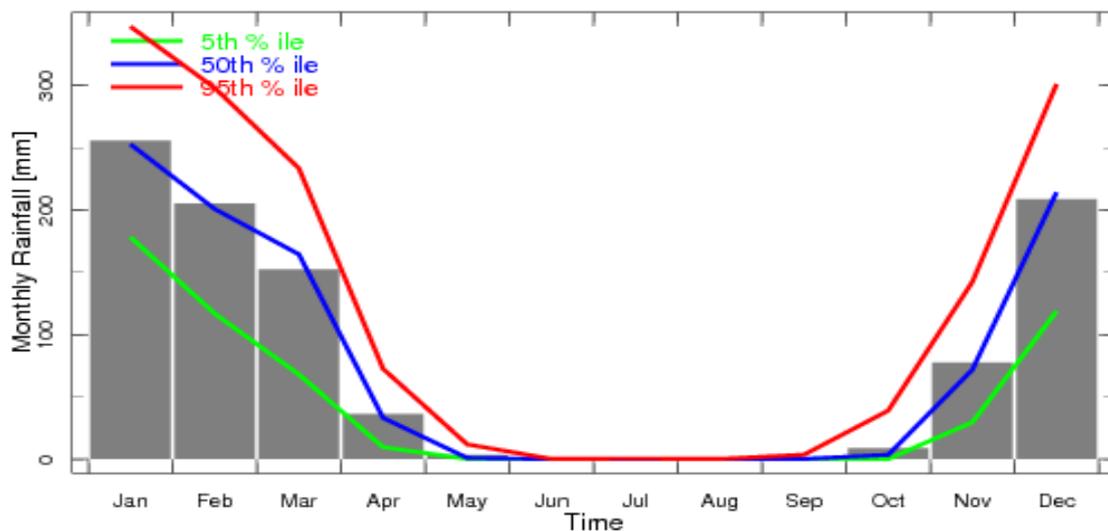


Figure 2: Monthly rainfall Source: The Zambia Meteorological Department

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

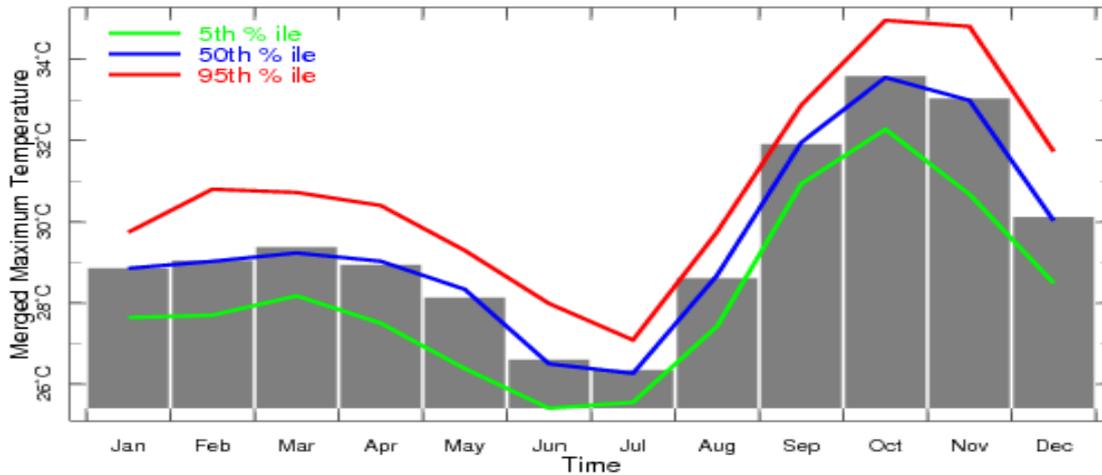


Figure 3: Monthly temperature Source: The Zambia Meteorological Department

2.4. Biophysical Environment

2.4.1 Vegetation Type

Lundazi Dam Local Forest is a homogeneous forest. The vegetation type is miombo woodland on the hilly area 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.

2.4.2 Fauna

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

2.5. Infrastructure and communication

The forest reserve is defined by statutory boundary and is well linked and accessed through the Lundazi –Chipata road. The cleared boundary around the forest reserve and some firebreaks which equally act as access ways exist in the forest reserve.

3 PAST MANAGEMENT

The Lundazi Dam Local Forest was declared and gazetted under S.I No.264 of 1966 as a Forest reserve under section 5 of CAP 105, the Forests Ordinance. Maps were later developed and in 1966 Lundazi Dam was declared as a forest reserve.

Following the internal restructuring of the Department under the Public Service Reform Programme (PSRP) in 1997 affected manpower as a number of officers were laid-off especially in the lower ranks who managed forest stations among them Lundazi Dam Local Forest. The reduced manpower especially from 2004 and onwards dynamics changed: Economic downturn, increase in population, high poverty levels, Forestry Department preparedness to cope with crisis was lacking compounded by delayed revision of Forest Policy of 1998 and legislation the Forests Act No.39 of 1973 and less treasury funding of planned activities affected smooth and development of forest operations in Lundazi Dam Local Forest. However, the current Forest Act no. 4 of 2015 addresses some of the challenges experienced in past forest management by involving communities surrounding forest reserves in the management.

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

4 GROWING STOCK

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

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

Stratum total by diameter class per hectare for all species

The outcome of key variables are tabulated in table 1 below. The Local Forest despite high levels of tree cutting mainly for domestic use, the forest reserve has the potential to regenerate if protected from illegal activities. The estimated stocking per hectare of number of stems per hectare 1,956 with highest stems in diameter class 20 to 29. Average basal area of 1.4m². Biomass and carbon total 1.39 and 0.6 tonnes per hectare respectively. The biomass and carbon stocks estimates methodological framework used is that developed by the IPCC documented in the 2006 guidelines for national greenhouse inventories volume 4, chapter 2 and 4.

Value	0-4	5-9	10-14	15-19	20-29	30-39	40+	Total
TOTAL vol m ³ /ha	0	1.067	0.65	0.571	1.589	3.598	1.767	9.241
Bole vol m ³ /ha	0	0.488	0.224	0.243	0.522	0.94	0.69	2.886
Density (SPH)	0	96	12	5	7	3	1	12

Basal area (m2)	0	0.314	0.143	0.114	0.306	0.362	0.161	1.4
Biomass (tons)	0	0.042	0.116	0.688	0.552	0	0	1.397
Carbon (Ton)	0	0.021	0.058	0.344	0.276	0	0	0.600
Volume by Species Use								
Value	0-4	5-9	10-14	15-19	20-29	30-39	40+	Total
Sawlogs	0	0	0	0	1.548	2.871	1.243	5.662
Poles	0	0.131	0.03	0.039	0.126	0	0	0.325
Medicine	0	0.309	0.234	0.343	0.677	1.253	0	2.816
Fruits	0	0.039	0	0	0	0.385	0	0.424
Firewood	0	0.588	0.380	0.189	0.780	1.595	1.086	4.629

Table 1. Distribution of Stratum total by diameter class per hectare for all species

4.1 Tree species abundance

The inventory data indicates that there are over 250 different types tree species that include tree seedlings in the forest. However, the ten most frequent species are shown below.

Table 2. Top Ten Abundant Species In The Forest Reserve

Species	Local Name	Species Code
Combretum molle		86
Brachystegia speciformis		52
Acacia polyacantha		6
Baphia bequaerti		30
Lanea stuhlmannii		199
Pterocarpus angolensis		262
Schrebera trichoclada		278
Piliostigima thonningii		244
Pseudolachnostylis maprouneifolia		258

Tree and Sapling Distribution by Size Classes

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

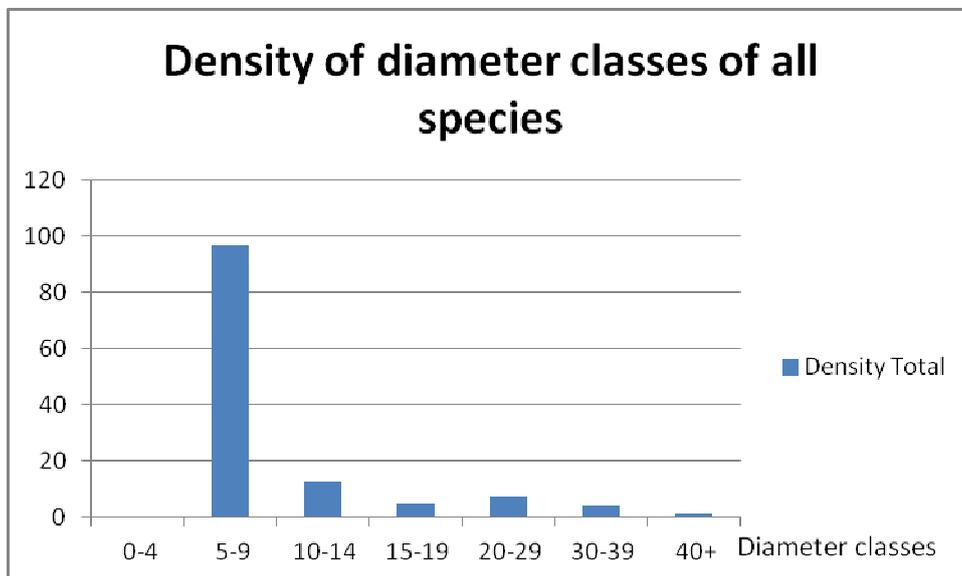


Figure 4: Density by diameter class/ha for all species

In Lundazi Dam Local Forest, a stocking density for trees ≥ 5 cm DBH was estimated as 126 stems per hectare. The stocking by diameter class basal area per hectare is more in 05 – 29cm classes and less from 30cm and above. The data indicates that there has been

much tree harvesting resulting in high coppicing and regeneration. This indicates that the forest in terms of growth potential is in a relatively healthy condition allowing succession from one size class to the next higher one. The data also indicates this is a secondary forest which reflects past management and exploitation. The species with the high density is *Combretum molle*, this is followed by *Brachystegia speciformis*, *Acacia polyacantha* and *Baphia bequaerti*. However, these trees need to be allowed to progress to the next successional size class, therefore need to be protected from illegal cutting, fires and other degrading factors.

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

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

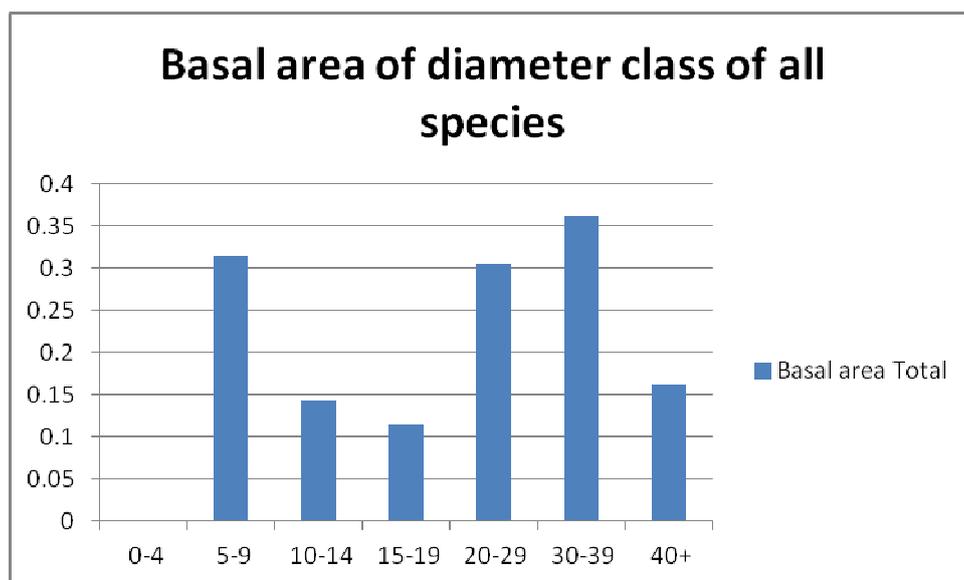
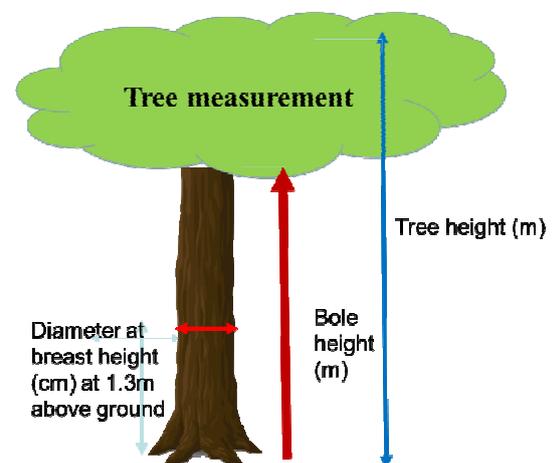


Figure 5: Basal area (m²) by diameter class/ha for all species

A figure of 1.4m² per hectare is a low figure for basal area in a similar type of forest type by over a factor of 10. This confirms the status of Lundazi Dam Local Forest as a secondary forest following past and most likely current high levels of exploitation of large sized trees. Again this emphasises the need for protection to achieve a more normal structured forest.



4.2 Total Volume, Biomass and Carbon estimate of all Species

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

The total standing volume for all species in Lundazi Dam is estimated at 9.2m³, with a total bole volume estimated at 2.9m³. Total Biomass for trees ≥5cm DBH is estimated 14.1 tonnes and it has an above ground carbon estimate of 7.1 tonnes. These reflect the high pressure and over exploitation of the Local Forest.

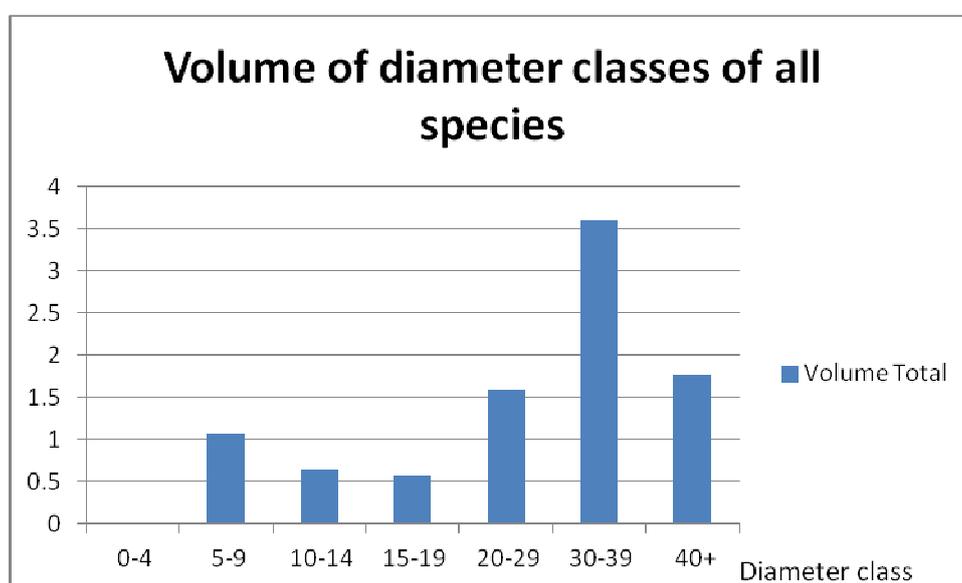


Figure 6: Volume (m³) by diameter class/ha for all species

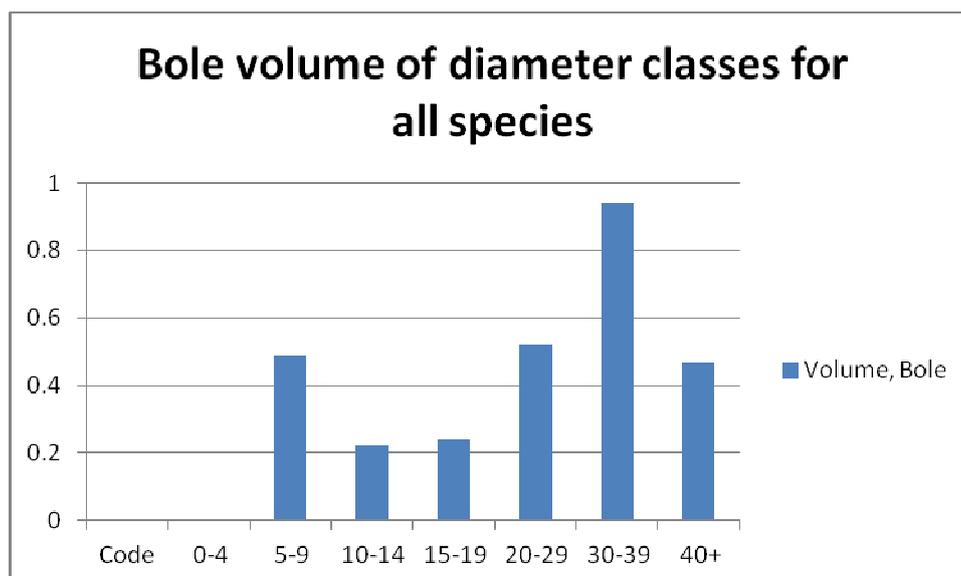


Figure 7: Bole volume (m³) by diameter class/ha for all species

Volume of all species by merchantable quality

Trees in Lundazi Dam Local Forest are relatively straight, about 90% of the trees assessed are straight and 7% are bent and 3% are crooked. Three quarters of the trees in Lundazi Dam are of harvestable quality, however, quantity is very low.

No	Description	Volume	Explanation
1	Straight	7.642m ³	The entire bole length of these trees are straight
2	Crooked	1.597m ³	These trees have bad form, they are crooked and cannot be sawn

Presence of Commercial Tree Species

Based on the inventory data, species used for high valued sawlogs such *Pericopsis angolensis*, *Pterocarpus angolensis*, and the medium valued are *Brachystegia speciformis* are not abundant in the forest. The harvestable volume is low. Therefore Lundazi Dam Local Forest in its current condition cannot sustain large scale logging operations or timber concession. Therefore the management objectives for this forest need to reflect the function of the forest in a peri-urban environment.

No	Description	Volume	Explanation
1	Sawlogs	1.0m ³	These are merchantable trees with the average diameter of 40cm dbh and above and are of exceptionally high valued suitable for timber production. Volume is low
2	Poles	0.3m ³	These are tree species with relative straight bole length with the average diameter at breast height of 5cm to 29cm
3	Fruits	0.4m ³	The tree species include all fruit bearing either edible or not edible
4	Medicinal	2.8m ³	All medicinal plants
5	Firewood	4.6m ³	These include all dead and or diseased trees which can be used for firewood

Table 2: Trees in Lundazi Dam local forest in terms of forest product categories.

Biomass and carbon above ground

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

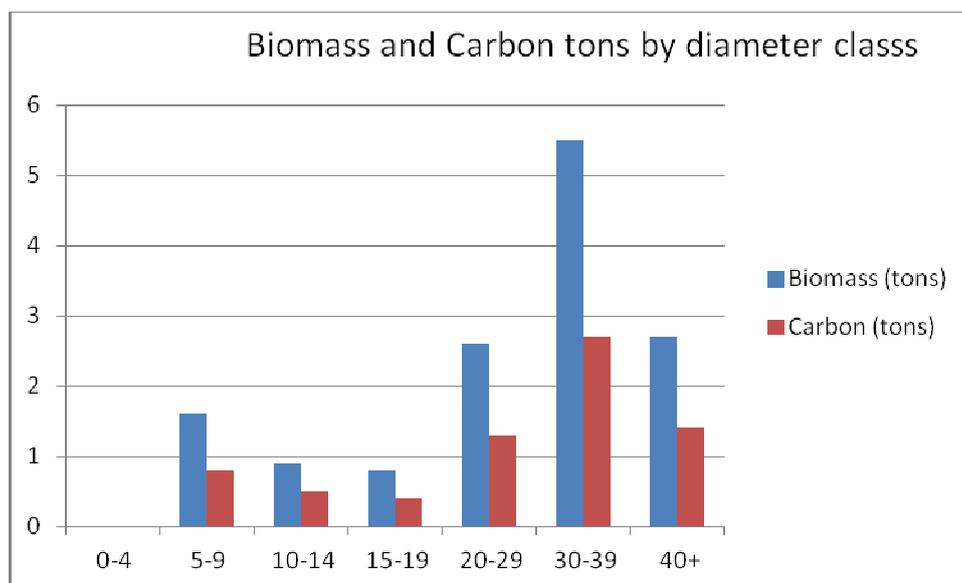


Figure 8: Biomass and Carbon above ground by diameter class/ha for all species

5. STAKEHOLDER DEMOGRAPHICS

5.1 Introduction & Methodology

Forestry livelihood survey was conducted by the Zambia Statistics Agency (Zamstats) Eastern Regional office, between October and November 2019. The main objective of the Forestry livelihood Survey is to measure the well-being of the Lundazi Dam LF reserve population and to measure the utilisation 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 Lundazi Dam LF reserve can be translated as having an Average size of the household membership of about 6 per household.

5.2. 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 $K = N/n$

5.3 Data analysis

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

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

5.1.1 Household and Population dynamics

Lundazi Dam Local Forest reserve as at 2019 livelihood survey was surrounded by approximately 15 villages and the urban area of Lundazi municipality with a total population of 3,412. The main ethnic groups in the area are the Tumbuka's. The forest adjacent population are mostly businessmen and women and small-scale farmers who utilize the forest for some of their livelihood requirements. The main crops grown are Maize, Soya beans and groundnuts. The land tenure of the population surrounding the Lundazi dam LF reserve is mostly under local council and customary land tenure system and not state land as most households have no title deeds or letter of allotment.

5.1.2 Level of Education.

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 Lundazi dam LF forest reserve was found to be mainly primary level that contributed **48 percent**, while tertiary contributed about **6 percent**. The rest being No formal education and secondary education indicating **13 percent** and **34 percent respectively**. As shown in the figure below:

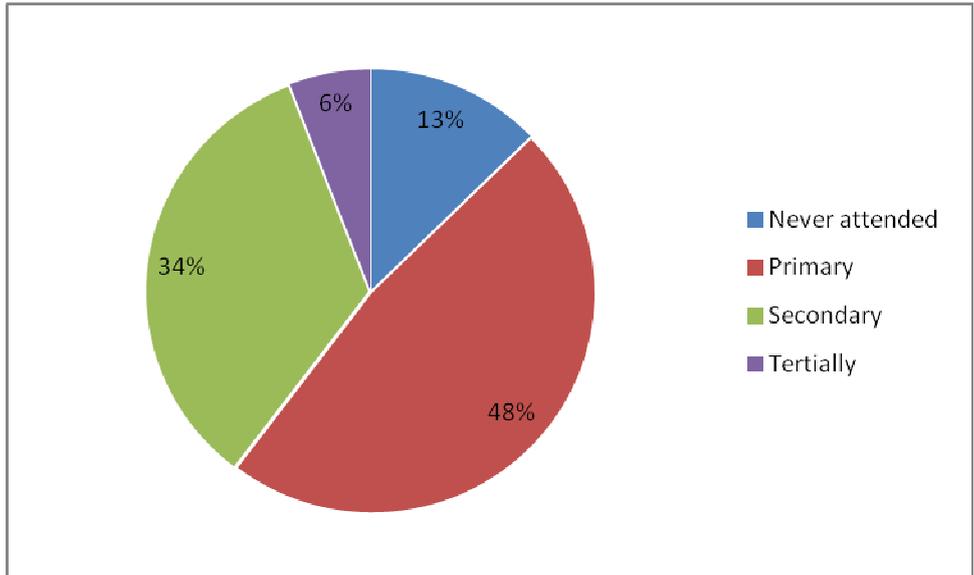


Figure:9 Level of Education of household heads of localities surrounding the Lundazi dam LF reserve

Economic activity

The results showed that 40 percent of the household population surrounding Lundazi dam LF reserve are in business as their main occupation, while the rest of economic activities contributed 25 percent those in farming and 21 percent in paid employment and 1 percent in fishing, while those no in any labour force contributed 13 percent.

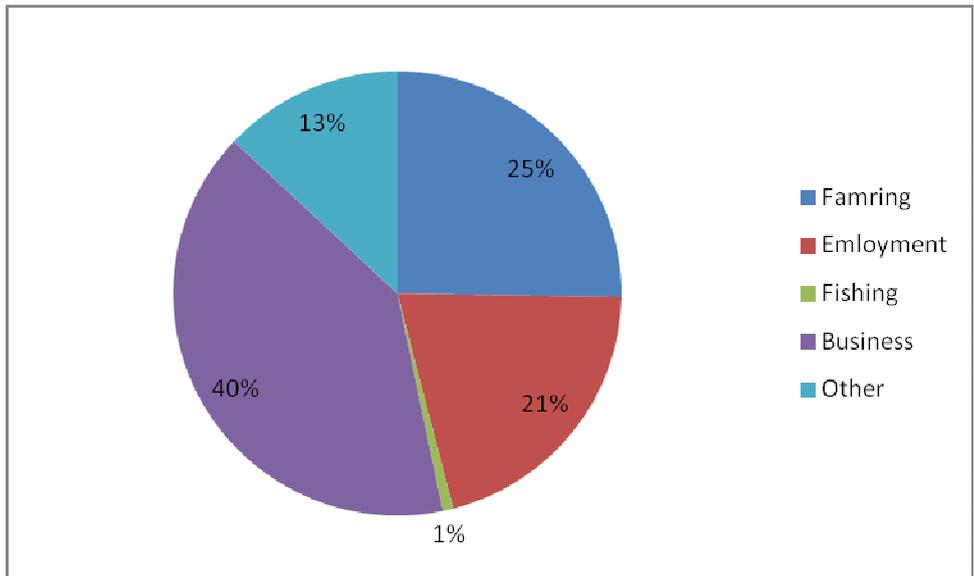


Figure 10. Shows percentage distribution of main economic activity

- **Utilization and zoning of forestry resources**

Lundazi dam LF consultative meeting held on 26th April, 2022, the stakeholders identified the uses of the forest reserve and zoned the Lundazi dam LF reserve as below:

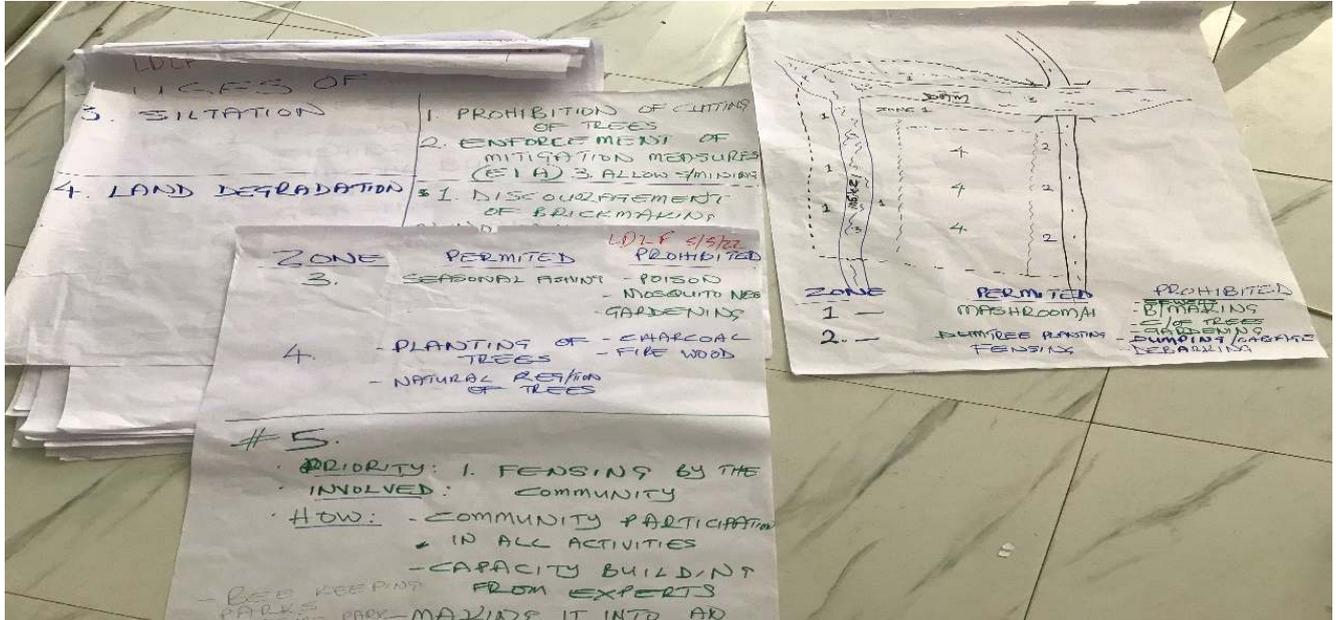


Figure 11: community zoning of Lundazi dam LF

The zones where identified for the following:

Zone 1. Along Msuzi river

- Mushroom harvesting

Zone 2. Along the Lundazi Chipata road

- Tree planting

Zone 3. The dam

- Fish (seasonal)
- Water points for livestock

Zone 4. Central part of the forest

- Tree planting
- Allow regeneration of natural trees

5.1.3.1 Types of Energy Used For Cooking

Almost all households in the localities surrounding Lundazi dam Local Forest reserve use firewood as their energy for cooking. The livelihood survey revealed a

percentage of about 63 percent using firewood as energy for cooking, while 2 percent using electricity (national grid) while 35 percent use charcoal as cooking energy. This shows that the forest is under pressure from the surrounding community.

As in figure below.

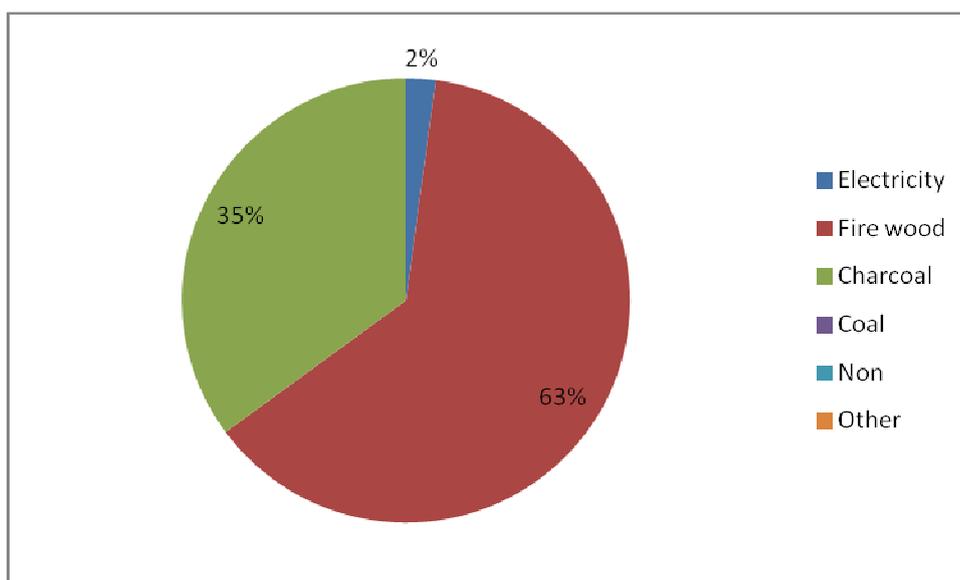


Figure 12 Shows percentage distribution of energy for cooking by households

5.1.3.2 Main tree resources used for firewood

The main tree resources used for firewood by households in the localities surrounding the Lundazi dam LF reserve are as shown in the table below.

Main Tree Resources Used – Lundazi Dam Local Forest Reserve	
<i>Brachystegia</i>	<i>Bohemii</i>
<i>Brachystegia</i>	<i>Spiciformis</i>
<i>Julbernadia</i>	<i>Globiflora</i>
<i>Diplorynchus</i>	<i>Condlocarpon</i>
<i>Pericopsis</i>	<i>angolensis</i>
<i>Pseudolachnostylis</i>	<i>maprouneifolia</i>
<i>Combretum</i>	<i>Collinum</i>

<i>Bauhinia petersiana</i>	<i>Collinum</i>
<i>Piliostigma</i>	<i>Thoningii</i>
<i>Brachystegia</i>	<i>Manga</i>
<i>Parinari</i>	<i>Curatellifolia</i>
<i>Julbenadia</i>	<i>Paniculata</i>

Table 3. Shows the main tree resource used for firewood

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

- **Non wood Forest products**

The main Non wood Forest products used by households surrounding the Lundazi dam LF reserve are as shown in the table below.

Non wood Forest products
Mushroom
Fruits
Grass
Medicine
Caterpillars

Table 4: Non Wood forest Products used by households surrounding the Lundazi dam LF Reserve

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

The livelihood survey revealed that 90 percent of all the households surrounding the Lundazi dam LF reserve were willing if called upon to voluntarily support management of the forest reserve with forest department and other stake holders in the community.

5.1.3.4 Land Ownership and Use

The livelihood survey for the communities surrounding the Lundazi LF reserve revealed that most of the land owned by the households was for Agricultural activities which indicated 69 percent, followed by other uses at 17 percent, fallow land 9 percent, Land maintained as Natural forest 3 percent and land used for growing trees at 2 percent.

5 PROPOSED MANAGEMENT ACTIONS

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

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

This management plan recognizes the 4 zones identified during the stakeholder consultation of May 2022, which identified use of the forest, the main users of the forest, issues affecting Lundazi Dam Local Forest, local solutions and permitted activities. A further zone (5) covers the immediate area surrounding the Local Forest to act as a buffer which will be the focus of development and emissions reductions related activities. The following zones are therefore indicated:

- Zone 1:** Riverine protection area
- Zone 2:** Boundary protection area
- Zone 3:** Wetland protection area
- Zone 4:** Forest restoration zone
- Zone 5:** Peri-Urban Development buffer zone



Figure 13: Zoning of Lundazi Dam Local Forest based on community consultation

The following management approaches are proposed for the identified zones:

Zone 1: Riverine protection area: In order to comply with environmental regulations, this zone will be managed to ensure proper riverbank protection through forest vegetation and ground cover to reduce potential for erosion and siltation of the Dam. Further, as a recreational area, riverine vegetation provides practical and aesthetic value to the Forest.

Zones 2: This is the area adjacent the Lundazi – Chipata road which is under the highest pressure for informal and illegal use access. While the stakeholder meeting recommended erecting a fence along this boundary, it is considered that a physical barrier only provides limited protection and that a process of community engagement is required in the first instance to gain consensus of the primary need to protect the forest to allow a period of regeneration, combined with a programme of reducing energy requirements and household demand through an energy use and efficiency programme. This could involve provision of energy efficient stoves in the surrounding area.

Zones 3: This relates to the water body comprising the dam area within the gazetted area;

Zone 4: Restoration area: The main focus within this zone is to re-establish tree cover and therefore conform with the purpose of the Local Forest. This will involve promoting forest restoration approaches, tree planting, regeneration of existing species

and coppicing, while tackling the core issue of illegal use through a variety of community initiatives.

Zone 5: This is the area immediately surrounding the reserved forest area where farming and settlements are located. These will be the focus for forest extension activities, creation of community and household woodlots, use of energy efficient stoves, promotion of agroforestry and other climate smart agricultural activities.

5.2 Core forest management actions

The identified management actions are described as follows:

Action 1: Forest Conservation through Community Participation & Livelihood Development

Community empowerment is central to participatory forest management for the effective coordination and sustainable management of forest resources. This Plan recognizes that communities surrounding Lundazi Dam 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 Lundazi Dam Local Forest. Within this management action, the following interventions will be undertaken in all Zones of the Local Forest as well as extension services and activities in Zone 5, the areas surrounding Lundazi Dam Local Forest;

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

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

Specific Objectives	Strategy	Actions	Responsible	Indicator
1. Enter into partnership with clear roles and responsibilities with surrounding communities	Promote community forestry approach	Conduct CFM Steps 1-7	FD	Signed CFM agreement. Annual work plan reports from the CFMG
2. To contribute towards meeting social, cultural and economic needs and improving the livelihoods of forest-adjacent communities.	Forest resource condition is developed and improved through management actions emphasizing the use of best practices.	Training forest-adjacent communities in sustainable forest enterprises, such as beekeeping, and other non- wood forest enterprises	FD/NGOs	Forest enterprise activities developed and producing income.
3. To reduce carbon emissions from deforestation and forest degradation by ensuring community benefit from carbon credits.	Establish an incentive benefit sharing mechanism through the carbon trading scheme to be established by Government in Eastern province	Stake holder participatory awareness meetings (Traditional leaders, Government, NGOs and the community)	FD/NGOs	Tonnage of GHG sequestered increased thereby income shared to community is improved year on year.
4 Reduce forest dependency by local communities.	Promoting diversification of activities,	Involve local communities in woodlot	FD/ Adjacent communities	Number of people dependent

	particularly on-farm activities such as agroforestry and establishment of wood-lots, to create alternative Sources for forest products.	establishment.		on the forests reserve reduced by half at mid term review
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Action 2; Forest Protection, Restoration, Management & Conservation of Biodiversity

Lundazi Dam Local Forest is an important forest ecosystem containing a number of different plant species and fauna. The forest is surrounded by an increasing population which is highly dependent on it for subsistence and increasingly economic needs like collection of mushroom, wild fruits, caterpillars, honey, firewood and poles. The level of unsustainable use is anticipated to intensify with increasing human populations resulting in higher levels of resource exploitation and degradation. Protection of this forest habitat is therefore essential to ensure the continued ecosystem services and local livelihood needs. In addition, awareness of the importance of ecosystem services, conservation of biodiversity and climate change mitigation services of Lundazi Dam Local Forest is low among the adjacent communities. Forest protection is therefore key in the sustainable management of forest resources. Traditionally, patrolling has been relied upon as the main protection activity but, despite these efforts and in view of the staffing levels, it has not been possible to control the level of unregulated use. Experience has shown that adequate levels of forest protection cannot be achieved through confrontation and conflict between the managers and forest-adjacent communities. In practice, both local people and the government have a mutual interest in conserving the forest, and utilizing forest products in a sustainable way. Without considering the needs of local communities, gaining their support, and working with them, rather than against them, forest protection and management goals and objectives will not be reached. Consequently, the strategy will be to work together with communities to develop joint protection systems in return for agreed levels of utilization within the capacity of the forest to meet subsistence needs whilst safeguarding the environmental aspects including conservation of biodiversity.

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

- Fire management, boundary and firebreak maintenance.
- Joint forest patrols (FD/HFOs).
- Promotion of agroforestry and woodlots in surrounding villages (Zone 5).
- Promotion of energy saving cook stoves and production biomass for energy (Zone 5).
- Promotion of environmental education to create wider awareness of the forest, its importance, and the need for its conservation (review Biodiversity Conservation actions to be included here explicitly).

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

No	Specific Objectives	Strategy	Actions	Responsible	Indicators
1	To protect the Local Forest from late fires	Encourage early burning within and outside the 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 paths entering the Forest	FD/ Community	Distance in km of forest perimeter cleared
3	To conserve and enhance the biodiversity of the	Enhance understanding of the forest	-Awareness on biodiversity with regard to	FD/NGOs	

	forest reserve.	ecosystem.	indigenous knowledge. -Promote local participation and ownership through meetings.		
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
6	To significantly reduce levels of tree cutting for wood energy.	Promotion of energy efficient Cook stoves and Alternative energy sources.	Training community members in construction of Permanent energy cook stoves. Provide incentives to people using the improved cook stoves.	FD/ DoE/ community	Volume of wood cut for energy reduced by 30% by mid term review
7	To reduce carbon emissions from agric soils and dependency on inorganic fertilizer	Promote CSA through Agroforestry	Partnership with MoA and others in training communities in CSA and	FD/ Agric/ CSO's/ community	Tonnage of GHG emissions in the forest reserve

			agroforestry.		reduced by 15% by mid year review.
8	To improve forest cover in the fringe areas of the forest reserve	To Provide Forest extension services.	Promotion of agroforestry and Woodlot establishment for communities surrounding the forest. Training the communities in assisted natural regeneration	FD	Hectarage of forest in the fringe areas increased year on year.
9	Improve local awareness of biodiversity and its value.	Seek greater participation of local communities in research and other biodiversity activities Such as eco-tourism, with the result that biodiversity values will become of more direct relevance to them.	1. Conduct research that documents and utilizes the indigenous knowledge of Forest-adjacent communities. 2. Promote local participation and benefits from eco-tourism as a means of creating better awareness of biodiversity	FD/Forestry Research	Levels of community participation in forest management activities is sustained over time.

5.3 Environmental and social safeguards and other crosscutting issues

The Forestry Department shall ensure that the management of Lundazi Dam Local Forest is carried out in accordance with the Environmental and Social Standards (ESSs) in relation to national policies as well as international standards and agreements, both multilateral and bilateral as appropriate. Existing requirements are set out in the National Strategy to Reduce Deforestation and Forest Degradation, 2016 as well as new

requirements that may come into force through the Eastern Province Jurisdictional Sustainable Landscapes Programme. In implementing the indicated management actions, these safeguards and other cross cutting issues will be mainstreamed in all aspects of forest management. In view of the participatory approaches applied in the development of the FMP and follow-up actions to promote community forestry it is expected that this FMP will have a positive impact upon local livelihoods and to provide support for the development of more sustainable or alternative livelihoods, where needed.

In brief, safeguards will ensure:

- Gender equity and empowerment including addressing issues of gender based violence. Women shall be integrated into all aspects of management of Lundazi Dam 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 Lundazi Dam Local Forest. This aspect should be in line with the National Gender Policy and Climate Change Gender Action Plan. Further safeguards in relation to emissions reductions benefit sharing plan for Eastern Province should be adhered to.
- Environmental and social screening processes. Specific activities as well as the annual workplan and operational plans should include a process of social and environmental screening. These should be reviewed and updated in accordance with the type of activity being planned and general screening reviewed annually.
- A Grievance redress mechanism will be operational at the District and Provincial level to allow a mechanism for grievances to be raised, documented and addressed. Documentation and tracking is core to this issue.

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

for social equity wellbeing and empowerment through sustainable development	needs. Promote ownership and access to forest products and services.			Zero grievances raised. Grievances addressed and closed within 3 months
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Environmental Education

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

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

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

6 STAKEHOLDERS ROLES AND RESPONSIBILITIES

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

Forestry Department

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

Role of the Local Authorities

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

Role of the Traditional Authorities

Traditional leaders play a vital role in providing mentorship and guidance to communities and helping resolve any conflicts and enforcement of customary laws relating to natural resource management. In terms of the community forestry approach, the chief plays a key role in providing consent to the process of recognition of the community and to the signing of the community forest management agreement between the community and the Director of Forestry. This agreement further reinforces the role of the traditional leaders in the oversight of the community forest management groups, including controlling access and use of the forest, hearing cases that cant be dealt with by the community, ensuring reporting and conduct of the election of office bearers is in conformity with the community constitution.

Role of communities

As key rights holders must take the lead in controlling access to the forest, ensuring benefits from sustainable use are maximized. Through the community forestry process roles, rights and responsibilities for controlling access and use as well as protection and

sustainable management are clearly defined. The local community are therefore core to the implementation of the management plan.

Role of Honorary Forest Officers

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

Role of Private sector & Civil society organization

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

7 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 Lundazi Dam Local Forest which will operationalise the management actions described in Chapter 6..

8.1 Monitoring

To ensure that implementation of the management plan is on course, FD will facilitate monitoring of activities and programmes in coordination with partners, stakeholders and community representatives in the LDLFMP 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 LDLFMP 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	Records, monitoring & Evaluation reports and photographs.	The plan is successfully implemented with funds made available.

	and attendance. -No of trainings held/exposure visits		
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 5: strategic monitoring indicators

8 REFERENCES

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

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

9 ANNEXES

Annex 1: Declaration Order, Topo Map & Inventory Map

SECTIONS 5 AND 6-THE LOCAL FOREST NO. P179:

LUNDAZI DAM (DECLARATION) ORDER

Order by the Minister

Statutory Instrument 264 of 1966

1. This Order may be cited as the Local Forest No. P179: Lundazi Dam (Declaration) Order. Title

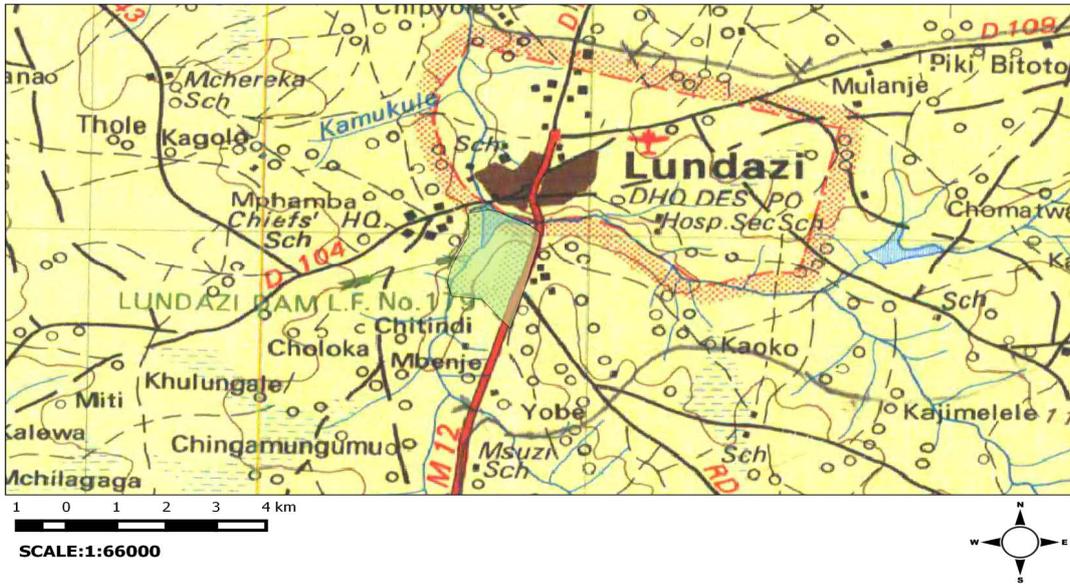
2. It is hereby declared that the area described in the Schedule hereto is a Local Forest.

SCHEDULE LOCAL FOREST NO. P179: LUNDAZI DAM

LOCAL FOREST NO. P179: LUNDAZI DAM Statutory Instruments 264 of 1966 , 66 of 1975 Starting at a point where the Lundazi-Chipata main road crosses the Lundazi Dam, the boundary follows the left bank of the dam to the spillway; thence along the top of the dam wall to a large fig tree approximately 91.144 metres south-west of the end of the said wall; thence along a cut line in a generally southerly direction for a distance of 2,154.94 metres to a point on the left bank of the Msuzi Stream; thence across the stream along a cut line for approximately 1,496.7 metres to a point on the eastern edge of the Lundazi-Chipata main road; thence northwards along a cut line parallel to, and 30.48 metres from the centre of this road, to the point where it crosses the Lundazi Dam, the point of starting. The Local Forest is shown bordered green on Plan No. FR246, deposited in the office of the Surveyor-General, signed by him and dated 5th January, 1966.

1. Map of Lundazi Dam Local Forest

MAP SHOWING LUNDAZI DAM LOCAL FOREST NO 179 MARKED GREEN IN LUNDAZI DISTRICT.



2 Map of Sample points



Annex II: Inventory Data

Density of Seedlings

Species	Code	Density
<i>Acacia polyacantha</i>	6	5.659
<i>Acacia sieberiana</i>	7	3.395
<i>Albizia antunesiana</i>	17	0.566
<i>Albizia versicolor</i>	20	2.264
<i>Baphia bequaerti</i>	30	6.791
<i>Brachystegia boehmii</i>	46	4.527
<i>Brachystegia floribunda</i>	48	0.566
<i>Brachystegia longifolia</i>	49	2.264
<i>Brachystegia manga</i>	50	1.698
<i>Brachystegia spiciformis</i>	52	9.054
<i>Canarium schweinfurthi</i>	63	0.566
<i>Cassia abbreviata</i>	68	3.395
<i>Combretum imberbe</i>	85	2.264
<i>Combretum molle</i>	86	27.728
<i>Combretum zeyheri</i>	89	0.566
<i>Cussonia arborea</i>	98	0.566
<i>Dalbergia nitidula</i>	102	0.566
<i>Diplorhynchus condylocarpon</i>	114	4.527
<i>Erythrina abyssinica</i>	125	0.566
<i>Ficus stuhlmannii</i>	154	0.566
<i>Julbernardia paniculata</i>	189	0.566
<i>Lannea discolor</i>	194	4.527
<i>Lannea stuhlmannii</i>	199	5.093
<i>Markhamia obtusifolia</i>	211	4.527
<i>Pericopsis angolensis</i>	239	2.829
<i>Piliostigma thonningii</i>	244	5.659
<i>Pinus patula</i>	250	4.527
<i>Pseudolachnostylis maprouneifolia</i>	258	5.093
<i>Pterocarpus angolensis</i>	262	5.093
<i>Rothmannia engleriana</i>	272	0.566
<i>Schrebera trichoclada</i>	278	6.225
<i>Strychnos innocua</i>	289	0.566
<i>Terminalia stenostachya</i>	305	0.566
Unknown	999	2.829

Annex III: Demographics of major forest fringe communities

Demographics of major forest fringe communities of Lundazi Dam Local Forest

Table 8: Population Distribution of major forest fringe localities of Lundazi Dam L Forest Reserve by sex

NAME OF COMMUNITY	POPULATION		TOTAL POPULATION	NAME OF COMMUNITY	HOUSEHOLDS		TOTAL NUMBER OF HOUSEHOLDS
	MALE	FEMALE			TOTAL MALE HEADED HOUSEHOLDS	TOTAL FEMALE HEADED HOUSEHOLDS	
Total	1598	1814	3412	Total	515	146	661
Kaluba Compound	334	342	676	Kaluba Compound	122	21	143
Islamic Centre	113	125	238	Islamic Centre	35	7	42
Mphamba	486	522	1008	Mphamba	144	38	182
Mwale Widson	3	2	5	Mwale Widson	1	0	1
Chinthuta	42	51	93	Chinthuta	16	5	21
Bukucha	88	121	209	Bukucha	28	13	41
Vinjelu	1	2	3	Vinjelu	1	0	1
Savya	2	7	9	Savya	1	0	1
Muller	17	17	34	Muller	5	1	6
Mphamba B	158	205	363	Mphamba B	46	26	72
Kabinda Day School	7	10	17	Kabinda Day School	3	0	3
Mphamba C	170	235	405	Mphamba C	64	17	81
Handson Shawa	9	10	19	Handson Shawa	4	0	4
Mtonga Farm	6	5	11	Mtonga Farm	0	1	1
DJ Farm	20	16	36	DJ Farm	4	0	4
Kataleni	20	13	33	Kataleni	5	2	7
Mphamba Local Court	16	21	37	Mphamba Local Court	6	1	7
Mphamba School	34	36	70	Mphamba School	10	4	14
Mphamba Shops	50	54	104	Mphamba Shops	16	6	22
Mphamba Chazaka	22	20	42	Mphamba Chazaka	4	4	8

Annex IV: Stakeholder consultations

2.0 Consultations

The forestry department in Eastern Province in its preparations for the first ever forest management plans for 13 forest reserves with support from Zambia Integrated Forest Landscape Project (ZIFLP).

In order to get gain support from the Chiefs in the preparation of the Forest Management plans before the proposed local validation meetings, it was inevitable that their Royal Highnesses are meet and have an input in these Forest Management Plans.

Therefore, the Chiefs under which Lundazi Dam 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.

Chief Mphamba of Lundazi District

At HRH Chief Mphamba's Palace the team was welcomed by the Chief himself in the company of three (3) Senior Indunas. 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 Team was led by the National Project Coordinator Dr. Tasila. During the courtesy call the Project Coordinator gave the background of forest inventories conducted in Lundazi dam LF reserve and the interventions that ZIFLP is helping, the importance of the Luangwa landscape and the areas of intervention like, agriculture expansion through interventions like 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.

HRH after being briefed the purpose of the visit started by narrating the rich background of Lundazi Dam local forest as an important catchment area for Lundazi river, dam and its small streams like Msuzi stream. He informed the team that an old tomb for Chief

Mphamba III of the Tumbuka people exists in the forest reserves and there are plans to work with FD to make it very sacred place.

HRH Chief Mphamba submission to the FMP

1. Since the forest is in the middle of the area that is quickly being urbanized there is great, and agent need to fence it off as pressure continue to increase.
2. Tree planting and ANR should be included in FMP for Lundazi dam LF.
3. Engage the surrounding communities to start CFM in this area.

The Chiefs meeting was preceded by stakeholders Validation Meeting for Lundazi dam Local forest that was organized to validate the FMP for the Local forest on 06th May 22. The Stakeholders Validation Meeting for the LDLF brought together 31 participants: 4 females and 27 males drawn from government departments, civic leaders, CSOs, private sector, CFMG and traditional leaders.

Annex V: Stakeholder validation meeting

**REPORT FOR THE LUNDAZI DAM LOCAL FOREST MANAGEMENT PLAN
STAKEHOLDERS' VALIDATION MEETING HELD AT TIGONE GUEST
HOUSE, LUNDAZI DISTRICT ON 5TH MAY 2022**

1.0 Introduction:

The Forestry Department in 2019 undertook a forest inventory exercise to take stock of the forest resources in Lundazi Dam Local Forest (LDLF) 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 LDLF in Lundazi was organized to validate the FMP for the LLF which was developed by the Forestry Department.

The Stakeholders Validation Meeting for the LDLF brought together 34 participants: 11 females and 23 males drawn from government departments, faith-based organisation, civic leaders, CSOs, private sector, cooperatives and traditional leaders.

Opening prayer was done by one of the stakeholders.

2.0 Official Opening

Mrs. Marjorie Banda, District Commissioner for Lundazi officiated at the LDLF FMP validation meeting.

The District Commissioner informed the participants that the formulation of Forestry Management Plans (FMPs) was required by law (Forestry Act No. 4 of 2015) to be validated by stakeholders. Hence the meeting was very important. The meeting was called to facilitate sustainable management of the LDLF which has had no FMP. In this regard the District Commissioner implored the stakeholders to constructively engage and contribute actively in the meeting. The District commissioner reiterated that FMP formulation is a legal obligation and

needed to be formulated and validated in a consultative and participatory way. The importance of the meeting could not be over emphasized.

3.0 Meeting's Expectations

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

- i) to get insight over what will be discussed;
- ii) be empowered to start protecting LDLF
- iii) to see reduced human activities in LDLF following this meeting

4.0 Meeting Objectives

As the meeting objectives were highlighted by the DC in her speech, they were repeated

5.0 Structure of Meeting

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

5.1 Presentations

Three main context setting presentations were made by the workshop facilitators:

- i) Policy and legal context; ii) Natural Resources profiles; and iii) Socio-economic profile

5.1.1 Policy and Legal Context

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

Integrated Forest Landscape Project (ZIFLP) and its significance in the sustainable forest management. The major highlights from the presentation were:

- The objectives of ZIFLP that is “To improve the landscape management and increase environmental and economic benefits for the targeted rural communities in the Eastern Province” was highlighted;
- The ZIFLP provided the Forestry Department with resources to enable it undertake its mandate and functions;
- Also highlighted in the presentation were the reasons that prompted government to implement the ZIFLP in Eastern Province which include the following on-going degradation, deforestation, unsustainable livelihood activities, low crop yields, increased adverse effects of climate change, and low community participation in forest management:
- The importance of forests in line with the legal framework were highlighted in the presentation such as soil conservation, carbon sequestration, water cycle and habitat protection;
- The ZIFLP was a REDD+ Project, to determine where Green House Gases (GHG) were being emitted and the sources of these emission, Green House Gases (GHG) baseline survey was conducted which revealed 3 main sources of GHG emissions in Zambia: degradation 46%, forestry loss to agriculture 16% and emissions from agriculture soils at 14 %. The underlying causes of the 3 main source of GHG emissions were also highlighted;
- Through ZIFLP government was not only intervening to arrest the situation but also to make the communities aware of the imminent consequences if no action was taken at national and subnational levels;
- An overview of selected of existing pieces of Forest legislation were shared such as the National Forest Policy 2014, National Strategy to Reduce Deforestation and Forest Degradation, National Forestry Act No 4 of 2015 among others. Contents such as vision, objectives and measures were also shared;
- Also presented were the policy and pieces of legal documents pertaining to LDLF. It was formerly, a Game Management Area (GMA) turned into a local forest. It was highlighted that LDLF was gazetted as a forest in 1966 as a

local supply of forest/plantation to Lundazi Boma and surrounding areas; to protect banks of Lundazi Dam from erosion and subsequent siltation of the dam, to conserve the amenity value of the Castle Hotel, a tourist attraction. Forest protection was important for both the present and future generation as provided for in the legal documents;

- The meeting was being held because sustainable forest protection and management required concerted efforts and that FMPs formulation was a legal obligation that needed to be done in a consultative and participatory manner;

Stakeholders' Observations and concerns

What happens to the people have encroached?

Concern was raised of the imminent siltation which will reduce the volume/capacity of the dam due to the unchecked construction of the bridge through the building materials such as sand which were silting the dam

5.1.2 Situation Analysis

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

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

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

- Total number Protected Forest Reserves in eastern province was 73: 11 NFs and 62 LFs covering 469,142 ha which translates to 9.2% of the total surface area of the eastern province. the total boundary area covers 2,042.7km;
- LDLF was initially gazetted in 1966 with total hectarage of 324,

- 36 Tree species were assessed;
- How volume was calculated/measured was demonstrated
- Also briefly explained was the history of FMPs in Zambia, where it was highlighted that there were two types: District FMPs and Plantation Management Plans.
- The sampling design used to select the sample plots in the survey was systematic sampling design through which sample plots were created and data was accordingly collected from all the sample plots;
- Parameters that were considered in the survey were highlighted and explained.
- Total CO₂ value was estimated at USD8,180 for 2,045 tons
- The key findings of the survey were that: LDLF was highly deforested but sustainably protected and managed, it can easily regenerate;

b) Social-Economic Profile.

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

- The Province undertook the Socio-Economic Survey in LDLF in 2019 alongside the Forest Inventory.
- At the time of the survey, the total population of villages surrounding LDLF that derived benefits from the forest was 3,412 (53% females and 47% males) comprising 78 male headed households and 22 female headed households;
- The main source of livelihood for the 25.3% of the people surrounding the Forest was agriculture, while 20.7% and 13% were in formal employment and small business respectively, some fishing, 40.2% It has a total of 661 households.
- Male headed households earned more than the female headed households
- Majority (12.4%) of the households depended entirely on forest timber and non-timber products for construction of their housing units while 68.4% had conventional houses

- 62.5% and 32% depended on other sources of energy and solar energy respectively for lighting. Majority (94.5%) of the sampled depended on firewood for cooking electricity 2.1%, 62.8% firewood, charcoal 35%. As much as 95.1% depended on firewood for heating while 62.5% did not use any source of energy for heating
- 84.6% of the sampled population used improved water sources as their main source of water supply while unimproved water sources accounted for 15.4%;
- As much as 94% of the total sample population expressed willingness to protect and manage the LLF and only 6% expressed lack of willingness;

Clarifications raised by participants included:-

- ✚ Do you use the same method to calculate the volume and capacity in the tree and roots?
- ✚ Is the forest inventory data uploaded to enhance access and utilization?
- ✚ Is it possible to venture into eco-tourism as a way to protect such as forest?
- ✚ Are there harmful trees for human consumption in LDLF, if yes what was being done about it?
- ✚ What should be done with those who were given plots near the dam and would want to construct soakaway, what measures should be put in place to protect the dam from contamination.

4.2 Group Work

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

- ✚ Identify issues and suggest possible solutions;
- ✚ Identify priorities and strategies;
- ✚ Identify uses of the forest and map where they were most prevalent
- ✚ Zone the FPA and identification of practices which should be allowed or not allowed in the respective zones

- ✚ Who should be involved in the management of LDLF, how should they be selected, their role, office tenure, what authority in terms of decision making should they make, who decides, how should the benefits be shared?

4.2.1 Group Presentations

The Groups made presentations to facilitate agreement of the strategies and partnership for management. Arising from the group presentations, Mr. Anton presented the synopsis of the situation Analysis as presented by the participants.

5.0 Next steps

Mr. Anton facilitated the session on next steps. Below were the agreed next steps/way forward

- Forestry Department team to capture the issues, strategies and recommendations from the meeting and report the interests and concerns to the Provincial Forestry Office and the Forestry Department Headquarters
- Brief Chief Mphamba on the proceedings of the meeting
- Forestry Department Team to secure funds for:
 - Follow up meetings on forming a stakeholders coordinating and management group. And develop the roadmap and process
 - Supporting commercial multi-stakeholder management of LDLF

6.0 Collaboration Declaration Pledge

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

“We the interested local stakeholders are concerned with the degradation of LDLF. LDLF is an important local resource for social, cultural and economic needs including protection of the water supply for Lundazi Township.

Damaging activities were identified and solutions and strategies put forward to protect and increase the productivity and value of the forest to the community.

This should involve sensitization and active participation of the surrounding communities through the traditional leadership.

As concerned stakeholders we wish to work with the Forestry Department, Local Authority, conservation and concerned groups for the purpose of communal control, use, and management of LDLF”

7.0 Closing Remark and Prayer

Mr Katebe thanked everyone for attending the workshop and contributing through their inputs in perfecting the FMP.

Annex VII: Cost of Implementing management actions

The various prescribed activities are outlined and their corresponding estimated costs are indicated in the following tables:

Table 1. Forest Protection and Management

Specific Objective	Prescribed treatment	Unit of Measure	Quantity	Frequency	Unit Cost	Total Cost Year 1	Total Cost Year 2	Total Cost Year 3	Total Cost Year 4	Total Cost Year 5	Total Cost Year 6	Total Cost Year 7	Total Cost Year 8	Total Cost Year 9	Total Cost Year 10
To secure the boundary and define the extent of the boundary and prevent possible encroachment.	Carry out annual external boundary maintenance in accordance with the boundary maintenance schedule.	7Km	1	1	12,500.00	12,500.00	13,750	15,125	16,638	18,301	20,131	22,145	24,359	26,795	29,474
	Forest beacon maintenance	No.	10	1	650	6,500.00	7,150	7,865	8,652	9,517	10,468	11,515	12,667	13,933	15,327
	Erection of sign post on roads entering the Forest	No.	6	1	300	1,800.00	1,980	2,178	2,396	2,635	2,899	3,189	3,508	3,858	4,244
To significantly reduce levels of illegal forest product harvesting.	Conduct sensitization meetings	No.	4	1	2,000.00	8,000.00	8,800	9,680	10,648	11,713	12,884	14,172	15,590	17,149	18,864
	Conduct forest patrols	No	8	3	800	19,200.00	21,120	23,232	25,555	28,111	30,922	34,014	37,415	41,157	45,273

To protect Forest Reserve from late fires	Conduct prescribed and early burning.	Ha	324	1	0	0.00	0	0	0	0	0	0	0	0	0
	Training the local communities on fire management techniques	No	2	1	2,500.00	5,000.00	5,500	6,050	6,655	7,321	8,053	8,858	9,744	10,718	11,790
	Sensitizing the local community on the importance of early burning.	No.	2	1	2,000.00	4,000.00	4,400	4,840	5,324	5,856	6,442	7,086	7,795	8,574	9,432
To ensure protection against pests, fire, and human damage for the sustainability of forest resources	Inspections for diseases and pests, and detection of possible illegalities.	No	2	1	15,000.00	30,000.00	33,000	36,300	39,930	43,923	48,315	53,147	58,462	64,308	70,738
To improve forest cover in the fringe areas of the forest reserve	Woodlot establishment for communities surrounding the forest.	No	20	1	1,500.00	30,000.00	33,000	36,300	39,930	43,923	48,315	53,147	58,462	64,308	70,738
Subtotal						117,000.00	128,700	141,570	155,727	171,300	188,430	207,273	228,000	250,800	275,880

Table 2. Biodiversity Conservation

Specific Objective	Prescribed treatment	Unit of Measure	Quantity	Frequency	Unit Cost	Total Cost Year 1	Total Cost Year 2	Total Cost Year 3	Total Cost Year 4	Total Cost Year 5	Total Cost Year 6	Total Cost Year 7	Total Cost Year 8	Total Cost Year 9	Total Cost Year 10
To conserve and enhance the biodiversity of the forest reserve.	Promote local participation and ownership through	No	2	2	2,000.00	8,000.00	8800	9680	10648	11712.8	12884.08	14172.488	15589.7368	17148.71048	18863.58153

	meetings.														
Improve local awareness of biodiversity and its value.	Awareness on biodiversity with regard to indigenous knowledge through drama.	No.	2	2	2,500.00	10,000.00									
							11000	12100	13310	14641	16105.1	17715.61	19487.171	21435.881	23579.47691
Subtotal						18,000.00	19,800	21,780	23,958	26,354	28,989	31,888	35,077	38,585	42,443

Table 3. Community Conservation and Livelihood Development.

Specific Objective	Prescribed treatment	Unit of Measure	Quantity	Frequency	Unit Cost	Total Cost Year 1	Total Cost Year 2	Total Cost Year 3	Total Cost Year 4	Total Cost Year 5	Total Cost Year 6	Total Cost Year 7	Total Cost Year 8	Total Cost Year 9	Total Cost Year 10
To contribute towards meeting subsistence needs and improving the livelihoods of forest-adjacent communities.	Training forest-adjacent communities in sustainable forest enterprises such as beekeeping, gardening and other non-wood forest enterprises	No	3	2	10,000.00	60,000.00									
							66000	72600	79860	87846	96630.6	106293.66	116923.026	128615.3286	141476.8615
Reduce forest dependency by local communities	Involve local communities in woodlot establishment.	No.	4	1	4,000.00	16,000.00									
							17600	19360	21296	23425.6	25768.16	28344.976	31179.4736	34297.42096	37727.16306
Subtotal						76,000.00	83,600	91,960	101,156	111,272	122,399	134,639	148,102	162,913	179,204

Table 4. Environmental Education.

Specific Objective	Prescribed treatment	Unit of Measure	Quantity	Frequency	Unit Cost	Total Cost Year 1	Total Cost Year 2	Total Cost Year 3	Total Cost Year 4	Total Cost Year 5	Total Cost Year 6	Total Cost Year 7	Total Cost Year 8	Total Cost Year 9	Total Cost Year 10
To create wider awareness of the forest, its importance, and the need for its conservation	Conduct meetings and drama performances to assess community understanding on forest use and conservation.	No	2	1	2,500.00	5,000	5,500	6,050	6,655	7,321	8,053	8,858	9,744	10,718	11,790
	Sensitization on Climate change. Produce pamphlets on the need for forest Conservation. (Local language).	No.	2	1	2,500.00	5,000	5,500	6,050	6,655	7,321	8,053	8,858	9,744	10,718	11,790
	Facilitate the formation of forest conservation clubs in surrounding schools.	No	2	1	2,000.00	4,000	4,400	4,840	5,324	5,856	6,442	7,086	7,795	8,574	9,432
	Conduct school quiz on forest conservation/climate change.	No	2	1	5,000.00	10,000	11,000	12,100	13,310	14,641	16,105	17,716	19,487	21,436	23,579
	Conduct study visits to other areas and projects to gain practical and potentially useful experiences from	No	1	1	25,000.00	25,000	27,500	30,250	33,275	36,603	40,263	44,289	48,718	53,590	58,949

Subtotal		49,000	53,900	59,290	65,219	71,741	78,915	86,806	95,487	105,036	115,539
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Table 5. Human Resource Development.

Specific Objective	Prescribed treatment	Unit of Measure	Quantity	Frequency	Unit Cost	Total Cost Year 1	Total Cost Year 2	Total Cost Year 3	Total Cost Year 4	Total Cost Year 5	Total Cost Year 6	Total Cost Year 7	Total Cost Year 8	Total Cost Year 9	Total Cost Year 10
To Improve skills for effective management	Short courses Exchange visits, Refresher courses	No	1	1	30,000.00	30,000	33,000	36,300	39,930	43,923	48,315	53,147	58,462	64,308	70,738
To build capacity in the local members for effective performance	Training.	No.	2	2	8,000.00	32,000	35,200	38,720	42,592	46,851	51,536	56,690	62,359	68,595	75,454
Subtotal						62,000	68,200	75,020	82,522	90,774	99,852	109,837	120,820	132,903	146,193

Table 6. Infrastructure Development

Specific Objective	Prescribed treatment	Unit of Measure	Quantity	Frequency	Unit Cost	Total Cost Year 1	Total Cost Year 2	Total Cost Year 3	Total Cost Year 4	Total Cost Year 5	Total Cost Year 6	Total Cost Year 7	Total Cost Year 8	Total Cost Year 9	Total Cost Year 10
To establish and maintain the infrastructure necessary to	1. Lobby for Maintenance the access roads to forest reserve.	Km	1	1	30,000.00	30,000	33,000	36,300	39,930	43,923	48,315	53,147	58,462	64,308	70,738

achieve the multiple objectives of forest management.	2. Lobby for maintenance of forest camp infrastructure office and houses	No	8	1	200,000	1,600,000	0	0	0	0	0	0	0	0	0	0
Subtotal						1,630,000	33,000	36,300	39,930	43,923	48,315	53,147	58,462	64,308	70,738	

Table 7. Research, Monitoring & Evaluation

Specific Objective	Prescribed treatment	Unit of Measure	Quantity	Frequency	Unit Cost	Total Cost Year 1	Total Cost Year 2	Total Cost Year 3	Total Cost Year 4	Total Cost Year 5	Total Cost Year 6	Total Cost Year 7	Total Cost Year 8	Total Cost Year 9	Total Cost Year 10
To conduct research to enhance regeneration potentials of important tree spp.	Identify the important trees based on demand for the research and their locations in the reserve.	No.	3	3	4,000.00	36,000	39,600	43,560	47,916	52,708	57,978	63,776	70,154	77,169	84,886
	Lay plots at the identified locations.	No	3	3	5,000.00	45,000	49,500	54,450	59,895	65,885	72,473	79,720	87,692	96,461	106,108
	Regeneration potentials of the identified trees would be observed.	Ha	0	0	0	0	0	0	0	0	0	0	0	0	0
continuously conduct research on community	Identify all forest fringe communities.	No	0	0	0	0	0	0	0	0	0	0	0	0	0

interactions in forest reserve	Socio-economic survey would be conducted for the forest fringe community with assistance from CSO	No	1	1	20000	20,000	22,000	24,200	26,620	29,282	32,210	35,431	38,974	42,872	47,159
To attain improved understanding of the forest and its usage, in conformity with the Management Plan.	Implement the Management plan and monitor activities	No	1	1	30,000	30,000	33,000	36,300	39,930	43,923	48,315	53,147	58,462	64,308	70,738
	Evaluate the implementation	No	1	1	40,000	40,000	44,000	48,400	53,240	58,564	64,420	70,862	77,949	85,744	94,318
Subtotal						171,000	188,100	206,910	227,601	250,361	275,397	302,937	333,231	366,554	403,209
Grand-Total						2,123,000	575,300	632,830	696,113	765,724	842,297	926,526	1,019,179	1,121,097	1,233,207



REPUBLIC OF ZAMBIA

Ministry of Green Economy & Environment

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

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

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



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